Halton District School Board

HDSB RFX Front End - Goods & Services

RFT 26-085 (the RFX)

Interior Renovations and Elevator Addition - King's Road Public School

Issue Date: July 29, 2026

Closing Date and Time: All Submissions are to be submitted electronically via email to chatelaina@hdsb.ca no later than 2:00 p.m. local time, on August 26, 2026.

Questions:

All questions to be submitted in writing through hdsb.bidsandtenders.ca using the "Submit a Question" link associated with this bid request. Questions are required to be received no later than the question deadline outlined in the bid request.

Purchasing Representative:

Name: Amanda Chatelain
Email Address: chatelaina@hdsb.ca

Site Meeting

Date: August 12, 2026
Location: King's Road Public School, 660 Greenwood Dr, Burlington, ON L7T 3P3
Time: 10:00 a.m.
Note: Proponents are to meet at the front entrance of the HDSB location.

Communications Notice

To obtain documents online please visit: https://hdsb.bidsandtenders.ca

If you subscribe to bids & tenders you can login to your account to download the document(s) without the preview watermark. You may also opt to purchase a one-time download for this opportunity. Documents are not provided in any other manner.

All Suppliers shall be registered as a Plan Taker for this opportunity, which will enable the Supplier to download the RFT without the watermark preview, to receive addenda email notifications, and to download addenda. Failure to register as a Plan Taker may result in disqualification of the submission, at the sole discretion of HDSB.

Should the HDSB receive a Submission that is subsequently found to be from a Supplier that is not registered with bids & tenders and the Supplier did not obtain the RFT document from https://hdsb.bidsandtenders.ca the HDSB reserves the right to remove the Submission from further consideration.

The following documents form part of all HDSB competitive proposal documents:

HDSB Procurement Administrative Procedure:

https://www.hdsb.ca/our-board/Policy/Procurement.pdf

HDSB Asbestos Management in Facilities Administrative Procedure:

https://www.hdsb.ca/our-board/Policy/AsbestosManagementInFacilities.pdf

HDSB Vendor Performance Management Administrative Procedure:

https://www.hdsb.ca/our-board/Policy/VendorPerformanceManagement.pdf

Broader Public Sector Procurement Directive

https://www.doingbusiness.mgs.gov.on.ca/mbs/psb/psb.nsf/Attachments/001-BPS_Procurement_Directive/$FILE/BPS_Procurement_Directive.pdf

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Appendix E – Notice of Intent Not to Submit a Bid (1 page)
Appendix F – Mandatory Incorporated Provisions (16 Pages)
Appendix G - HDSB List of Pre-Qualified Subcontractors (3 pages)
HDSB Standard Terms & Conditions (30 pages)

1. *Introduction to the Halton District School Board (HDSB)*

The Halton District School Board (HDSB) supports the learning of approximately 67,000 students across the municipalities of Burlington, Halton Hills, Milton, and Oakville within the Halton Region. As one of the largest English-language school boards in Ontario, the HDSB provides high-quality education from Kindergarten through Grade 12, as well as continuing education programs for adults and newcomers.

The HDSB's team of approximately 12,000 staff, including teachers, administrators, support personnel, and senior leadership, work collaboratively to provide a safe, caring, equitable, and inclusive learning environment for all students, while also promoting respect, civility, and academic excellence. The HDSB aims to create a positive school climate where every student, staff member, and member of the school community feels safe, included, and accepted and where students can learn, grow, and thrive within HDSB's 92 Elementary Schools and 18 Secondary Schools (including Gary Allan HS and Syl Apps HS).

Additional information about the HDSB can be found by visiting hdsb.ca.

2. *Objective of the RFX*

The HDSB is seeking qualified Suppliers to **complete an Interior Renovations and Elevator Addition** at **King's Road Public School** located at **660 Greenwood Dr, Burlington, ON L7T 3P3.**

In order to be considered for this project, the successful Supplier shall have the following attributes/characteristics:

a. Experience providing Services as described in this RFX;
b. Have all appropriate licenses, certifications, and operating authorities to provide the Services requested in this RFX;
c. Knowledge of leading-edge trends in the industry;
d. Ability to develop and follow detailed project timelines;
e. Sufficient, competent, trained, and experienced personnel to provide the requested Services;
f. Appropriate supervision, training, documentation, Information and Technology, and other resources are needed to provide the requested services.
g. Sufficient labor and equipment to meet timelines without overextension;
h. Strong coordination between disciplines and with other trades including a clear process for managing subcontractors, scope changes, delays, or issues; and,
i. Appropriate liability and WSIB insurance documentation.

The deliverables for the HDSB **Interior Renovations and Elevator Addition at King's Road Public School** are set out in the attached Scope of Work. The HDSB intends to contract by issuance of a Letter of Intent, Award Letter, and/or issuance of a Purchase Order (PO) with one or more primary qualified Supplies to provide the services. This

RFX includes the appendices and other supporting documents attached hereto, which form part of the RFX.

Suppliers are encouraged to read each section of the Request for Tender (“RFX”) thoroughly. While sections may appear similar, additional information may be included as applicable within each section. It is the Supplier's responsibility to understand each section's requirements. The procurement timetable represents the HDSB’s best estimated schedule. All dates may be subject to change at HDSB’s discretion. Awarding of the contract is funding dependent and may be delayed while funding is secured.

Additionally, suppliers must review and acknowledge the attached HDSB Standard Terms and Conditions.

3. Planned Schedule of Events

Event	**Date**
Release of RFX	July 29, 2026
Site Meeting	August 12, 2026
Question Deadline	August 17, 2026
Issuance of Final Addendum	August 19, 2026
RFX Closing	August 26, 2026
Project Timelines	Start and end dates to be determined by the HDSB and the successful contractor
All times specified in this timetable are local times in Burlington, Ontario, Canada	

4. Bid Security and Bonding Requirements

Any bid submission equal to or greater than $500,000, must be submitted with a Bid Bond in the value of ten percent (10%) of the Total Cost and a Surety Consent in favour of the Halton District School Board. The Surety Consent shall cover a Performance Bond and a Labour & Materials Payment bond, each in the amount of fifty percent (50%) of the contract price as a guarantee that the Bidder shall execute the contract upon award.

The Bid Security so submitted shall be irrevocable and valid for 90 days from the closing date set for the submission of tender.

In order to be considered for award of a contract equal to or over $500,000, the Bidder shall submit as part of their Submission, a Surety Consent, completed by a Bonding Company. Any others will not be accepted.

Upon receipt of written notice from the Halton District School Board that it has been awarded the Contract, the successful Bidder shall provide, within five (5) working days of such notice, an original Performance Bond and a Labour and Material Payment Bond, each for the amount of fifty per cent (50%) of the total lump sum price, to guarantee the performance of all obligations of the Contract.

5. RFX Closing Information

All Suppliers shall have an Online Bidding System vendor account and be registered as a plan taker at https://hdsb.bidsandtenders.ca for this RFX, which will enable the Supplier to download the RFX, to receive addenda/addendum email notifications and to download addenda.

The HDSB **does not** accept electronic submissions via Bids and Tenders. **All Submissions are to be submitted electronically via email to chatelaina@hdsb.ca no later than 2:00 p.m. local time in Burlington, Ontario, on August 26, 2026** as noted on the front cover of this document. Submissions submitted and/or received by any other method will be rejected unless the HDSB has instructed otherwise.

Submissions will be deemed to be officially received by the time stamp issued by the HDSB's email server. Suppliers are cautioned that the timing of their Submission is based on when the submission is received by the HDSB's email server, not when the Submission is submitted by the Supplier, as the submission transmission can be delayed in an 'Internet Traffic Jam' due to file transfer size, transmission speed, etc.

All Submissions must be received by the HDSB's designated email address no later than the closing date and time specified in this RFP. Submissions received after the official closing time, as determined by the HDSB's email server timestamp, may be declared non-compliant and not be considered for evaluation, in the sole discretion of the HDSB. It is the sole responsibility of the Supplier to ensure that its Submission is received on time.

By submitting, the Supplier acknowledges and accepts all terms and conditions in this solicitation document and all terms and conditions outlined in the HSDB Standard Terms and Conditions.

6. Site Meeting

Suppliers are responsible for conducting any site examination deemed necessary by the Supplier to inform themselves fully as to the existing conditions, limitations, access, surrounding site conditions and all other conditions, and for the proper preparation of

the Submission. Failure of Suppliers to familiarize themselves with site conditions will not be an allowable reason for an increase in Contract costs.

A **Mandatory Site Meeting** will be held on **August 12, 2026, at 10:00 a.m.** at the **main office of King's Road Public School**, located at **660 Greenwood Dr, Burlington, ON L7T 3P3**.

All Suppliers are required to sign in upon arrival. **Late arrivals will not be permitted to attend the mandatory site meeting** and will be disqualified from further consideration for this project. Suppliers who fail to attend and sign in at the Mandatory Site Meeting will have their submissions disqualified. No exceptions will be made for late arrivals or failure to sign in. Suppliers are responsible for ensuring timely attendance.

Where there is a mandatory site meeting(s), the HDSB, at its sole discretion, reserves the right to re-schedule a second visit, to ensure competitive submissions are received, in the event that no potential Supplier or only one potential Supplier attends the mandatory site meeting(s). Suppliers who fail to attend and register their attendance at the mandatory site meeting(s) will be disqualified from submitting a Submission.

While on site, all Suppliers must comply with current Public Health directives and HDSB COVID-19 protocols in effect at the time of the visit.

7. Communication Protocol

All communication related to any aspect of this RFX must be conducted exclusively through the Online Bidding System.

Suppliers who fail to adhere to this communication requirement may be disqualified from further participation in this RFX process. Specifically, and without limitation, Suppliers shall not communicate or attempt to communicate regarding this RFX with:

1. Any employee, official, or agent of the Halton District School Board (HDSB), other than the designated RFX Purchasing contact; or
2. Any member of HDSB's governance, including but not limited to Trustees, the Director of Education, Superintendents, officers, or external advisors.

Suppliers are responsible for reviewing all RFX documents, including the HDSB Standard Terms and Conditions, all Appendices, and the Form of Tender. Should a Supplier identify any errors, omissions, or ambiguities, or require further clarification, such inquiries must be submitted to the RFX Purchasing contact via the Online Bidding System by the deadline specified for questions.

It is the sole responsibility of the Supplier to request clarification on any aspect of this RFX that appears unclear. The HDSB shall not be held responsible for any misunderstanding or misinterpretation by the Supplier.

If a Supplier believes there is an error, inconsistency, or ambiguity in the RFX documents, they must notify the RFX Authority via the Online Bidding System prior to submitting a response.

Where appropriate, the HDSB will issue a clarification through the Online Bidding System for the benefit of all Suppliers. Responses to inquiries will include both the question (edited for clarity if necessary and without identifying the Supplier) and the HDSB's response. The HDSB reserves the right to consolidate and respond to similar questions only once.

If a clarification results in a change to the RFX, such change will be communicated through a formal addendum issued via the Online Bidding System.

All addendum or addenda issued shall form part of this document, which forms part of the RFX. The onus is on the Supplier to verify that they have received and reviewed all addenda. Failure to acknowledge receipt of all addenda in the submission may result in disqualification.

8. Issuance of Addenda

Should the HDSB determine, for any reason, that it is necessary to provide additional information or clarification regarding this RFX, such information will be issued to all Suppliers in the form of an addendum, using the same method by which the original RFX was communicated. Each addendum will form an integral part of this RFX and shall be considered incorporated into all related documents.

This RFX may only be amended through the issuance of such addenda in accordance with this section. Amendments or clarifications issued in any other manner will not be considered binding on the HDSB.

All inquiries regarding this RFX must be **submitted in writing through the Online Bidding System no later than 2:00 p.m. (local time)** on **August 17, 2026**. **Any resulting addenda will be issued no later than August 19, 2026.**

It is the sole responsibility of each Supplier to ensure they have received all addenda prior to submitting their Submission.

9. Submission of Required Documentation

Suppliers are required to submit all mandatory and supporting documentation as part of their response to this RFX. Failure to provide any required documentation may result in the Submission being deemed non-compliant and disqualified from further consideration. Incomplete submissions may be rejected without further review.

Required documents include, but are not limited to, the following:

- Form of Tender

- Appendix A: Declaration and Signature Sheet
- Appendix B: Supplier Attestation
- Appendix C: Procurement Restriction Policy Compliance Declaration

Suppliers must ensure that all forms are fully completed, signed by an authorized representative, and submitted in the manner and format specified in this RFX.

Optional documents include, but are not limited to, the following:

- Appendix D: Voluntary Declaration of Diverse Supplier Status (if applicable)

It is the sole responsibility of the Supplier to review all RFX documents and instructions to ensure that a complete submission is made. Incomplete submissions may be rejected without further consideration.

10. Notice of Intent Not to Submit a Bid

Suppliers who do not intend to submit a response to this RFX are requested to complete and return **Appendix E - Notice of Intent Not to Submit a Bid** form included in this RFX package.

The purpose of this form is to assist the HDSB in understanding reasons for non-participation and to help improve future procurement opportunities.

Please submit the completed form by email to **chatelaina@hdsb.ca** on or before the closing date and time indicated in this RFX.

11. HDSB Standard Terms and Conditions

All Suppliers must review the attached HDSB Standard Terms and Conditions which form an integral part of this RFX process.

All Suppliers to the HDSB will be bound by the standard terms and conditions set forth, except as specifically qualified in Special Terms and Conditions, issued in connection with any RFSQ, RFQ, RFP, RFI, Tender or any other type of request issued by the HDSB soliciting pricing and/or services, whether communicated formally or informally, including via email, phone, or verbal request.

12. Mandatory Terms for Definitive Agreements

As a condition of award, the Supplier agrees that this RFX and any Letter of Intent, Award Letter, Purchase Order, contract or other definitive agreement issued by HDSB (each, a "**Definitive Agreement**") will incorporate and be governed by: (i) this RFX and the HDSB Standard Terms and Conditions; and (ii) the mandatory provisions set out in Appendix F (the "**Mandatory Incorporated Provisions**").

The Mandatory Incorporated Provisions shall be included in or are deemed included in every Definitive Agreement (and prevail in the event of conflict), notwithstanding any Supplier terms, order forms, shrink-wrap/click-wrap or other documents, which are of no force or effect unless expressly accepted in writing by HDSB. Notwithstanding the foregoing, such provisions shall be interpreted and applied with such modifications, adaptions, and conforming changes as may be necessary to ensure consistency with the structure, terminology, and context of the applicable Definitive Agreement and to give full effect to the intent of the HDSB as expressed herein.

The Supplier shall flow down the Mandatory Incorporated Provisions to all permitted subcontractors and remains fully responsible for their compliance.

13. Order of Precedence

In the event of any conflict, inconsistency, ambiguity or discrepancy among the documents forming this RFX and any resulting Definitive Agreement, the documents shall take precedence in the following order, to the extent of the conflict only.

Supplier terms and conditions (including quotations, proposals, order forms, shrink-wrap/click-wrap, websites/portals) are of no force or effect unless expressly accepted by HDSB in writing and identified as prevailing.

<u>During the RFX process (prior to award)</u>

1. Most recent Addendum(da), in reverse chronological order.
2. Any Special Terms and Conditions or Special Instructions to Suppliers included in this RFX.
3. The main body of this RFX.
4. Appendix F – Mandatory Incorporated Provisions (notwithstanding the foregoing, Appendix F prevails over any conflicting RFX term).
5. Other Appendices and Attachments to this RFX (excluding Appendix F), including the Scope of Work/Specifications/Drawings, schedules and forms (as applicable).
6. Questions and answers/clarifications only to the extent formally issued by Addendum.
7. The Supplier's Submission (including any BAFO and any Supplier-written clarifications requested by HDSB and accepted by HDSB in writing).

<u>After award (Definitive Agreements: PO, Letter of Intent/Award Letter, standalone contract)</u>

1. Most recent Amendment/Change Order/Change Directive, in reverse chronological order.
2. The executed Definitive Agreement (including any schedules), or the HDSB Purchase Order (including any PO Terms), or the Letter of Intent/Award Letter (as applicable).

3. Appendix F – Mandatory Incorporated Provisions (these are deemed incorporated into every Definitive Agreement and prevail over any conflicting term).
4. The main body of this RFX (front end).
5. Special Terms and Conditions or Special Instructions to Suppliers included in this RFX (if not already incorporated above).
6. Scope of Work/Specifications/Drawings and all technical requirements.
7. Other RFX Appendices and Attachments (excluding Appendix F).
8. The Supplier's Submission (including any BAFO and any Supplier-written clarifications requested by HDSB and accepted by HDSB in writing).

Additional rules of precedence

Later-dated documents of the same tier prevail over earlier-dated documents.

Addenda prevail over any previously issued portion of the RFX they modify.

Figures govern over scaled measurements on drawings; detailed specifications govern over general; project-specific requirements govern over standard specifications.

In the case of a discrepancy between words and figures, the words govern.

Responses to questions, presentations, demonstrations or site-meeting discussions are not binding unless and only to the extent incorporated by formal Addendum or written amendment executed by HDSB.

Post-award, the executed Definitive Agreement (or PO) prevails over Appendix F except where Appendix F is expressly incorporated as a mandatory, non-variable provision and identified as prevailing in the Definitive Agreement.

Nothing in this Order of Precedence limits HDSB's rights or remedies set out in the HDSB Standard Terms and Conditions.

SCOPE OF WORK

The Scope of Work includes the following documents:

- King's Road PS Accessibility Upgrades RFT 26-085 as developed by WK Lim & MP Liu Architects Inc. (612 pages)
- King's Road PS Accessibility Upgrades Drawings (30 pages)

KING'S ROAD PS
ACCESSIBILITY UPGRADES
RFT 26-085

660 GREENWOOD DR,
BURLINGTON, ON L7T 3P3

Halton District School Board



Liu Lim Architects inc.

82 Bellagio Cres,
Vaughan, Ontario, Canada L4K 5K7
Telephone: (905) 303-6606 Fax: (905) 303-6636

Project No.:	25115
Date:	March, 2026
Set No.:	
Issued:	July 16, 2026

Specifications

Section	Title	Pages
00001	List of Drawings	2
00002	Room Finish Schedule	2
00003	Door Frame Schedule	3
00004	Window Schedule	1
00005	List of Consultants	1
00006	List of Abbreviations	5
	Division 00 - Procurement and Contracting Requirements	
00225	Geotechnical Report	1
	Geotechnical Investigation Report	19
00226	Designated Substances Report	124
00710	General Conditions	1
	Division 01 - General Requirements	
01011	Summary of Work Single Contract	3
01021	Allowances	2
01040	Coordination	4
01300	Submittals	3
01310	Construction Schedule	3
01400	Quality Control	4
01510	Temporary Utilities	3
01535	Temporary Facilities	3
01560	Temporary Controls	4
01601	Material and Equipment	10
01655	Facility Start-Up	4
01711	Cleaning	3
01721	Project Record Documents	7
01730	Operation and Maintenance Manual	2
01750	Spare Parts + Maintenance Materials	3
01770	Take-Over Procedures	3
01780	Closeout Submittals	8
	Division 02 - Sitework	
02070	Sitework Demolition and Removal	2
02210	Site Grading	3
02222	Structure Demolition	5
02223	Excavating, Trench and Backfilling	10
02513	Asphalt Concrete Pavement for Build Sites	7
02622	Foundation and Underslab Drainage	4
02 81 00	Hazardous Materials – General Provisions	17
02 82 00.01	Asbestos Abatement – Type 1 (Low Risk) Procedures	4
02 82 00.02	Asbestos Abatement – Type 2 (Moderate Risk) Precautions	7

02 82 00.04 Asbestos Abatement – Glove Bag 5
02 83 10 Lead Abatement – Class 1 Precautions 4
02 83 11 Lead Abatement – Class 2 Precautions 5
02921 Topsoil + Finish Grading 5

Division 03 – Concrete
03100 Concrete Forming and Accessories 6
03200 Concrete Reinforcing 6
03300 Cast-in-Place Concrete 14
03345 Concrete Floor Finishes 2
03350 Concrete Finishing 4

Division 04 – Masonry
04050 Masonry Procedures 6
04100 Mortar & Grout for Masonry 4
04150 Masonry Accessories 3
04160 Masonry Reinforcing and Connectors 4
04210 Brick Masonry 3
04220 Concrete Masonry Unit 2

Division 05 – Metals
05500 Metal Fabrication 6

Division 06 - Wood and Plastics
06100 Rough Carpentry 7
06400 Millwork 9

Division 07 - Thermal and Moisture Protection
07190 Sheet Vapour Barriers 4
07212 Board Insulation 5
07213 Batt and Blanket Insulation 2
07270 Fire Stopping and Smoke Seals 4
07271 Air Barriers 5
07520 Modified Bituminous Roofing 11
07620 Metal Flashing and Trim 5
07810 Applied Fireproofing 7
07900 Sealants 7

Division 08 - Doors and Windows
08111 Steel Doors and Frames 10
08120 Aluminum Doors and Frames 7
08521 Aluminum Windows 13
08710 Finish Hardware 8
Hardware List 45
08800 Glazing 9

Division 09 - Finishes
09111 Non-Structural Metal Framing 3

09130 Suspension System for Acoustical Ceilings 4
09250 Gypsum Board 8
09310 Ceramic Tile 6
09410 Portland Cement Terrazzo 8
09511 Acoustical Panels and Tiles 3
09665 Resilient Flooring 6
09911 Interior Painting 21

Division 10 – Specialties
10441 Interior Signage 2
10800 Toilet and Bath Accessories 4

Division 14 – Vertical Transportation Elevator Installation
14202 Elevators and Lifts 6
14 21 23 Hydraulic Passenger Elevators 13

List of Drawings

Architectural Drawings
WK Lim & MP Liu Architects Inc.
82 Bellagio Cres,
Vaughan, Ontario L4K 5K7
Tel: (905) 303 - 6606
Fax: (905) 303 - 6636

No.	Title	Date	Revision
A0	Title Sheet	October 2025	June 10, 2026
SP1	Site Plan	October 2025	June 10, 2026
SP2	Roof Plan, Site Detail	October 2025	June 10, 2026
A1	Ground & Second Floor Key Plans, Legends	October 2025	June 10, 2026
A2	Enlarged Ground Floor and Second Floor Plans and Interior Elevations	October 2025	June 10, 2026
A3	Enlarged Reflected Ceiling Plans	October 2025	June 10, 2026
A4	Exterior Elevations	October 2025	June 10, 2026
A5	Sections and Details	October 2025	June 10, 2026
A6	Sections and Details	October 2025	June 10, 2026
A7	Sections and Details	October 2025	June 10, 2026
A8	Sections and Details	October 2025	June 10, 2026

Mechanical Drawings
Regal Consulting Engineers Inc.
208 Wyecroft Road, Suite 200
Oakville, Ontario L6K 3C3
Tel: (905) 844-3913

No.	Title	Date	Revision
M1.0	Mechanical Legends, General Notes, Equipment Schedule	December 2025	June 4, 2026
M1.1	Plumbing Fixture Connection Schedule	December 2025	June 4, 2026
M1.2	Mechanical Key Plans	December 2025	June 4, 2026
M2.0	Proposed Drainage Plan	December 2025	June 4, 2026
M2.1	Proposed Plumbing Plan	December 2025	June 4, 2026
M2.2	Proposed HVAC Plan	December 2025	June 4, 2026
M3.0	Mechanical Specifications and Details	December 2025	June 4, 2026

Electrical Drawings
Regal Consulting Engineers Inc.
208 Wyecroft Road, Suite 200
Oakville, Ontario L6K 3C3
Tel: (905) 844-3913

No.	Title	Date	Revision
E1.0	Electrical Lead Sheet, Details, Key Plan and Panel Schedules	December 2025	June 4, 2026
E2.0	Demolition Site Plan	December 2025	June 4, 2026
E2.1	Existing Electrical Panel Location Plan	December 2025	June 4, 2026
E2.2	Proposed Single Line Diagram and Electrical Details	December 2025	June 4, 2026
E3.0	Proposed Power Floor Plan	December 2025	June 4, 2026
E4.0	Proposed Lighting Floor Plan	December 2025	June 4, 2026
E5.0	Proposed Fire Alarm Floor Plan	December 2025	June 4, 2026
E6.0	Electrical Specification	December 2025	June 4, 2026

Structural Drawings
MTE Consultants Inc.
1016 Sutton Drive, Unit A
Burlington, ON L7L 6B8
Tel: (905) 639-2552

No.	Title	Date	Revision
S1.0	General Notes	February 2026	June 9, 2026
S1.1	General Notes & Typical Details	February 2026	June 9, 2026
S2.0	Foundation Plan and Stage Floor Framing Plan	February 2026	June 9, 2026
S3.0	2nd Floor and Roof Framing Plan	February 2026	June 9, 2026

END OF SECTION

Liu Lim Architects inc.	**PROJECT NAME** KING'S ROAD PS ACCESSIBILITY UPGRADES **PROJECT ADDRESS** 660 GREENWOOD DR. **CITY,** BURLINGTON, ON L7T 3P3	**PROJECT NO:**	25115
		SHEET:	1 of 2
		DATE:	MARCH 2026

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR FINISH	WALL BASE	WALL MATERIAL	WALL FINISH	CEILING MATERIAL	CEILING FINISH	CEILING HEIGHT	F.R.R.	REMARK
101	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
102	SK	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
103	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
104	SK	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
105	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
107	OFFICE	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
107A	PRINCIPAL	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
115	ROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
116	JK	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
117	LIBRARY	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
120	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
122	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
123	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
124	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
125	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
126	VESTIBULE	V.C.T.	RUBBER	EXIST. /CONC.	EXIST. /PAINT	AC TILE	-	2800	2 HRS	ULC DESIGN NO. D216 OR SIMILAR FOR MIN. 2 HRS FRR.
127	STORAGE	V.C.T.	RUBBER	CONC. BL	PAINT	AC TILE	-	3000	2 HRS	ULC DESIGN NO. D216 OR SIMILAR FOR MIN. 2 HRS FRR.
128	ELEVATOR	-	-	CONC. BL	-	-	-	-	1 HR	PROVIDE FIREPROOFING TO EXPOSED STRUCTURAL STEEL 1-HOUR FRR – ULC DESIGN NO. S721
129	MACHINE ROOM	CONC.	-	CONC. BL	-	-	-	-	1 HR	PROVIDE FIREPROOFING TO EXPOSED STRUCTURAL STEEL 1-HOUR FRR – ULC DESIGN NO. S721
190A	STAGE	EXIST./ MATCH EXIST./ V.C.T.	EXIST. /MATCH EXIST.	EXIST./ CONC. BL	EXIST./ PAINT	-	-	-	-	

Liu Lim Architects inc.

PROJECT NAME	KING'S ROAD PS ACCESSIBILITY UPGRADES	**PROJECT NO:**	25115
PROJECT ADDRESS	660 GREENWOOD DR.	**SHEET:**	2 of 2
CITY,	BURLINGTON, ON L7T 3P3	**DATE:**	MARCH 2026

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR FINISH	WALL BASE	WALL MATERIAL	WALL FINISH	CEILING MATERIAL	CEILING FINISH	CEILING HEIGHT	F.R.R.	REMARK
202	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
204	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
205	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
207	CLASSROOM	L.V.T.	RUBBER	EXIST.	EXIST.	EXIST.	-	EXIST.	EXIST.	REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
208	ELEVATOR	-	-	CONC. BL	-	-	-	-	1 HR	PROVIDE FIREPROOFING TO EXPOSED STRUCTURAL STEEL 1-HOUR FRR – ULC DESIGN NO. S721
209	UNIVERSAL WASHROOM	C.T.	RUBBER	GYP.BD. /CONC. BL	PAINT	AC TILE	-	3000	1 HR	ULC DESIGN NO. R217 OR SIMILAR FOR MIN. 1 HR FRR.
210	VESTIBULE	V.C.T.	RUBBER	CONC. BL	PAINT	AC TILE	-	2750	1 HR	ULC DESIGN NO. R217 OR SIMILAR FOR MIN. 1 HR FRR.

Liu Lim Architects inc.	**PROJECT NAME**	KING'S ROAD PS ACCESSIBILITY UPGRADES	**PROJECT NO:** 25115
	PROJECT ADDRESS	660 GREENWOOD DR.	**SHEET:** 1 of 1
	CITY	BURLINGTON, ON L7T 3P3	**DATE:** March 2026

DOOR AND FRAME SCHEDULE

DOOR NO.	SIZE	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	DOOR GRILLE	GLAZING	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	LABEL	REMARK
126	2 - 1050 X 2150 X 45	B	ALUM.	-	-	LAM. /TEMP.	3	ALUM.	-	-	LEVERSET + PANIC DEVICE, CLOSER WITH STOP, MOTORIZED OPERATOR, ELEC. STRIKE, KICKPLATE, WEATHERSTRIPPING, SWEEP, THRESHOLD, REMOVABLE MULLION
127	950 X 2150 X 45	A	H.M.	PAINT	-	-	1	P.S.	PAINT	45 MINS.	LEVERSET, DOOR CLOSER, KICKPLATE
129	950 X 2150 X 45	A	H.M.	PAINT	-	-	1	P.S.	PAINT	-	LEVERSET, DOOR CLOSER, KICKPLATE, WEATHERSTRIPPING
209	965 X 2150 X 45	C	H.M.	PAINT	-	-	2	P.S.	PAINT	45 MINS.	LEVERSET, OVERHEAD STOP, AUTO DOOR OPERATOR, LOCKING ELEC. STRIKE, KEY SWITCH, KICKPLATE

DOOR AND FRAME SCHEDULE

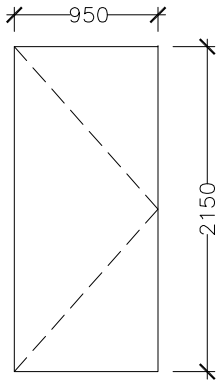
HALTON DISTRICT SCHOOL BOARD
KING'S ROAD PS ACCESSIBILITY UPGRADES
660 GREENWOOD DR.

BURLINGTON ONTARIO

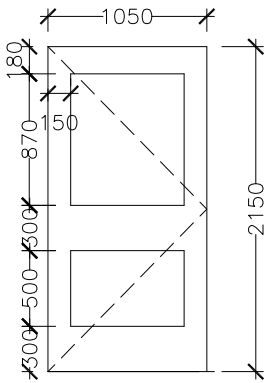
PROJECT NO.: 25115
DATE: MARCH 2026
REVISED:

DOOR TYPES

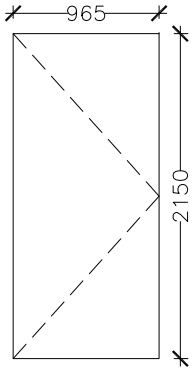
A



B



C



TYPICAL NOTES:

1. AT 140 CONCRETE BLOCK WALLS PROVIDE DOOR FRAMES WITH THROAT SIZE 146 TO WRAP AROUND CONCRETE BLOCK.

2. AT 190 CONCRETE BLOCK WALLS PROVIDE DOOR FRAMES WITH THROAT SIZE 197 TO WRAP AROUND CONCRETE BLOCK.

3. AT GYPSUM BOARD PARTITIONS PROVIDE DOOR FRAMES WITH THROAT SIZE 124 TO WRAP AROUND PARTITIONS.

DOOR AND FRAME SCHEDULE

HALTON DISTRICT SCHOOL BOARD
KING'S ROAD PS ACCESSIBILITY UPGRADES
660 GREENWOOD DR.

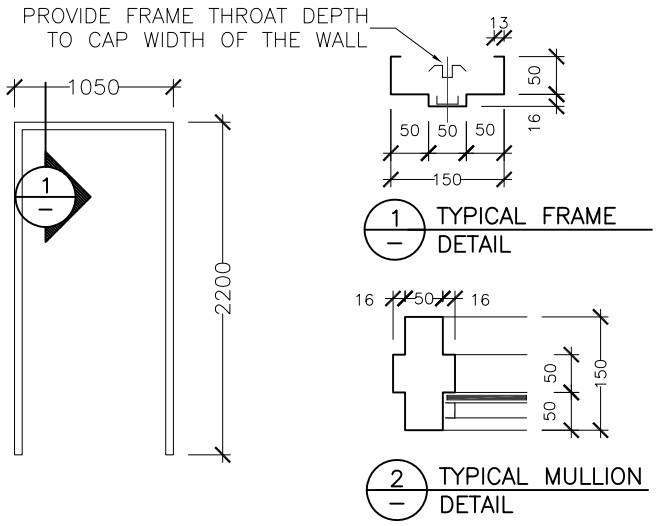
BURLINGTON ONTARIO

PROJECT NO.: 25115
DATE: MARCH 2026
REVISED:

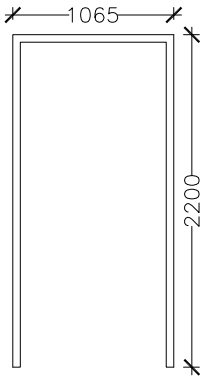
SHEET 2 OF 2

FRAME TYPES

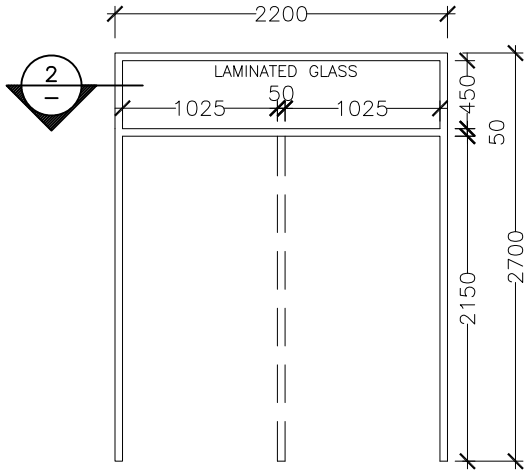
1



2



3



WINDOW SCHEDULE

KING'S ROAD PS
ACCESSIBILITY UPGRADES
660 GREENWOOD DR.

BURLINGTON ONTARIO

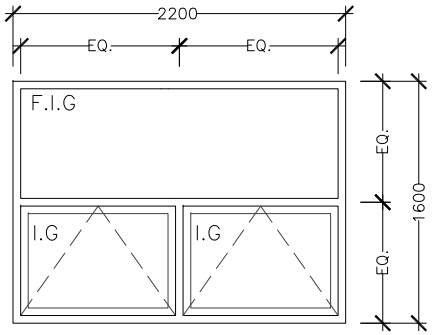
PROJECT NO.: 25115

DATE: MARCH 2026

SHEET 1 OF 1

NOTE:

1. DIMENSIONS INDICATE APPROXIMATE ROUGH OPENING SIZES. VERIFY ON SITE.
2. FILL FRAME JOINT TO R.O. W/ COMPRESSIBLE FOAM INSULATION.
3. PROVIDE INTERIOR AND EXTERIOR PERIMETER CAULKING ON BACKER ROD.
4. PROVIDE CONTINUOUS SEAL AT JUNCTION TO AIR AND VAPOUR BARRIERS.
5. SEAL FRAME PERIMETER TO BUILDING ENVELOPE AIR/VAPOUR BARRIER WITH SELF-ADHESIVE SHEET MEMBRANE



WINDOW TYPE W1:
ALUMINUM THERMALLY BROKEN SASH AND FRAME
PRE-FINISHED CLEAR ANODIZED INSULATING GLASS
1 UPPER FIXED PANES
2 LOWER THPO AWNING SASHES
W/ FRAMED REMOVABLE INSECT SCREENS
W/ ROTARY GEAR FOLDING OR LOW-PROFILE HANDLE OPERATOR
EXTRUDED ALUMINUM SILL ON DAMPPROOF COURSE MEMBRANE
SLOPED MIN. 5 DEG. WITH DRIP AND JAMB DEFLECTORS

PART 1 GENERAL

1.1 THE CONSULTANT (ARCHITECT)

WK Lim & MP Liu Architects Inc.
82 Bellagio Cres,
Vaughan, Ontario L4K 5K7
Tel: (905) 303-6606
Fax: (905) 303-6636

1.2 THE SUBCONSULTANTS

1. The Electrical Consultant for this Project is:
   Regal Consulting Engineers Inc.
   208 Wyecroft Road, Suite 200
   Oakville, Ontario L6K 3C3
   Tel: (905) 844-3913

2. The Mechanical Consultant for this Project is:
   Regal Consulting Engineers Inc.
   208 Wyecroft Road, Suite 200
   Oakville, Ontario L6K 3C3
   Tel: (905) 844-3913

3. The Structural Consultant for this Project is:
   MTE Consultants Inc.
   1016 Sutton Drive, Unit A
   Burlington, ON L7L 6B8
   Tel: (905) 639-2552

END OF SECTION

Abbreviations may be used in the Contract Documents and are to be governed by the following clauses.

1. Abbreviations may or may not be punctuated by periods and may be in upper and/or lower case.
2. Tense, singularity or plurality is to be read and applied in the context of the specific note.
3. All notes are to be read in demonstrative syntax ie. instruction in the context of the complete notation.
4. The Contractor is to advise the Consultant of undefined abbreviations and request clarification prior to the commencement of Work.
5. Only the Architect has the authority to define abbreviations.
6. The following table contains abbreviations which may be used in the Contract Documents including Drawings and Specifications.

&, +	AND
@	AT
+	PLUS
+/-	PLUS OR MINUS, APPROXIMATE SUBJECT TO VERIFICATION
ACT, AC. TILE	SUSPENDED ACOUSTIC TILE CEILING SYSTEM
AD, A.D.	AREA DRAIN
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
ARCH	ARCHITECTURAL
AVG	AVERAGE
B/F, BF	BARRIER FREE
BR	BRICK
C.T., CT	CERAMIC TILE
C/B	CHALKBOARD
C/C	CENTRE TO CENTRE
C/L	CENTER LINE
C/W	COMPLETE WITH
CAR	CARPET
CB	CATCH BASIN
CCM	CONVEX CEILING MIRROR
CCTV	CLOSED CIRCUIT TV
CH	COAT HOOKS
CLG	CEILING
CON	CONSULTANT

CONC	CONCRETE
CONC BL	CONCRETE BLOCK
CR	COAT RACK
CS	CONVENIENCE SHELF
DEMO	DEMOLITION, DEMOLISH
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DIV	DIVISION
DO, DITTO	SAME, TYPICAL, REPEAT
DP. C	DAMPPROOF COURSE
DR	DOOR
ELEC	ELECTRICAL
ELEV	ELEVATION
EXIST, EX	EXISTING
EXT	EXTERIOR
FB	FIRE BLANKET
FD, F.D.	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FHC	FIRE HOSE CABINET
FH	FIRE HYDRANT
FIN	FINISH, FINISHED
FIN. FL.	FINISHED FLOOR
FIN. GR	FINISHED GRADE
FRR	FIRE RESISTANCE RATED
FSS	FOLDING SHOWER SEAT
GALV.	GALVANIZED
GB, GBR	GRAB BAR
GBF	FOLDING GRAB BAR
GBL	GRAB BAR L-SHAPE
GBS	SHOWER GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERAL
GFA	GROSS FLOOR AREA
GFI	GROUND FAULT INTERRUPTOR
GL	GLAZING
GR	GRADE

GYP BD, G.B., GB	GYPSUM BOARD
HD	HAND DRYER
HD	HEAVY DUTY
HDF	HIGH DENSITY FIBRE BOARD
HOR	HORIZONTAL
HVAC	HEATING VENTILATION AND AIR CONDITIONING
INT	INTERIOR
LAP	LAY-IN ACOUSTIC PANEL
M	MIRROR
MAS	MASONRY
MAX, MAX.	MAXIMUM
MDF	MEDIUM DENSITY FIBRE BOARD
MECH	MECHANICAL
MET	METAL
MG, M.G.	MAKE GOOD
MH	MAN HOLE
MIN	MINIMUM
MIR	MIRROR
MISC.	MISCELLANEOUS
MOD. BIT	MODIFIED BITUMEN
N.I.C./NIC	NOT IN CONTRACT, NOT INCLUDED
N.T.S	NOT TO SCALE
N/A	NOT APPLICABLE
O.C., OC	ON CENTER
OBC	ONTARIO BUILDING CODE
OWSJ	OPEN WEB STEEL JOIST
P.T., PT	PORCELAIN TILE
PA	PUBLIC ADDRESS SYSTEM JACK OR CONTROL PANEL SEE ELECTRICAL
PCT	PRIVACY CURTAIN TRACK INCLUDING CURTAIN
PEO	PROFESSIONAL ENGINEERS OF ONTARIO
PLAM, P.LAM	PLASTIC LAMINATE
PLY	PLY WOOD
POLY	POLYETHYLENE
PREF	PREFFERED
PRE-FIN	PRE-FINISHED
PRE-MAN	PRE-MANUFACTURED
PS	PRESSED STEEL
PTD	PAPER TOWEL DISPENSER
PVC	POLYVINYL CHLORIDE

R+S	ROD AND SHELF
RD, R.D.	ROOF DRAIN
RF, RSF	RUBBER SHEET FLOORING
RE-BAR	REINFORCING BAR
REIN.	REINFORCED
RENO	RENOVATION
REQ'D	REQUIRED
RM	ROOM
RT	RUBBER TILE
RWL	RAINWATER LEADER - SEE MECHANICAL OR SITE SERVICING
S.S, SS	STAINLESS STEEL
SCB	SLIDING CHALK BOARD
SD	SOAP DISPENSER
SF	SHEET FLOORING
SEC, SECT	SECTION
SEP	SEPARATE
SIM	SIMILAR
SMT	SCIENCE MATH & TECHNOLOGY
SND	SANITARY NAPKIN DISPOSAL
SNDISP	SANITARY NAPKIN DISPENSER
SPEC	SPECIFICATION
SPEC. ED.	SPECIAL EDUCATION
SPMDD	STANDARD PROCTOR MAXIMUM DRY DENSITY
SR+C	SHOWER ROD + CURTAIN
SSD	SHOWER SOAP DISH
STO / STOR	STORAGE
STRUC	STRUCTURAL
SUP	SUPPORT, SUPPORTED
SW/B, SWB	SLIDING WHITE BOARD
T/B, TB	TACKBOARD
T/O	TOP OF
TD	TOILET TISSUE DISPENSER
TDD	PAPER TOWEL DISPENSER AND DISPOSAL
TLB	TOWEL BAR
TM T/M	TILTED MIRROR
TYP.	TYPICAL
U/N	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE
VB, V.B.	VAPOUR BARRIER

VCT	VINYL COMPOSITE TILE
VSF	VINYL SHEET FLOORING
VERT, VER	VERTICAL
VEST	VESTIBULE
W/	WITH
W/B	WHITEBOARD
W/D	WASHER DRYER
WC	WATER CLOSET
WD	WOOD
WIN	WINDOW

END OF SECTION

1.1 Geotechnical Report

.1 A copy of a detailed geotechnical investigation report is included herein, titled as "Geotechnical Investigation Report, Proposed Addition/Alteration, Kings Road Public School, 660 Greenwood Rd., Burlington, Ontario" dated May 13, 2026. Prepared for Halton District School Board, and prepared by Forward Engineering & Associates Inc.

.2 This report records properties of the soil and recommendations for the design of foundations, prepared primarily for the use of the Consultant. The recommendations given shall not be construed as a requirement of this Contract unless also contained in the Contract Documents.

.3 The report, by its nature, cannot reveal all conditions that exist or can occur on the site. Should subsurface conditions be found to vary substantially from the report, changes in the design and construction of foundations will be made, with resulting credits or expenditures to the contract Price accruing to the Owner.

END OF SECTION

FORWARD ENGINEERING
& ASSOCIATES INC.
Geotechnical, Environmental, Inspection & Material Testing Services
244 Brockport Drive, Unit 15, Toronto, Ontario, M9W 6X9, Tel: (416)798-3500, Fax:(416)798-8481

REPORT
GEOTECHNICAL INVESTIGATION

PROPOSED ADDITION/ALTERATION
KINGS ROAD PUBLIC SCHOOL
660 GREENWOOD RD.
BURLINGTON, ONTARIO

PREPARED FOR:

HALTON DISTRICT SCHOOL BOARD
2500 Guelph Line
Burlington, Ontario
L7P 5A8

May 13, 2026
Ref. No. G7644

Distribution: 1 PDF Copy – HALTON DISTRICT SCHOOL BOARD

1 Copy – FORWARD ENGINEERING & ASSOCIATES INC.

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PERMANENT DRAINAGE - DRAWING NO. 2
LOG OF BOREHOLE SHEETS (Nos. 1 & 2) - APPENDIX A

INTRODUCTION

This report presents the results of the geotechnical investigation carried out by Forward Engineering & Associates Inc. for the proposed development at the existing Kings Road Public School, 660 Greenwood Drive, Burlington, Ontario.

The location of the proposed building addition/alteration in relation to the existing school building is shown on Drawing No. 1. The locations of the boreholes carried out during this investigation are also presented on Drawing No. 1.

This investigation was authorized by Mr. Tom Hutcheson of Halton District School Board (HDSB).

PURPOSE AND SCOPE

The objectives (purpose) of this investigation were to determine the following:

- The extent, depth, and properties of the predominant fill/soil strata as they affect the design and construction of the proposed school addition.
- The short-term groundwater levels, if encountered.
- The appropriate geotechnical design criteria for foundations, excavations, backfill and, slab construction.

To achieve the above noted objectives, the field program of this investigation consisted of two [2] boreholes drilled to a depth ranging from about 5.03 to 6.55 m below the existing ground surface level (EGSL).

On completion of the field and laboratory work, an engineering analysis was carried out, and this summary report was prepared.

PROPOSED DEVELOPMENT

We understand that the proposed addition/alteration is to be located as shown on Drawing No. 1, and it is to consist of:

1) New single storey and two-storey addition, with no basement.

2) An elevator within the two-storey addition.

FIELD AND LABORATORY TESTING

Field Works

The field work for the borehole investigation consisted of two [2] boreholes drilled on March 20, 2026, under the supervision of a member of our staff.

The drilled boreholes were located at the approximate locations shown on Drawing No. 1 and extended to a depth ranging from about 5.03 to 6.55 m below the existing ground surface level (EGSL).

Soils were sampled in the boreholes following the Standard Penetration Test (SPT) method using a CME 75 truck mounted auger drill rig using Rotary Drilling with Split Spoon Samplers.

The samples were logged in the field and appropriately stored in plastic bags and re-examined in more detail in the laboratory. The samples will be stored for a period of three months and then discarded, unless we are instructed differently.

Groundwater observations were made in the open boreholes, during and upon completion of the drilling operation. The results are recorded on the Log of Borehole sheets. BH/MW-2 was equipped with a flush mounted piezometer to facilitate future measurement of the water level.

At the time of this investigation, a current topographic drawing of the site was not available. Upon receiving a topographic survey from the Client, the logs will be revised to include geodetic elevations of the boreholes.

Laboratory Testing

Laboratory testing consisted of determination of the in-situ moisture content of the retrieved and representative soil samples.

SITE CONDITIONS

Surface Conditions

The site, Kings Road Public School, is located at 660 Greenwood Drive, Burlington, Ontario. At the time of our investigation the school was operational.

For this description it will be assumed that the north bearing is parallel to the nearest arterial, which is King Road.

The *subject site* (area of proposed elevator addition), where the borehole investigation was conducted, is located south of the south wing of the school building, just north of the existing portable buildings.

The *subject site* conditions, as observed during our site visit on March 20, 2026, are presented in the following *Table No. 1*.

Table 1 - Subject Site Surface Observations/Conditions

East Boundaries:	Residential dwelling.
North Boundaries:	Existing school building.
West Boundaries:	School playground and field followed by residential dwellings.
South Boundaries:	Existing school portable buildings.
Surface Coverage:	Asphalt pavement.
Ground Level:	The site is generally flat.
Ditches:	None observed.
Berms:	None observed.
Stockpiles:	None observed.
Existing Structures:	• Existing school (1-storey brick structure) with no basement. • Portable buildings.
Proposed/Intended Land Use:	Institutional (school building addition).

Subsurface Conditions

The subsurface conditions encountered at the borehole locations are shown on the Log of Borehole sheets, presented in Appendix A, and can be summarized as follows:

Pavement	Pavement layer consisting of asphalt surface, with a thickness of about 75 mm followed by granular fill (sandy silt with traces of crushed stones) base layer with a thickness of about 50 mm, was encountered at the surface of the boreholes.

Fill/Disturbed Soil	A layer of Fill/Disturbed soil was found below the pavement in the boreholes and extended to a depth of about 0.76 m below the EGSL. This soil layer consisted mainly of brown sandy silt, found in moist state, and in compact state of packing.
Sandy Silt	Sandy Silt stratum was encountered in the boreholes below the fill/disturbed soil layer and extended to a depth ranging from about 2.4 to 2.6 m below EGSL. This rust brown stratum was observed to contain wet silty sand inclusions in the lower zone. This layer was found generally in moist state in the upper zone, becoming wet with greater depth. It was found in loose to compact state of packing.
Silty Clay Till and/or **Silty Clay Till/ Clayey Silt Till**	Silty Clay Till and/or Silty Clay Till/Clayey Silt Till was encountered below the Sandy Silt stratum in the boreholes and extended to a depth of about 6.1m below EGSL in BH-1 and to the maximum explored depth of this investigation in BH/MW-2. This greyish brown and grey till was observed in a moist state, and in a stiff to very stiff consistency.
Clayey Silt Till	Hard, moist, and reddish grey Clayey Silt Till was encountered below the Silty Clay Till layer in BH-1 and extended to the maximum explored depth of this investigation.
Groundwater	Groundwater level observations were made during and upon the completion of the drilling investigation. The results are summarized in the following Table 2a, as shown:

Table 2a: Groundwater &Cave-in Observations Upon Completion of Drilling

Borehole No.	Borehole Depth (m)	Cave-in Depth Below EGSL (m)	Groundwater Depth Below EGSL (m)
BH-1	6.55	2.4	1.5
BH/MW-2	5.03	Open	2.4

The water level in BH/MW-2, which was equipped with a flush mounted piezometer, was measured a few days after the completion of the drilling operation and our observations were recorded and presented in the following *Table 2b, as shown*.

Table2b: Groundwater Observation after Completion of Drilling

ID & Date of GWL Measurement	Groundwater Depth Below EGSL
BH/MW-2 *March 25, 2026*	2.12 m

It should be noted, however, that the groundwater levels are subject to seasonal fluctuations. Consequently, definitive information on the long-term groundwater levels could not be obtained at the present time.

GEOTECHNICAL DISCUSSION AND RECOMMENDATIONS

Foundations

Proposed building Addition

The proposed building addition is to consist of a single and storey two-storey structure, with no basement. The finished floor elevation (FFE) is to be at the same as the existing slab as 292.00 ft (89.00 m).

Based on the findings of this borehole investigation, the proposed building addition can be supported on conventional strip/wall footings established within the native undisturbed sandy silt, at or below a depth of 1.50 m below the EGSL, as shown in Table 3a below.

The size of the strip/spread footings can be proportioned to the following bearing resistances;

Factored Bearing Resistance at Ultimate Limit State (ULS) = 150 kPa

Bearing Resistance at Serviceability Limit State (SLS) = 100 kPa

Table 3a –Founding Depth and Elevation of Strip/Spread Footings

Borehole No. and (Surface Elevation)	**Founding Depth from EGSL (at or Below)**
BH-1	1.50 m
BH-2	1.50 m

Proposed Elevator

The proposed elevator shaft pad surface is expected to be at Elevation 87.77 m. The pad founding level is expected to be at Elevation 87.17 m.

Based on the findings of this borehole investigation, the elevator shaft pad can be established within the native sandy silt and/or clayey silt till/silty clay till, at or below a depth of 1.50 m below the EGSL, as shown in Table 3b below.

The size of the strip/wall footings can be proportioned to the following bearing resistances;

Factored Bearing Resistance at Ultimate Limit State (ULS) = 150 kPa

Bearing Resistance at Serviceability Limit State (SLS) = 100 kPa

Table 3b –Founding Depth and Elevation

Borehole No. and (Surface Elevation)	**Founding Depth from EGSL (at or Below)**
BH-1	1.50 m
BH-2	1.50 m

Foundation General Notes:

Adjacent footings, founded at different elevations, should be stepped at 10 horizontal to 7 vertical. If this condition cannot be met, underpinning of the existing footings is required.

It should be noted that the as-built vertical/horizontal alignment and conditions of existing underground services and buried structures should be established prior to the design/construction stage.

In the areas of existing service trenches, the footings should be established below the invert of the existing services, in the original undisturbed soils, or could potentially, if practical, be bridged over the trench backfill (subject to review by a structural engineer).

Excavation for new footings shall start from the face of the existing structure to expose the existing footings and to match the founding depth of the new footing with the depth of the adjacent existing footings.

For frost protection requirements, all exterior footings, and footings in unheated areas, must have a minimum soil cover of 1.2 m.

Under no circumstances should the footings be constructed over loose, soft or frozen subgrade soil or within ponded water. During winter construction, the footings must be adequately protected against the effects of frost.

Concrete should be placed without delay after excavation to avoid softening of the subgrade surface. Hand cleaning of footing bases should be carried out as directed by the field inspector.

Total settlements of the footings designed and constructed in accordance with the above recommended resistances at SLS should be less than the tolerable limits of 25mm. The differential settlements are expected to be less than 19mm.

Furthermore, the recommended bearing capacity and foundation elevations have been calculated from the limited borehole information and are intended for design purposes only.

More specific information, with respect to founding conditions between the boreholes will become available when the proposed construction is underway. Therefore, the encountered founding conditions must be verified in the field, and all footings must be inspected by this office, before placement of concrete.

Earthquake Considerations

For structural design seismic consideration, the seismic provisions of the Ontario Building Code (OBC 2024) outline the Classification of sites for Seismic Site Response in Table 4.1.8.4.-B of the National Building Code of Canada (NBC) 2020.

According to Table 4.1.8.4.-B of the code, and this subsurface investigation findings, the subject Seismic Site Class is selected as Class “D”.

Elevator Pit Walls

The elevator pit walls should be designed to resist a pressure "p", at any depth, "h" below the surface, as given by the expression;

$$p = 0.45 [\gamma h + q]$$

where; 0.45 is the earth pressure coefficient considered applicable
$\gamma = 21.0$ kN/m^3 is the unit weight of backfill
q = an allowance for surcharge.

The above equation assumes that drains will be provided and that the backfill against the walls would be a free draining granular material.

The elevator pit shall be a water-tight structure. In this case, the requirement for a permanent perimeter drainage installation will not be necessary. However, with the elimination of the drainage system, the elevator pit walls must be designed to resist future build-up of hydrostatic pressure, in addition to earth pressure.

Excavation and Backfill

No major problems should be encountered for the anticipated depth of excavation. The excavation should be back-sloped at 45 degrees or flatter in accordance with the current Ontario Occupational Health and Safety Act.

The anticipated water seepage, if any, into the excavations from the more permeable seams/lenses or surface run-off can be handled by conventional pumping methods.

The material to be used for backfilling under floor slab should be suitable for compaction, i.e. free of organics and with natural moisture content, which is within 2 percent of the optimum moisture content. The backfill material should be compacted to at least 98 percent of the Standard Proctor Maximum Dry Density (SPMDD).

Selected on site excavated fill and native soils can be used as backfill under the floor slab or in-service trenches, provided the excavated materials are not allowed to become wet. However, the excavated materials will be very sensitive to moisture content, and the use of Granular B/C is preferred.

The backfill against the subsurface walls, and confined spaces, should be free draining granular fill, preferably conforming to the Ontario Provincial Standard Specification for granular base course, Granular B.

Slab Construction and Permanent Drainage

The floor slabs can be constructed following the standard slab-on-grade technique, provided that the base is thoroughly proof-rolled. Any soft spots revealed during proof-rolling should be sub-excavated, backfilled and adequately compacted to a minimum 98 % of its SPMDD. In addition, the exposed ground surface should be adequately compacted to densify the near surface disturbed soil.

The floor slabs should rest on a well compacted layer of “19 mm clear stone” at least 200 mm thick when compacted. The stone bed would act as a barrier and prevent capillary rise of moisture from the subgrade to the floor slab.

No perimeter drainage will be required, if the floor slab is at least 150 mm above the exterior grade, which slopes away from the building at an inclination of 1 to 2 percent, to prevent surface ponding of water close to exterior walls. If this condition cannot be met or complied with, then perimeter drainage as shown on Drawing No. 2 should be provided.

Pavement Design

In pavement areas, the subgrade should be thoroughly proof-rolled. Any soft spots revealed during proof-rolling should be sub-excavated and backfilled with suitable materials, compacted to at least 98 % SPMDD.

The subgrade soil is frost susceptible. The design of pavement is therefore mainly influenced by the need to minimize the effects of freezing and thawing. Consequently, the ground must not be unnecessarily disturbed.

The subgrade should be sloped to facilitate drainage towards catch basins and the final subgrade should be compacted before pavement is constructed.

It should be noted that the subgrade should be dry and firm, not spongy, during compaction and during the construction of the [sub] base. Soft or spongy subgrade areas should also be sub-excavated and properly replaced with suitable approved backfill compacted to 98 % SPMDD.

The subgrade will suffer strength regression if water is allowed to infiltrate into the mantle. Therefore, sub-drains should be installed along the edge of all pavement areas to prevent surface water from infiltrating into the subgrade.

Within the parking lots, sub-drains radiating from the catch basins should also be installed. These sub-drains should be at least 3 m long in each direction and have inverts at least 0.75 m below the pavement surface.

All granular materials used in the construction of pavement should be compacted to 98 % of Standard Proctor maximum dry density.

Based on the engineering properties of the subgrade soil, climatic conditions and the anticipated use of the pavement, typical flexible asphaltic pavement designs for this development are as follows:

Table 4 - Typical Flexible Asphaltic Pavement Design

Pavement Components	Heavy Duty	Medium Duty
Asphaltic Concrete	40 mm HL3	40 mm HL3
	60 mm HL8	40 mm HL8
19 mm Crushed Limestone	150 mm	150 mm
Granular B Sub-base	300 mm	200 mm

If the proposed pavements are to be constructed during wet seasons, the moisture content in the subgrade will probably be above the optimum, and this will render its shear strength inadequate to support paving equipment traffic. In this case, the granular sub/base should be replaced by an equal thickness of compacted size 50 mm Crusher-Run Limestone, or recycled concrete.

General Comments

This geotechnical report is provided based on the terms of reference provided above and, on the assumption, that the design will be in accordance with the applicable codes and standards.

If there is any change in the design features relevant to the geotechnical analyses, or if any questions arise regarding the geotechnical aspects of the codes and standards, this office should be contacted to review the new data and design.

The comments given in this report are intended for the guidance of design engineers.

In addition, the purpose of the investigation was to reveal the subsurface conditions, and to determine the various soil properties that are relevant for the construction of the foundations of the school building, the associated site services, the pavements, and the play areas.

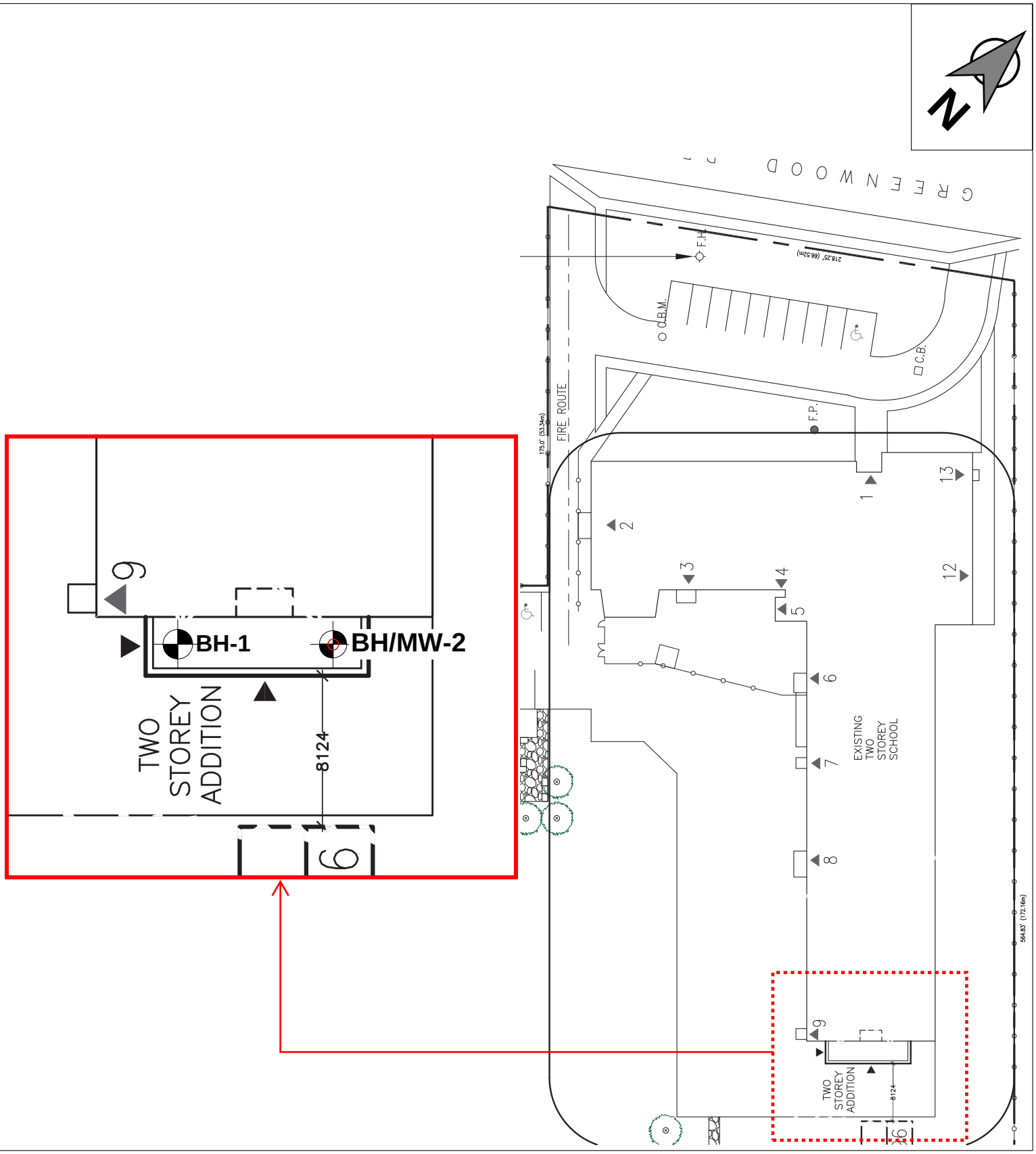
We trust this report contains information requested at this time. However, if any clarification is required, or if we can be of further assistance, please contact this office.

Yours truly,
Forward Engineering & Associates Inc.



Juan Chahine, P. Eng.
Senior Project Manager

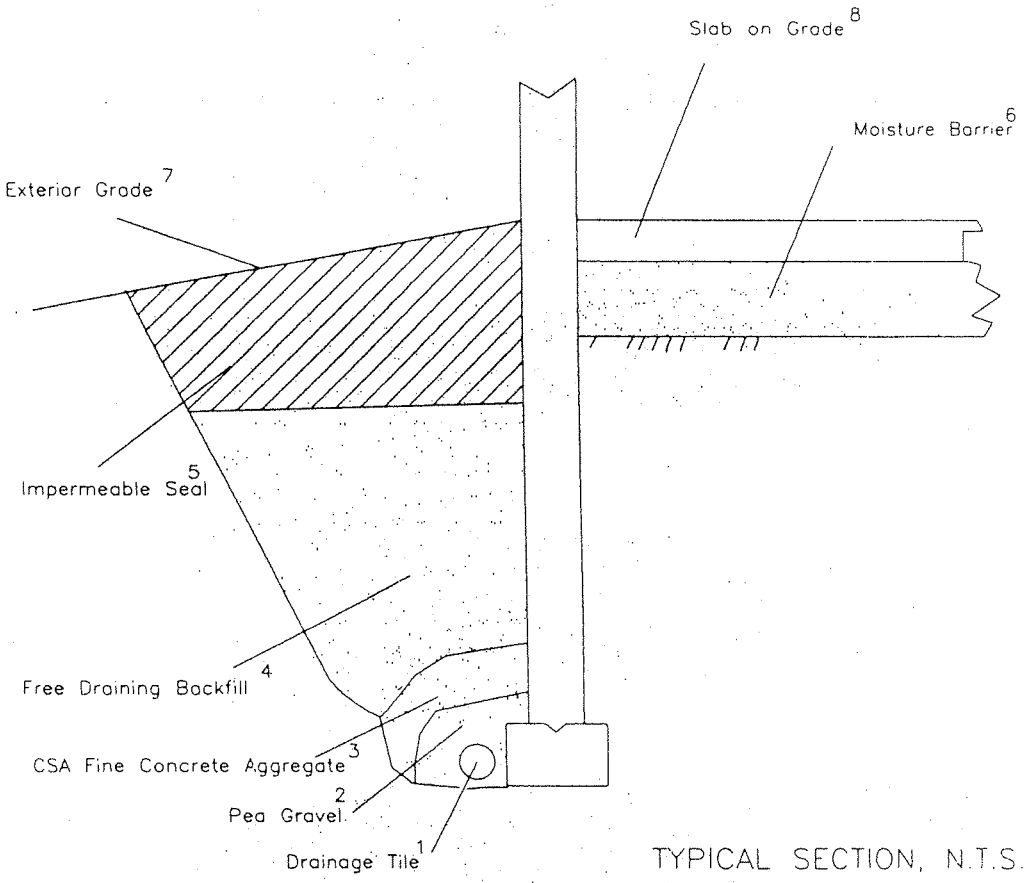
G. S. Semaan, M.Eng., P.Eng.
Principal



FORWARD ENGINEERING & Associates Inc. **Forward Engineering & Associates Inc.** 244 Brockport Drive, Unit 15 Toronto, Ontario M9W 6X9 Tel: 416-798-3500 Fax: 416-798-8481 www.**forward**engineering.ca	**Project Name:** PROPOSED NEW ELEVATOR ADDITION - KINGS ROAD PUBLIC SCHOOL **Address:** 660 GREENWOOD DRIVE BURLINGTON, ONTARIO	Title **DWG No.1** **BOREHOLE LOCATION PLAN** LEGEND = BOREHOLE LOCATION = BOREHOLE/MONITORING WELL LOCATION	PROJECT NO. : 7644 DRAWING DATE : Mar. 27, 2026 DRAWING BY : P.R. CHECKED BY : G.S. PAGE 1 of 1

DRAINAGE AND BACKFILL RECOMMENDATIONS

(Not to Scale)



TYPICAL SECTION, N.T.S.

NOTES:

1. Drainage tile to consist of 100 (4") diam. Weeping tile or equivalent perforated pipe leading to a positive sump or outlet. Invert to be minimum 150mm (6") below underside of floor slab.
2. Pea gravel 150mm (6") top and sides of drain. If drain is not on footing, 100 mm (4") of pea gravel below drain. Clear 20mm (3/4") crushed stone may be used provided it is covered by an approved porous membrane (Terrafix 270R or equivalent).
3. C.S.A. Fine aggregate to act as filter material. Minimum 300 mm (12") top and sides of tile drain. This may be replaced by an approved porous plastic membrane as indicated in 2.
4. Free draining backfill - Class B pit-run gravel or equivalent compacted to 93 – 95 % Standard Proctor Maximum Dry Density (SPMDD).
5. Impermeable backfill seal compacted clay, clay silt or equivalent. If original soil is free draining seal may be omitted.
6. Moisture barrier to consist of 20mm (3/4") compacted crushed stone. Layer to be 200mm (8") thick.
7. Exterior grade to slope away from wall.
8. Slab on grade should not be structurally connected to wall footing.
9. If the 20mm (3/4") stone requires surface blinding, use 6mm (1/4") stone chips.

DRAWING NO. 2

APPENDIX A

BOREHOLE LOG SHEETS
(1 – 2)

Project No: 7644

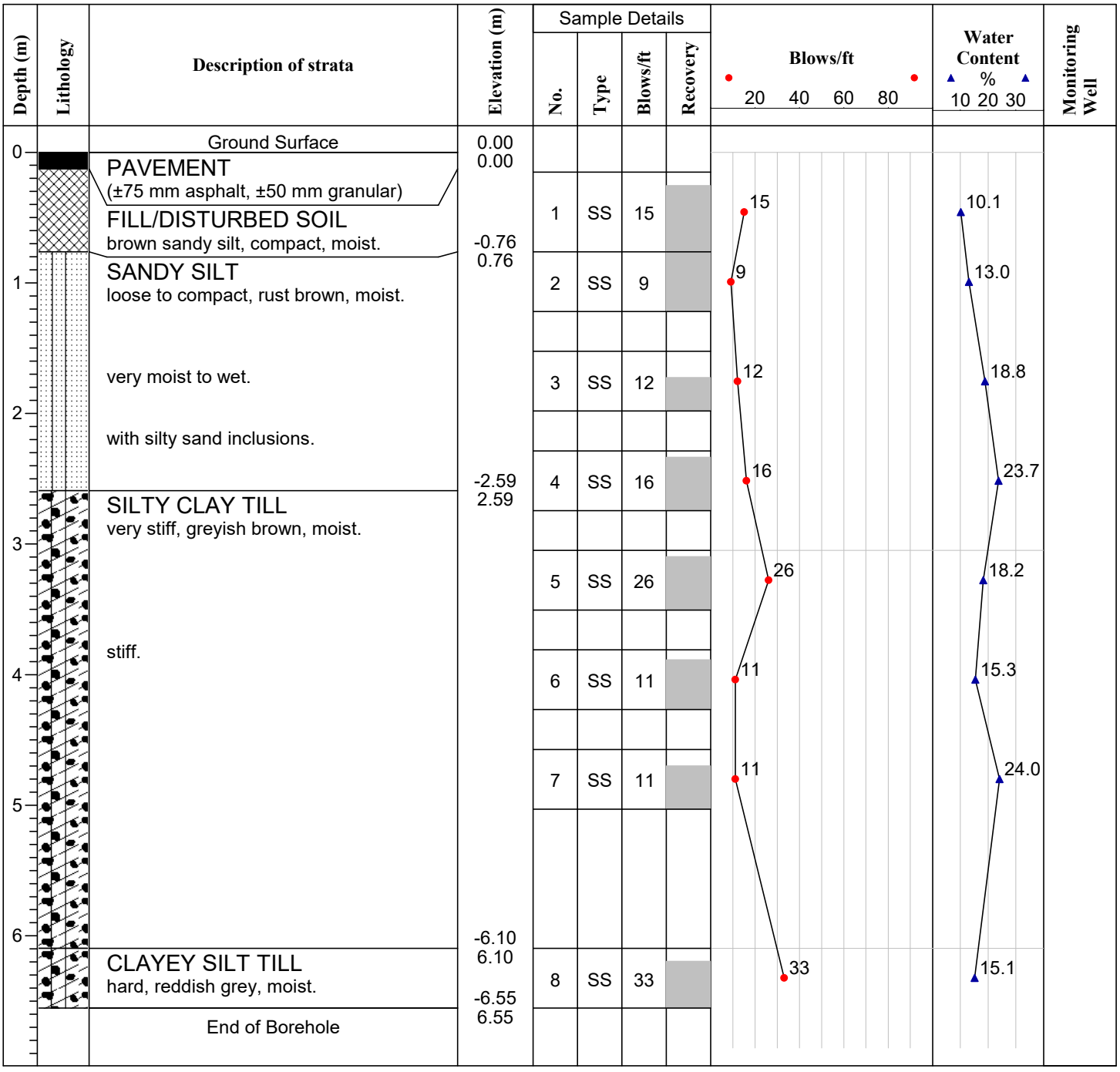
Log of Borehole BH-1

Project: PROPOSED NEW ELEVATOR ADDITION - KINGS ROAD PUBLIC SCHOOL

Client: HALTON DISTRICT SCHOOL BOARD

Enclosure: 2

Location: 660 GREENWOOD DRIVE, BURLINGTON, ONTARIO



Remarks: Upon completion of drilling, the borehole was open to 2.4 m and water level was measured at 1.5 m below EGSL.

Drill Method: CME 75 - SOLID AUGER

Drill Date: 20 MARCH 2026

Datum: GEODETIC

FORWARD ENGINEERING & ASSOCIATES INC.
244 Brockport Drive, Unit 15, Toronto, Ontario, M9W 6X9

Engineer: V.G.

Checked by: G.S.

Sheet No. 1 of 1

Project No: 7644

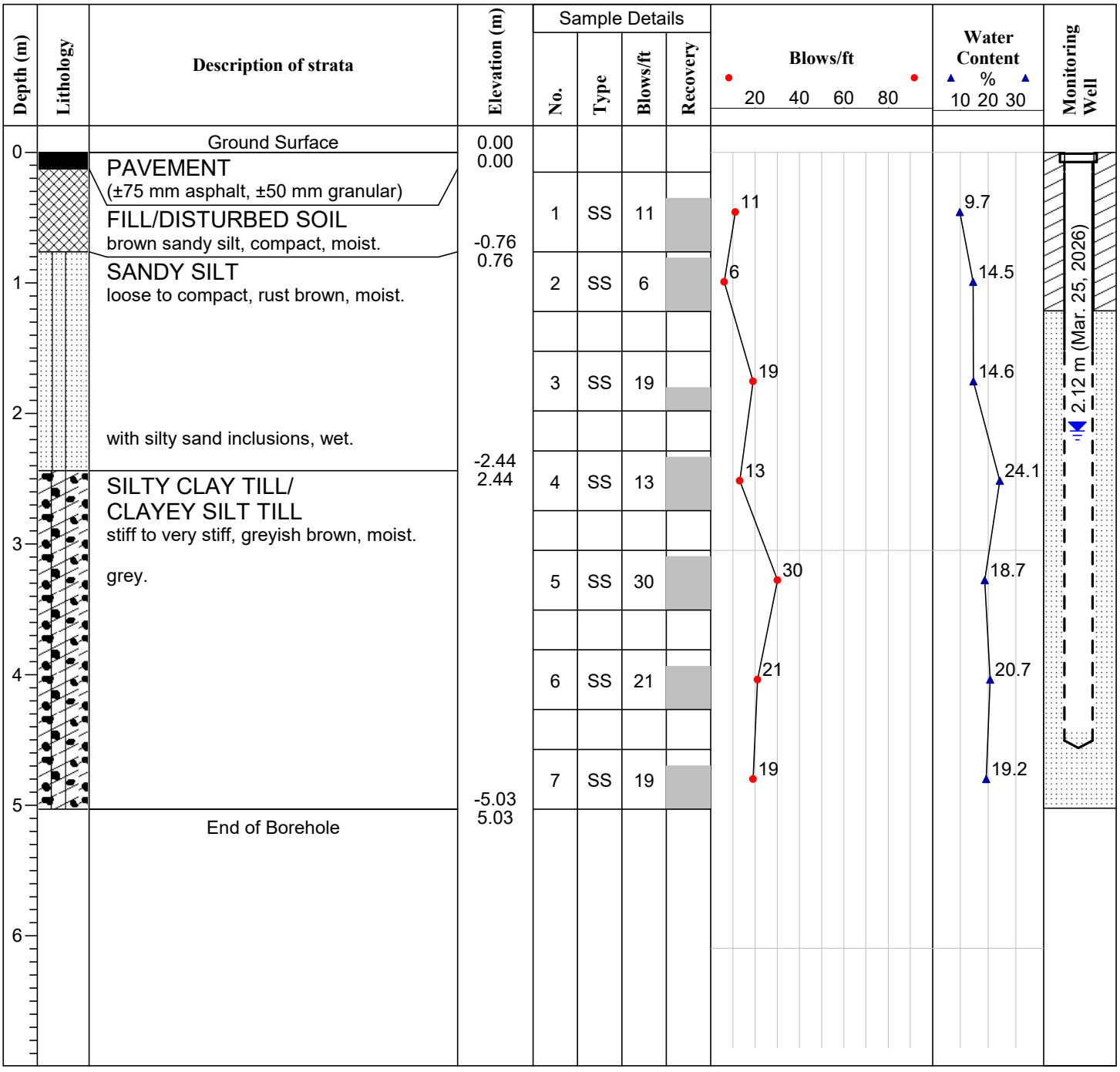
Log of Borehole BH/MW-2

Project: PROPOSED NEW ELEVATOR ADDITION - KINGS ROAD PUBLIC SCHOOL

Client: HALTON DISTRICT SCHOOL BOARD

Enclosure: 3

Location: 660 GREENWOOD DRIVE, BURLINGTON, ONTARIO



Remarks: -Upon completion of drilling, the borehole was open and water level was measured at 2.4 m below EGSL.
-On March 25, 2026, the water level in the installed well was measured at 2.12 m below EGSL.

Drill Method: CME 75 - SOLID AUGER

Drill Date: 20 MARCH 2026

Datum: GEODETIC

FORWARD ENGINEERING & ASSOCIATES INC.
244 Brockport Drive, Unit 15, Toronto, Ontario, M9W 6X9

Engineer: V.G.

Checked by: G.S.

Sheet No. 1 of 1

1.1 Hazardous Material Report

.1 A copy of a detailed Designated Substances Report is included herein, titled as: "Hazardous Building Materials Assessment (Pre-construction)" for King's Road PS, 660 Greenwood Dr, Burlington Ontario, dated May 26, 2026 prepared for the Halton District School Board by Pinchin Ltd.

.2 This report identifies existing building components which contain designated substances and asbestos products. The recommendations given in the report shall not be construed as a requirement of this Contract unless Work under the Contract results in disturbance to identified asbestos products. The Contractor is to review the contents of the report and exercise means as required to conform to Ontario Regulation 654/85.

.3 The report, by its nature, cannot reveal all conditions that exist or can occur on the site. Should subsurface conditions be found to vary substantially from the report, changes in the Work will be made, with resulting credits or expenditures to the contract Price accruing to the Owner.

.4 The Contractor is to note that subsequent to the preparation of this Report, some corrective work has been undertaken.

.5 Asbestos removal/containment Work is to be performed only during the Christmas Break, Spring Break, or Summer Break, with exact dates as defined by the Board. If phasing is required, Work area is to be isolated from the remainder of the school and phased Work is to be commenced and completed within each break period.

.6 As the investigation for asbestos was not intrusive, should the Work uncover a material that is suspected to contain asbestos, then with notification to and the authorization by the Board, Pinchin Ltd. is to be engaged by the Board and co-ordinated by the Contractor for sample collection and analysis. If required, further instruction will be forwarded where materials are confirmed to contain asbestos and will impact on the construction work.



Hazardous Building Materials Assessment (Pre-construction)

Accessibility Upgrades
King's Road Public School
660 Greenwood Drive,
Burlington, Ontario

Prepared for:

Halton District School Board
2050 Guelph Line
Burlington, Ontario, L7P 5A8

May 26, 2026

Pinchin File: 368273.004

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Issued to:	**Halton District School Board**
Issued on:	**May 26, 2026**
Pinchin File:	**368273.004**
Issuing Office:	**Hamilton, ON**
Primary Pinchin Contact:	**Jessica Cozzitorto, C. Tech.** **289.678.0692** **jcozzitorto@pinchin.com**

Author: Emily Balfour
Project Manager

Reviewer: Damian Palus, C.E.T.
Operations Manager

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EXECUTIVE SUMMARY

Halton District School Board (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at King's Road Public School located at 660 Greenwood Drive, Burlington, Ontario. Pinchin performed the assessment on February 17, 2026, with return visits on April 14 and April 30, 2026.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation activities. The proposed work as identified by the Client includes an addition to the building for a new elevator, a stage lift, and flooring replacement in various locations.

The results of this assessment are intended for use with a properly developed scope of work or performance specifications and safe work procedures.

SUMMARY OF FINDINGS

The following is a summary of significant findings; refer to the body of the report for detailed findings:

Asbestos:

- Texture coat
- Pipe insulation
- Plaster
- Transite board
- Vinyl floor tiles
- Caulking
- Glazing putty
- Roofing (presumed)
- Sink undercoating (presumed)
- Door insulation (presumed)

Lead:

- Lead is present in paints and coatings.
- Batteries of emergency lights and fire alarm panels contain solid lead.
- Lead caulking is present in cast-iron bell and spigot fittings.
- Presumed present as electrical components and solder on pipe connections

Silica: Crystalline silica is present in concrete and other materials such as masonry and mortar.

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Mercury: Mercury vapour is present in lamp tubes and liquid mercury is presumed present in thermostat ampules.

Polychlorinated Biphenyls (PCBs): PCBs are not present.

Mould and Water Damage: Visible mould and water damage was not observed.

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SUMMARY OF RECOMMENDATIONS

The following is a summary of significant recommendations; refer to the body of the report for detailed recommendations.

1. Conduct further investigation of all items and materials that were excluded from the scope or areas that were not assessed. Refer to detailed recommendations in Section 5.1.
2. Prepare a scope of work or specifications and safe work procedures for the hazardous materials removal required for the planned work.
3. Do not disturb suspected hazardous building materials discovered during the planned work, which have not been identified in this report and arrange for further evaluation and testing.
4. Remove and properly dispose of asbestos-containing materials prior to renovation activities.
5. Recycle mercury-containing lamp tubes and thermostats if removed from service.
6. Follow appropriate safe work procedures when handling or disturbing asbestos, lead, and silica.

This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.

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APPENDIX II-B Lead Analytical Certificates
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1.0 INTRODUCTION AND SCOPE

Halton District School Board (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at King's Road Public School located at 660 Greenwood Drive, Burlington, Ontario.

Pinchin performed the assessment on February 17, 2026, with return visits on April 14 and April 30, 2026.

The assessor was unaccompanied during the assessment. The assessed area was unoccupied at the time of the assessment.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation activities.

The results of this assessment are intended for use with a properly developed scope of work or performance specification.

1.1 Scope of Assessment

The **assessed area** is limited to the portion(s) of the building to be renovated, as described by the Client, and identified in the drawings in Appendix I.

The assessment was performed to establish the type of specified hazardous building materials, locations and approximate quantities incorporated in the structure(s) and its finishes.

For the purpose of the assessment and this report, hazardous building materials are defined as follows:

- Asbestos
- Lead
- Silica
- Mercury
- Polychlorinated Biphenyls (PCBs)
- Mould

The following Designated Substances are not typically found in building materials in a composition/state that is hazardous and were not included in this assessment:

- Arsenic
- Acrylonitrile
- Benzene
- Coke oven emissions
- Ethylene oxide

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- Isocyanates
- Vinyl chloride monomer

2.0 METHODOLOGY

Pinchin conducted a room-by-room assessment to identify the hazardous building materials as defined in the scope.

Limited destructive testing of flooring was conducted where possible (under carpets). Destructive testing of exterior building finishes, masonry walls (chases, shafts etc.), and structural surrounds was not conducted.

Limited destructive testing of masonry block walls (core holes) was conducted to investigate for loose fill vermiculite insulation. Sampling of roofing materials was not conducted.

For further details on the methodology including test methods, refer to Appendix III.

3.0 BACKGROUND INFORMATION

3.1 Building Description

Description Item	Details
Use	Elementary School
Number of Floors	The building is 2 storeys.
Year of Construction	The building was constructed in 1955 with an addition constructed in 1958.
Structure	Concrete block, concrete, steel
Exterior Cladding	Brick
Roof	Not assessed
Flooring	Vinyl floor tiles, carpet, terrazzo
Interior Walls	Drywall, plaster, concrete block
Ceilings	Acoustic ceiling tiles, plaster, drywall

3.2 Existing Reports

Pinchin was provided past reports, which have been reviewed and relied upon as part of this assessment.

3.3 Inaccessible Locations

The following rooms or areas were not accessible and are therefore not included in the report.

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Area or Room	Reason
Above solid ceilings where present	Solid ceiling

4.0 FINDINGS

The following section summarizes the findings of the assessment and provides a general description of the hazardous building materials identified. For details on approximate quantities, condition, friability, accessibility, and locations of hazardous building materials; refer to the Hazardous Material Summary / Sample Log and All Data Report in Appendices V and VI.

Any quantities listed in this report or data tables are estimated based on visual approximations only and are subject to variation.

4.1 Asbestos

4.1.1 Texture Finishes (Decorative)

Texture coat, containing chrysotile asbestos, is present on ceilings in the 1955 era (previous samples S0134, photo 1).

Texture coat, containing chrysotile asbestos, is present on ceilings in the 1958 era (samples S0005, photo 2). The substrate (plaster) is presumed to contain asbestos.

Overspray from the asbestos-containing texture coat is assumed present above the ceiling at light fixture openings, on the deck, ducts and within junction boxes.



Photo 1



Photo 2

4.1.2 Pipe Insulation

Parging cement, containing asbestos, is present on pipe fittings behind the counter in Classroom 124 (previous samples S0132, photo 1). Parging cement is assumed present on pipe fittings behind other counters, above bulkheads, and above solid ceilings in the assessed area.

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Sweatwrap insulation (brown layered paper), containing asbestos in the tar paper layer only, is present on straight sections of drain system pipes in Janitorial 119, Classroom 202, Janitorial 201, and Auditorium Stage 109A (samples S0003, photo 2). Parging cement, containing asbestos, is present where the pipe meets the floor in Classroom 202 and Janitorial 201 (photo 3).

Remaining pipes in the assessed area are either uninsulated or insulated with non-asbestos fibreglass or other non-asbestos insulation such as mineral fibre, horsehair, or elastomeric foam insulation (photo 4).

Pipes insulated with asbestos-containing insulations may be present in inaccessible spaces such as above solid ceilings, in chases, in column enclosures and within shafts.



Photo 1



Photo 2



Photo 3



Photo 4

4.1.3 Duct Insulation

Ducts are either uninsulated or insulated with non-asbestos fibreglass.

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4.1.4 Vermiculite

Destructive testing was conducted of a representative selection of masonry block walls, including creating penetrations at 4 locations. The locations of destructive testing have been indicated on the drawings in Appendix I.

Loose fill vermiculite was not observed within the cavities.

4.1.5 Acoustic Ceiling Tiles

The following is a summary of acoustic ceiling tiles present.

Description	Locations	Sample Number	Asbestos	Photo
24"x48", lay-in, pinhole with random small fissure pattern	Corridor 2A Corridor 2B Corridor 3	Previous samples S0117	No	

4.1.6 Plaster

Textured plaster, containing asbestos in the finish layer, is present on the ceiling in Janitorial 201 (samples S0002, photo 1).

Residual plaster/mortar around the perimeter of the wall at the ceiling level in Janitorial 119 does not contain asbestos (sample S0024, photo 2).

Plaster, presumed to contain asbestos, may be present on the exterior soffit above the second-floor corridor window in the 1958 era (photo 3). The soffit was not accessible or fully visible during the assessment.

Smooth plaster present on walls and ceilings in the 1955 era does not contain asbestos (previous samples S0125).

Smooth paster present on walls and ceilings in the 1958 era does not contain asbestos (previous samples S0135 and samples S0006, photo 4).

Rough plaster present on the ceiling in Mechanical Room 106 does not contain asbestos (previous samples S0136, photo 5).

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Photo 1



Photo 2



Photo 3



Photo 4



Photo 5

4.1.7 Drywall Joint Compound

Drywall joint compound present on wall and ceiling finishes in the assessed area does not contain asbestos (previous samples S0115, S0129, and samples S0007, photo 1).

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Photo 1

4.1.8 Asbestos Cement Products

Residual cement board (e.g. Transite), containing asbestos, is present above the acoustic ceiling tiles in Corridor 3 along the wall where the addition is being constructed (sample S0009, photo 1).

Transite board, is presumed present above the stage in Auditorium 109 (inaccessible, photo 2). Transite is not expected to be impacted during the construction scope of work.



Photo 1



Photo 2

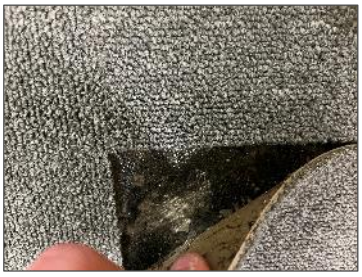
4.1.9 Vinyl Floor Tiles and Baseboard Mastic

The following is a summary of vinyl floor tiles and baseboard mastic present.

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Description	Locations	Sample Number	Asbestos (Tile / Adhesive)	Photo
9" x 9" light brown with red and black streaks	Classroom 101 Classroom 103 Classroom 105	S0101 (tile) S0107 (mastic)	Yes / No	
12" x 12" cream with grey streaks	Classroom 102	S0123 (tile) S108 (mastic)	Yes / No	
12" x 12" beige with grey and white speckles	Classroom 102	S0122 (tile) S0108 (mastic)	No / No	
12" x 12" cream with light and dark cream and grey speckles	Classroom 104	S0124 (tile) S0109 (mastic)	No / No	
12" x 12" beige with light brown streaks	Stage 109A Classroom 101	S0017	No / No	

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Description	Locations	Sample Number	Asbestos (Tile / Adhesive)	Photo
12" x 12" beige with dark brown streaks	Side Stage 109A	S0018	No / No	
12" x 12" off-white with occasional black streaks	Classroom 120	S0128 (tile) S0111 (mastic) S0112 (levelling)	No / No / No	
12" x 12" beige with purple streaks	Classroom 122 Classroom 123 Classroom 124 Classroom 125	S0130 (tile) S0113 (mastic)	No / No	
12" x 12" cream with brown swirls	Classroom 202 Classroom 204 Classroom 205 Classroom 207	S0131 (tile) S0114 (mastic)	No / No	
Mastic and levelling compound below carpet	Library 115/117	S0019	No	

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Description	Locations	Sample Number	Asbestos (Tile / Adhesive)	Photo
Brown baseboard mastic	Throughout	S0008	No	

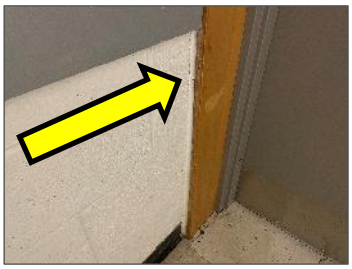
Mastic and levelling compound was analysed for asbestos content where it was present on the tiles, however a comprehensive testing program for mastic was not performed.

4.1.10 Caulking and Putty

The following is a summary of caulking and putties sampled.

Material, Description and Application	Sample Location (Location #)	Sample Number	Asbestos	Photo
Caulking around exterior door frame	Exterior Doors 10 and 11	S0014	Yes	
Glazing putty in vestibule door and window frame	Corridor 2B	S0015	Yes	
Caulking around window frame	Corridor 3	S0010	No	

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Material, Description and Application	Sample Location (Location #)	Sample Number	Asbestos	Photo
Caulking around vestibule door frame	Corridor 2B	S0012	No	
Glazing putty in exterior door 10 and window frame	Corridor 2B	S0013	No	
White caulking at edges of stage	Stage 109A	S0025	No	

4.1.11 Roofing Products

Roofing materials are presumed to contain asbestos (roof not assessed).

4.1.12 Mortar

The following is a summary of mortar present

Material and Location	Sample Number	Asbestos	Photo
Concrete block mortar (1955 era)	S0023 Previous samples S0105	No	

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Material and Location	Sample Number	Asbestos	Photo
Concrete block mortar (1958 era)	S0001 S0022	No*	
Exterior brick mortar (1958)	Previous samples S0106	No	

*Mortar was previously confirmed to contain asbestos in Janitor Room 201. Additional samples collected did not detect asbestos in mortar samples collected in Room 201 (samples S0001A-D). All other samples collected in the assessed areas of the 1958 era were determined to be non-asbestos (samples S0022A-C).

4.1.13 Paint / Block Filler

The following is a summary of paint / block filler present.

Material and Location	Sample Number	Asbestos	Photo
Paint / block filler (1955 era)	Previous samples S0104 and S0118 S0016	No	
Paint / block filler (1958 era)	Previous samples S0103 S0004	No	

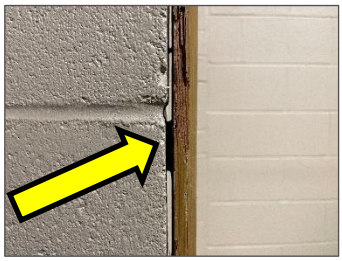
© 2026 Pinchin Ltd.

4.1.14 Other Building Materials

The following is a summary of other building materials present.

Description	Locations	Sample Number	Asbestos	Photo
Terrazzo	Corridor 2B Corridor 3	S0011	No	
Parging on foundation	Exterior	S0020	No	
Asphalt	Exterior	S0021	No	
Paper behind cladding (inaccessible)	Exterior	Previous samples S0119	No	
Black sink undercoating	Classroom 101 Classroom 103	N/A	Presumed (not expected to be impacted by project scope of work)	

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Description	Locations	Sample Number	Asbestos	Photo
Insulation inside doors and frames	Exterior doors 10 and 11 Corridor 2B	N/A	Presumed (interior of doors not assessed due to the destructive nature of sampling)	
Adhesive behind wood door frame	Stage 109A	S0026	No	

4.1.15 Excluded Materials

The following is a list of materials which may contain asbestos and was excluded from the assessment. These materials are presumed to contain asbestos until otherwise proven by sampling and analysis:

- Floor levelling compound
- Electrical components
- Mechanical packing, ropes, and gaskets
- Caulking and putties not sampled
- Fire resistant doors
- Ropes and gaskets in cast-iron bell and spigot joints
- Sealants on pipe threads

4.2 Lead

4.2.1 Paints and Surface Coatings

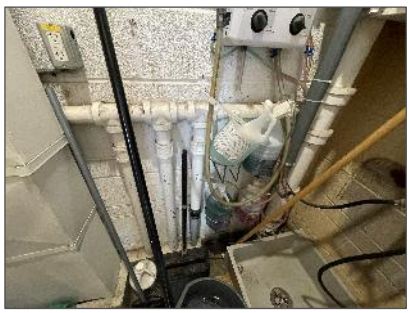
Refer to the lab report(s) in Appendix II-B and the Hazardous Material Summary / Sample Log in Appendix V for details on paints sampled and their locations.

The following table summarizes the analytical results of paints sampled.

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Sample Number	Colour, Substrate Description	Sample Locations	Lead (%)	Photo
L0001	Paint on concrete block	Corridor 3	0.0049	
L0002	Paint on wood window sill	Corridor 3	<0.0014	
L0003	Paint on wood quarter rounds	Classrooms in 1958 era	0.019	
L0004	Paint on drywall wall	Corridor 3	0.00096	
L0005	Paint on exterior doors and frames	Exterior	0.86	

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Sample Number	Colour, Substrate Description	Sample Locations	Lead (%)	Photo
L0006	Paint on wood stage and stairs	Stage 109A	0.049	
L0007	Paint on concrete block	Stage 109A	0.0066	
L0008	Primer on structural steel	Corridor 3	0.072	
L0009	Paint on cast iron pipe	Janitorial 201	0.14	

Results above 0.1% (1,000 mg/kg) are considered lead-containing, and over 0.5% (5,000 mg/kg) are considered lead-based in accordance with the EACC guideline.

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Results greater than 0.009% (90 mg/kg) but less than or equal to 0.1% (1,000 mg/kg) are considered low-level lead paints or surface coatings in accordance with the EACC guideline.

Paints containing lead equal to or less than 0.009% (90 mg/kg) are assumed to be insignificant relating to potential exposure from construction disturbance in accordance with the EACC guideline.

4.2.2 Lead Products and Applications

Lead-containing batteries are present in emergency lighting and fire alarm panels (photo 1 and 2).

Lead caulking is presumed present in cast-iron bell and spigot fittings (photo 3)



Photo 1



Photo 2



Photo 3

4.2.3 Excluded Lead Materials

Lead is known to be present in several materials which were not assessed or sampled. The following materials, where found, should be presumed to contain lead.

- Electrical components, including wiring connectors, grounding conductors, and solder

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- Solder on pipe connections

4.3 Silica

Crystalline silica is assumed to be a component of the following materials where present in the building.

- Concrete
- Masonry and mortar
- Plaster
- Asphalt

4.4 Mercury

4.4.1 Lamps

Mercury vapour is present in fluorescent lamp tubes. LED lamp tubes do not contain mercury.

4.4.2 Mercury-Containing Devices

Mercury is presumed present as a liquid in thermostats ampules.



Photo 1

4.5 Polychlorinated Biphenyls

4.5.1 Caulking and Sealants

The following table presents a summary of caulking sampled:

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Material, Colour, Application	Sample Location	Sample Number	PCB (mg/kg)	Photo
Caulking around window frame	Corridor 3	P0001	<0.2	
Caulking around exterior doors	Exterior	P0002	7	

Caulking is a non-PCB solid based on the threshold (50 mg/kg).

4.5.2 Lighting Ballasts

Based on visual observations (e.g., evidence of T-5 or T-8 fixtures with electronic ballasts) the fixtures will not contain PCB ballasts.

4.5.3 Transformers

The exterior transformer is a dry type transformer and would not contain PCB-containing dielectric fluids (photo 1).



Photo 1

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4.5.4 Excluded PCB Materials

PCBs are known to be present in several materials and equipment which were not assessed or sampled. The following materials, where found, should be presumed to contain PCBs until sampling proves otherwise.

- Capacitors within or associated with electrical equipment
- Voltage regulators and capacitors

4.6 Mould and Water Damage

Visible mould growth and water damage was not found during the assessment.

5.0 RECOMMENDATIONS

5.1 General

1. Prepare performance specifications for the hazardous material removal required for the planned work. The specifications should define the outline of work, risk levels, personal protective equipment, safe work practices and disposal requirements. The specifications should also describe any air monitoring, site reviews and project close-out documentation that is required for regulatory compliance.
2. If suspected hazardous building materials are discovered during the planned work, which are not identified in this report, do not disturb, and arrange for further testing and evaluation.
3. Conduct further investigation of the roof (not assessed) and materials presumed to contain asbestos if being impacted by the scope of work.
4. Provide this report and the detailed plans and specifications to the contractor prior to bidding or commencing work.
5. Retain a qualified consultant to specify, observe and document the successful removal of hazardous materials.
6. Update the asbestos inventory upon completion of the abatement and removal of asbestos-containing materials and any other relevant findings.

5.2 Construction Work

The following recommendations are made regarding the construction work involving the hazardous materials identified.

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5.2.1 Asbestos

Remove asbestos-containing materials (ACM) prior to renovation, alteration, or maintenance if ACM may be disturbed by the work. If the identified ACM will not be removed prior to commencement of the work, any potential disturbance of ACM must follow asbestos precautions appropriate for the type of work being performed.

Asbestos-containing materials must be disposed of at a landfill approved to accept asbestos waste.

5.2.2 Lead

For lead-containing or lead-based paints (i.e., greater than the EACC guideline of 0.1% (1,000 mg/kg) for lead-containing paints, and 0.5% (5,000 mg/kg) for lead-based), construction disturbance may result in over-exposure to lead dust or fumes. The need for work procedures, engineering controls and personal protective equipment should be assessed on a site-specific basis to comply with applicable regulations, and/or guidelines.

For paints identified as having low levels of lead (i.e., greater than 0.009% (90 mg/kg) but less than or equal to the EACC guideline of 0.1% (1,000 mg/kg) for lead-containing paints) special precautions are not recommended unless aggressive disturbance (grinding, blasting, torching) is planned.

Exposure from construction disturbance of paints containing lead equal to or less than 0.009% (90 mg/kg) is assumed to be insignificant in accordance with the EACC guideline.

Items painted with paints containing elevated levels of lead may be a hazardous waste. Test lead-painted materials for leachable lead and other metals prior to disposal. Metallic components coated with lead paint do not require leachate testing and can be disposed of as non-hazardous construction and demolition (C&D) waste.

Lead-containing items should be recycled when taken out of service.

5.2.3 Silica

Construction disturbance of silica-containing products may result in excessive exposures to airborne silica, especially if performed indoors and dry. Cutting, grinding, drilling or demolition of materials containing silica should be completed only with proper respiratory protection and other worker safety precautions that comply with applicable regulations and guidelines.

5.2.4 Mercury

Do not break lamps or separate liquid mercury from components. Recycle and reclaim mercury from fluorescent lamps and thermostats when taken out of service. Mercury is classified as a hazardous waste and must be disposed of in accordance with applicable regulations.

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6.0 TERMS AND LIMITATIONS

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

7.0 REFERENCES

The following legislation and documents were referenced in completing the assessment and this report:

1. Asbestos on Construction Projects and in Buildings and Repair Operations, Ontario Regulation 278/05.
2. Designated Substances, Ontario Regulation 490/09.
3. Lead on Construction Projects, Ministry of Labour Guidance Document.
4. The Environmental Abatement Council of Canada (EACC) Lead Guideline for Construction, Renovation, Maintenance or Repair.
5. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 347 as amended.
6. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 362 as amended.
7. Silica on Construction Projects, Ministry of Labour Guidance Document.
8. Alert – Mould in Workplace Buildings, Ontario Ministry of Labour.
1. PCB Regulations, SOR/2008-273, Canadian Environmental Protection Act.
2. Surface Coating Materials Regulations, SOR/2016-193, Canada Consumer Product Safety Act.
3. Consolidated Transportation of Dangerous Goods Regulations, including Amendment SOR/2019-101, Transportation of Dangerous Goods Act.
4. Mould Guidelines for the Canadian Construction Industry, Standard Construction Document CCA 82 – 2004 (Revised 2018), Canadian Construction Association.
5. The Environmental Abatement Council of Canada (EACC) Mould Abatement Guidelines.

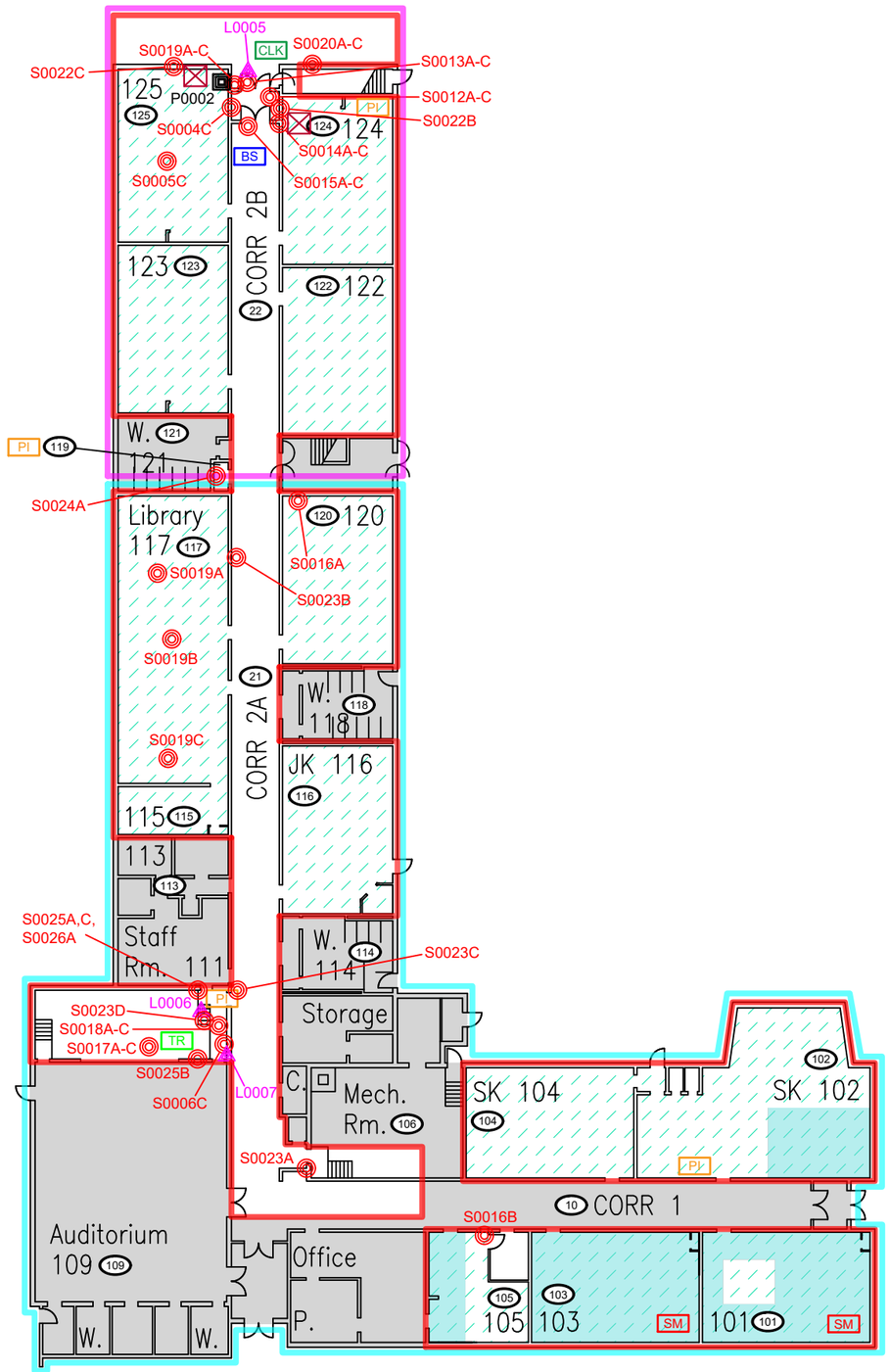
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APPENDIX I

Drawings

PHASE A - 1955 ERA OF CONSTRUCTION
PHASE B - 1958 ERA OF CONSTRUCTION

1 EXTERIOR(1955)



NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

BASE PLAN PROVIDED BY CLIENT.

N

LEGEND

- PINCHIN LOCATION NUMBER
- VERMICULITE INSPECTION
- ASBESTOS BULK SAMPLE
- LEAD BULK SAMPLE
- PCB BULK SAMPLE
- SURVEY BOUNDARY/ASSESSED AREA
- OUTSIDE ASSESSMENT SCOPE

ASBESTOS-CONTAINING MATERIALS:

- PI PIPE INSULATION
- SM SINK MASTIC
- BS BUTYL SEALANT
- PL PLASTER
- TR TRANSITE
- CK CAULKING
- TEXTURE COAT
- VINYL FLOOR TILES

FOR CLARITY, THE FOLLOWING ASBESTOS-CONTAINING MATERIALS, ARE PRESENT IN THE ASSESSED AREA, BUT HAVE NOT BEEN HATCHED ON THE DRAWING:

- PIPE INSULATION (CONCEALED)
- ROOFING (PRESUMED)

PINCHIN

Halton District School Board

PROJECT NAME:
HAZARDOUS BUILDING MATERIALS ASSESSMET

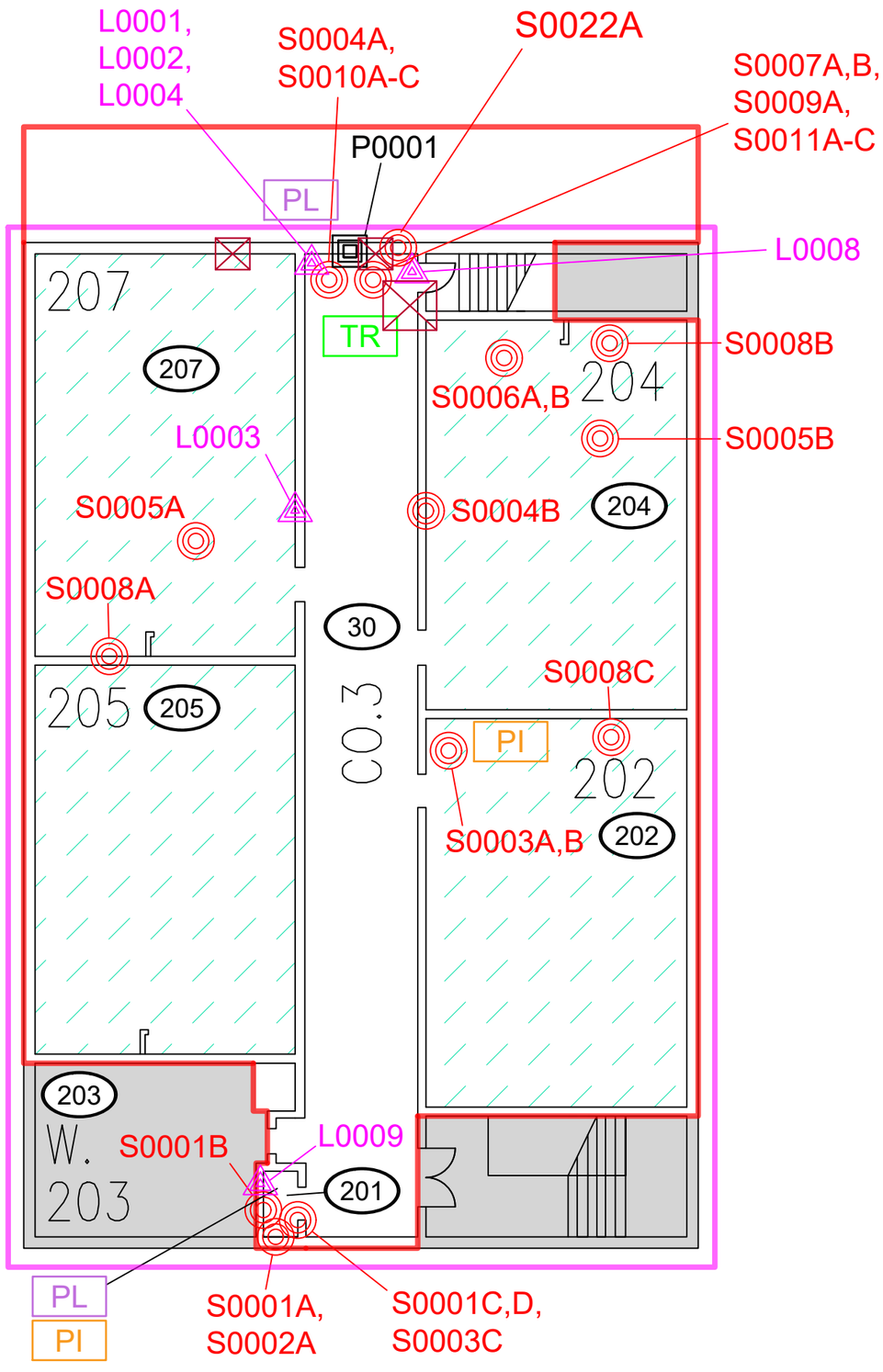
CLIENT NAME:
HALTON DISTRICT SCHOOL BOARD

PROJECT LOCATION:
KING'S ROAD PUBLIC SCHOOL, 660 GREENWOOD DRIVE, BURLINGTON, ON, CANADA

FIGURE NAME:
FIRST FLOOR

PROJECT NUMBER:	SCALE:
368273.004	NOT TO SCALE
DRAWN BY:	REVIEWED BY:
ML	DP
DATE:	FIGURE NUMBER:
MAY 2026	1 OF 2

PHASE A - 1955 ERA OF CONSTRUCTION
PHASE B - 1958 ERA OF CONSTRUCTION



LEGEND

- PINCHIN LOCATION NUMBER
- VERMICULITE INSPECTION
- ASBESTOS BULK SAMPLE
- LEAD BULK SAMPLE
- PCB BULK SAMPLE
- SURVEY BOUNDARY/ASSESSED AREA
- OUTSIDE ASSESSMENT SCOPE

ASBESTOS-CONTAINING MATERIALS:

- PI PIPE INSULATION
- SM SINK MASTIC
- BS BUTYL SEALANT
- PL PLASTER
- TR TRANSITE
- CK CAULKING
- TEXTURE COAT
- VINYL FLOOR TILES

FOR CLARITY, THE FOLLOWING ASBESTOS-CONTAINING MATERIALS, ARE PRESENT IN THE ASSESSED AREA, BUT HAVE NOT BEEN HATCHED ON THE DRAWING:

- PIPE INSULATION (CONCEALED)
- ROOFING (PRESUMED)

NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

BASE PLAN PROVIDED BY CLIENT.

PINCHIN

Halton District School Board

PROJECT NAME:
HAZARDOUS BUILDING MATERIALS ASSESSMET

CLIENT NAME:
HALTON DISTRICT SCHOOL BOARD

PROJECT LOCATION:
KING'S ROAD PUBLIC SCHOOL, 660 GREENWOOD DRIVE, BURLINGTON, ON, CANADA

FIGURE NAME:
SECOND FLOOR

PROJECT NUMBER:	SCALE:
368273.004	NOT TO SCALE
DRAWN BY: ML	REVIEWED BY: DP
DATE: MAY 2026	FIGURE NUMBER: 2 OF 2

APPENDIX II-A

Asbestos Analytical Certificates

emcscientific
INCORPORATED

Laboratory Analysis Report

To:

Emily Balfour
Pinchin Ltd.
2360 Meadowpine Boulevard - Unit 2
Mississauga, Ontario
L5N 6S2

EMC LAB REPORT NUMBER: A134425
Job/Project Name: King's Road PS, ON
Job No: 368273.004
Analysis Method: Polarized Light Microscopy – EPA 600
Number of Samples: 9
Date Received: May 5/26 **Date Analyzed:** May 11/26 **Date Reported:** May 11/26
Analyst: Rahul Patel
Reviewed By: Malgorzata Sybydło

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
S0023A	A134425-1	Wall, mortar, loc: 106, mechanical room	Grey, textured cementitious material	**ND**			100
S0023B	A134425-2	Wall, mortar, loc: 21, corridor 2A	Grey, textured cementitious material	**ND**			100
S0023C	A134425-3	Wall, mortar, loc: 21, corridor 2A	Grey, textured cementitious material	**ND**			100
S0023D	A134425-4	Wall, mortar, loc: 109, auditorium	Grey, textured cementitious material	**ND**			100
S0024A	A134425-5	Wall, perimeter, plaster, loc: 110, custodial	Grey, cementitious material	**ND**			100
S0025A	A134425-6	Wall, caulking, loc: 109, auditorium	White, caulking	**ND**			100
S0025B	A134425-7	Wall, caulking, loc: 109, auditorium	2 Phases: a) White, caulking b) Grey, cementitious material	 **ND** **ND**			 100 100
S0025C	A134425-8	Wall, caulking, loc: 109, auditorium	White, caulking	**ND**			100
S0026A	A134425-9	Wall, door frame, adhesive/mastic, loc: 109, auditorium	Off white, mastic	**ND**			100

Note:
1. Bulk samples are analyzed using Polarized Light Microscopy (PLM) and dispersion staining techniques. The analytical procedures are in accordance with App. E to Sub. E of 40 CFR Part 763 and EPA/600/R-93/116.
2. The results are only related to the samples analyzed. **ND** = None Detected (no asbestos fibres were observed), **NA** = Not Analyzed (analysis stopped due to a previous positive result).
3. This report may not be reproduced, except in full without the written approval of EMC Scientific Inc. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.
4. The Ontario Regulatory Threshold for asbestos is 0.5%. The limit of quantification (LOQ) is 0.5%.

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name:	**HDSB, 660 Greenwood Dr**		
Project No.:	**0368273.004**		
Prepared For:	**J. Thompson**		
Lab Reference No.:	**b361002**		
Analyst(s):	**K. Cockburn**		
Date Received:	**April 15, 2026**	**Samples Submitted:**	**3**
Date Analyzed:	**April 22, 2026**	**Phases Analyzed:**	**3**

The Pinchin Ltd. Mississauga asbestos laboratory is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 101270-0) for the 'EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples,' and the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials'; and meets all requirements of ISO/IEC 17025:2017. The Pinchin asbestos laboratory uses the aforementioned methods of analysis for all bulk materials. Please be advised that bulk materials do not include debris, dust, and tape-lift samples, and the analysis and reporting of these materials does not conform with Pinchin Ltd.'s NVLAP accreditation.

Bulk samples are checked visually and scanned under a stereomicroscope. Slides are prepared and observed under a Polarized Light Microscope (PLM) at magnifications of 40X, 100X or 400X as appropriate. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence and dispersion staining colours. A visual estimate is made of the percentage of asbestos present. A reported concentration of less than (<) the regulatory threshold indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with provincial regulatory requirements where applicable. Multiple phases within a sample are analyzed and reported separately.

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

This report relates only to the items tested.

This report relates only to the items tested and is valid only when signed with a protected, authorized, electronic signature. This report may not be reproduced, except in full, without the written approval of Pinchin Ltd. The client may not use this report to claim product endorsement by NVLAP or any agency of the U.S. Government. Internal verification studies, quality assurance / control data and laboratory documentation on measurement uncertainty are available upon request.

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: HDSB, 660 Greenwood Dr
Project No.: 0368273.004
Prepared For: J. Thompson

Lab Reference No.: b361002
Date Analyzed: April 22, 2026

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0022A Wall,Mortar,Exterior Wall,Loc:30,Corridor 3	Homogeneous, grey, hard, cementitious material.	None Detected	Cellulose < 0.5% Non-Fibrous Material > 75%
S0022B Wall,Mortar,Loc:22,Corridor 2B	Homogeneous, grey, hard, cementitious material.	None Detected	Cellulose < 0.5% Non-Fibrous Material > 75%
S0022C Wall,Mortar,Loc:125,Classroom	Homogeneous, grey, hard, cementitious material.	None Detected	Cellulose < 0.5% Non-Fibrous Material > 75%

Reviewed by: **Reporting Analyst:**

eLOG reg 4/15

Analyzed by: KS
Reviewed by: KB
Report Sent by:

Pinchin Ltd. - Asbestos Laboratory
Internal Asbestos Bulk Sample Chain of Custody

Special Instructions:

Client Name:	HDSB			**Project Address:**	660 Greenwood Dr		
Portfolio/Building No:				**Pinchin File:**	368273.004		
Submitted by:	Jonah Thompson			**Email:**	jthompson@pinchin.com		
CC Email:	ebalfour@pinchin.com			**CC Email:**	dpalus@pinchin.com		
Date Submitted:	April	13	2026	**Required by:**	April	21	2026
# of Samples:	3			**Priority:**	5 Day Turnaround		
Year of Building Construction (*Mandatory, Years ONLY*):							
Do NOT Stop on Positive (Sample Numbers):							
Pinchin Group Company (*Mandatory Field*):				Pinchin			
HMIS2 Building Reference #:	161546/2026031002454324822						

To be Completed by Lab Personnel Only:

Lab Reference #:	b361002 CN	**Time:**	24 hour clock
Received by:	APR 15 2026 CN	**Date:**	Month: 2026 Day: 04 Year: 22
Name(s) of Analyst(s):			

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)	
S	0022	A	Wall,Mortar,Exterior Wall,Loc:30,Corridor 3	ND
S	0022	B	Wall,Mortar,Loc:22,Corridor 2B	ND
S	0022	C	Wall,Mortar,Loc:125,Classroom	ND

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name:	**King's Road Public School, Ontario**
Project No.:	**0368273.004**
Prepared For:	**E. Balfour / J. Cozzitorto**
Lab Reference No.:	**b358000**
Analyst(s):	**M. Himmelman / J. Stapleton / N. Gerrow**

Date Received:	**February 25, 2026**	**Samples Submitted:**	**58**
Date Analyzed:	**March 4, 2026**	**Phases Analyzed:**	**79**

The Pinchin Ltd. Dartmouth asbestos laboratory is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 201032-0) for the 'EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples,' and the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials'; and meets all requirements of ISO/IEC 17025:2017. The Pinchin asbestos laboratory uses the aforementioned methods of analysis.

Bulk samples are checked visually and scanned under a stereomicroscope. Slides are prepared and observed under a Polarized Light Microscope (PLM) at magnifications of 40X, 100X or 400X as appropriate. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence and dispersion staining colours. A visual estimate is made of the percentage of asbestos present. A reported concentration of less than (<) the regulatory threshold indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with provincial regulatory requirements where applicable. Multiple phases within a sample are analyzed and reported separately.

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

This report relates only to the items tested.

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Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: King's Road Public School, Ontario
Project No.: 0368273.004
Prepared For: E. Balfour / J. Cozzitorto

Lab Reference No.: b358000
Date Analyzed: March 4, 2026

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0001A Wall, Mortar, N Wall, Loc:201, Janitorial	Homogeneous, grey, granular, cementitious material.	None Detected	Non-Fibrous Material > 75%
S0001B Wall, Mortar, W Wall, Loc:201, Janitorial	Homogeneous, grey, granular, cementitious material.	None Detected	Non-Fibrous Material > 75%
S0001C Wall, Mortar, E Wall, Loc:201, Janitorial	Homogeneous, grey, granular, cementitious material.	None Detected	Non-Fibrous Material > 75%
S0001D Wall, Mortar, S Wall, Loc:201, Janitorial	Homogeneous, grey, granular, cementitious material.	None Detected	Non-Fibrous Material > 75%
S0002A Ceiling, Plaster, Textured, Loc:201, Janitorial	2 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat. b) Homogeneous, white, granular, cementitious material.	None Detected Chrysotile 0.5-5%	Non-Fibrous Material > 75% Non-Fibrous Material > 75%
S0003A Piping, Drain, Sweatwrap, Loc:202, Classroom	2 Phases: a) Homogeneous, brown, compressed, fibrous material. b) Homogeneous, black, tar-impregnated, compressed, fibrous	None Detected Chrysotile 0.5-5%	Cellulose > 75% Non-Fibrous Material 0.5-5% Cellulose 5-10% Tar and other Non-Fibrous Material > 75%

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: **King's Road Public School, Ontario**
Project No.: **0368273.004**
Prepared For: **E. Balfour / J. Cozzitorto**

Lab Reference No.: **b358000**
Date Analyzed: **March 4, 2026**

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0003B Piping, Drain, Sweatwrap, Loc:202, Classroom	2 Phases: a) Homogeneous, brown, compressed, fibrous material. b) Homogeneous, black, tar-impregnated, compressed, fibrous	None Detected	Cellulose > 75% Non-Fibrous Material 0.5-5% Not Analyzed
Comments:	Analysis was stopped for phase b) due to a previous positive result.		
S0003C Piping, Sweatwrap, Loc:201, Janitorial	2 Phases: a) Homogeneous, brown, compressed, fibrous material. b) Homogeneous, black, tar-impregnated, compressed, fibrous	None Detected	Cellulose > 75% Non-Fibrous Material 0.5-5% Not Analyzed
Comments:	Analysis was stopped for phase b) due to a previous positive result.		
S0004A Wall, Paint, Loc:30, Corridor 3	Non-homogeneous, multicoloured, coating material.	None Detected	Non-Fibrous Material > 75%
S0004B Wall, Paint, Loc:204, Classroom	Non-homogeneous, multicoloured, coating material.	None Detected	Non-Fibrous Material > 75%
S0004C Wall, Paint, Loc:22, Corridor 2B	Homogeneous, multicoloured, coating material.	None Detected	Non-Fibrous Material > 75%
S0005A Ceiling, Texture Finish - Non Friable, Loc:207, Classroom	Homogeneous, beige, finishing or texture coat.	Chrysotile 0.5-5%	Cellulose 5-10% Perlite 25-50% Other Non-Fibrous 25-50%

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: King's Road Public School, Ontario
Project No.: 0368273.004
Prepared For: E. Balfour / J. Cozzitorto

Lab Reference No.: b358000
Date Analyzed: March 4, 2026

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0005B Ceiling, Texture Finish - Non Friable, Loc:204, Classroom			Not Analyzed
Comments:	Analysis was stopped due to a previous positive result.		
S0005C Ceiling, Texture Finish - Non Friable, Loc:125, Classroom			Not Analyzed
Comments:	Analysis was stopped due to a previous positive result.		
S0006A Wall, Bulkhead, Plaster, Smooth, Loc:204, Classroom	2 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
S0006B Wall, Bulkhead, Plaster, Smooth, Loc:204, Classroom	2 Phases: a) Homogeneous, grey, hard, cementitious, plaster base coat.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, white, hard, cementitious, plaster top coat.	None Detected	Non-Fibrous Material > 75%
S0007A Wall, Drywall And Joint Compound, Loc:30, Corridor 3	2 Phases: a) Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, off-white, drywall joint	None Detected	Non-Fibrous Material > 75%

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

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Lab Reference No.: b358000
Date Analyzed: March 4, 2026

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0007B Wall, Drywall And Joint Compound, Loc:30, Corridor 3	Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
S0008A Wall, Base, Mastic, Brown, Loc:207, Classroom	Homogeneous, brown, mastic material.	None Detected	Non-Fibrous Material > 75%
S0008B Wall, Base, Mastic, Brown, Loc:204, Classroom	Homogeneous, brown, mastic material.	None Detected	Non-Fibrous Material > 75%
S0008C Wall, Base, Mastic, Brown, Loc:202, Classroom	Homogeneous, brown, mastic material.	None Detected	Non-Fibrous Material > 75%
S0009A Ceiling, Acoustic Tile, Cement Product, Residual Perforated Tiles, Loc:30, Corridor 3	Homogeneous, grey, hard, cementitious transite material.	Chrysotile 10-25%	Non-Fibrous Material > 75%
S0010A Window, Caulking, Loc:30, Corridor 3	Homogeneous, grey, caulking material.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but was not analyzed, as requested.		
S0010B Window, Caulking, Loc:30, Corridor 3	Homogeneous, grey, caulking material.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but was not analyzed, as requested.		
S0010C Window, Caulking, Loc:30, Corridor 3	Homogeneous, grey, caulking material.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but was not analyzed, as requested.		

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: King's Road Public School, Ontario
Project No.: 0368273.004
Prepared For: E. Balfour / J. Cozzitorto

Lab Reference No.: b358000
Date Analyzed: March 4, 2026

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0011A Floor, Terrazzo, Loc:30, Corridor 3	Homogeneous, green, hard, cementitious material.	None Detected	Non-Fibrous Material > 75%
S0011B Floor, Terrazzo, Loc:30, Corridor 3	2 Phases: a) Homogeneous, green, hard, cementitious	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, grey, granular, cementitious material.	None Detected	Non-Fibrous Material > 75%
Comments:	Phase a) of this sample is small in size. For more reliable results, a larger sample is required.		
S0011C Floor, Terrazzo, Loc:30, Corridor 3	2 Phases: a) Homogeneous, green, hard, cementitious	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, grey, granular, cementitious material.	None Detected	Non-Fibrous Material > 75%
Comments:	Phase a) of this sample is small in size. For more reliable results, a larger sample is required.		
S0012A Door, Caulking, Loc:22, Corridor 2B	Homogeneous, translucent yellow, caulking material.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but was not analyzed, as requested.		
S0012B Door, Caulking, Loc:22, Corridor 2B	Homogeneous, translucent yellow, caulking material.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but was not analyzed, as requested.		
S0012C Door, Caulking, Loc:22, Corridor 2B	Homogeneous, translucent yellow, caulking material.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but was not analyzed, as requested.		

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

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Lab Reference No.: b358000
Date Analyzed: March 4, 2026

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0013A Door, Sealant, Loc:22, Corridor 2B	Homogeneous, black, soft, caulking material.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
S0013B Door, Sealant, Loc:22, Corridor 2B	Homogeneous, black, soft, caulking material.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
S0013C Door, Sealant, Loc:22, Corridor 2B	Homogeneous, black, soft, caulking material.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
S0014A Door, Caulking, Loc:1, Exterior	Homogeneous, grey, hard, caulking material.	Chrysotile 0.5-5%	Non-Fibrous Material > 75%
S0014B Door, Caulking, Loc:1, Exterior			Not Analyzed
Comments:	Analysis was stopped due to a previous positive result.		
S0014C Door, Caulking, Loc:1, Exterior			Not Analyzed
Comments:	Analysis was stopped due to a previous positive result.		
S0015A Window, Sealant, Loc:22, Corridor 2B	Homogeneous, light grey, hard, caulking material.	Chrysotile 0.5-5%	Non-Fibrous Material > 75%
S0015B Window, Sealant, Loc:22, Corridor 2B			Not Analyzed
Comments:	Analysis was stopped due to a previous positive result.		
S0015C Window, Sealant, Loc:22, Corridor 2B			Not Analyzed
Comments:	Analysis was stopped due to a previous positive result.		

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: **King's Road Public School, Ontario**
Project No.: **0368273.004**
Prepared For: **E. Balfour / J. Cozzitorto**

Lab Reference No.: **b358000**
Date Analyzed: **March 4, 2026**

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0016A Wall, Paint, Loc:120, Classroom	Non-homogeneous, multicoloured, coating material.	None Detected	Non-Fibrous Material > 75%
S0016B Wall, Paint, Loc:105, Classroom	Non-homogeneous, multicoloured, coating material.	None Detected	Non-Fibrous Material > 75%
S0016C Wall, Paint, Loc:109, Auditorium	Homogeneous, white, coating material.	None Detected	Non-Fibrous Material > 75%
S0017A Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Light Brown Streaks (stage), Loc:109, Auditorium	3 Phases: a) Homogeneous, beige, consolidated, vinyl floor tile. b) Homogeneous, black and yellow, soft, sticky material on the back of vinyl floor tile. c) Homogeneous, grey, levelling compound.	None Detected None Detected None Detected	Non-Fibrous Material > 75% Tar and other Non-Fibrous Material > 75% Cellulose 5-10% Non-Fibrous Material > 75%
S0017B Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Light Brown Streaks (stage), Loc:109, Auditorium	3 Phases: a) Homogeneous, beige, consolidated, vinyl floor tile. b) Homogeneous, black and yellow, soft, sticky material on the back of vinyl floor tile. c) Homogeneous, grey, levelling compound.	None Detected None Detected None Detected	Non-Fibrous Material > 75% Tar and other Non-Fibrous Material > 75% Cellulose 5-10% Non-Fibrous Material > 75%

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: **King's Road Public School, Ontario**
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Prepared For: **E. Balfour / J. Cozzitorto**

Lab Reference No.: **b358000**
Date Analyzed: **March 4, 2026**

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0017C Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Light Brown Streaks (stage), Loc:109, Auditorium	2 Phases: a) Homogeneous, beige, consolidated, vinyl floor tile. b) Homogeneous, grey, levelling compound.	None Detected None Detected	Non-Fibrous Material > 75% Cellulose 5-10% Non-Fibrous Material > 75%
S0018A Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Dark Brown Streaks (109a Side Stage), Loc:109, Auditorium	2 Phases: a) Homogeneous, white, consolidated, vinyl floor tile. b) Homogeneous, black, soft, sticky material on the back of vinyl floor tile.	None Detected None Detected	Non-Fibrous Material > 75% Tar and other Non-Fibrous Material > 75%
S0018B Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Dark Brown Streaks (109a Side Stage), Loc:109, Auditorium	2 Phases: a) Homogeneous, white, consolidated, vinyl floor tile. b) Homogeneous, black, soft, sticky material on the back of vinyl floor tile.	None Detected None Detected	Non-Fibrous Material > 75% Tar and other Non-Fibrous Material > 75%
S0018C Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Dark Brown Streaks (109a Side Stage), Loc:109, Auditorium	2 Phases: a) Homogeneous, white, consolidated, vinyl floor tile. b) Homogeneous, black, soft, sticky material on the back of vinyl floor tile.	None Detected None Detected	Non-Fibrous Material > 75% Tar and other Non-Fibrous Material > 75%

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Date Analyzed: **March 4, 2026**

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0019A Floor, Mastic, And Levelling, Loc:117, Library	5 Phases: a) Homogeneous, black and yellow, adhesive	None Detected	Tar and other Non-Fibrous Material > 75%
	b) Homogeneous, off-white, adhesive material.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, grey, levelling compound.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
	d) Homogeneous, dark yellow, hard, adhesive material.	None Detected	Non-Fibrous Material > 75%
	e) Homogeneous, white, levelling compound.	None Detected	Non-Fibrous Material > 75%
Comments:	Due to the condition of the sample, the order of phases reported may not reflect the actual order in situ.		

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

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Date Analyzed: **March 4, 2026**

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0019B Floor, Mastic, And Levelling, Loc:117, Library	5 Phases: a) Homogeneous, black and yellow, adhesive	None Detected	Tar and other Non-Fibrous Material > 75%
	b) Homogeneous, off-white, adhesive material.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, grey, levelling compound.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
	d) Homogeneous, dark yellow, hard, adhesive material.	None Detected	Non-Fibrous Material > 75%
	e) Homogeneous, white, levelling compound.	None Detected	Non-Fibrous Material > 75%
Comments:	Due to the condition of the sample, the order of phases reported may not reflect the actual order in situ.		

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: **King's Road Public School, Ontario**
Project No.: **0368273.004**
Prepared For: **E. Balfour / J. Cozzitorto**

Lab Reference No.: **b358000**
Date Analyzed: **March 4, 2026**

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0019C Floor, Mastic, And Levelling, Loc:117, Library	5 Phases: a) Homogeneous, black and yellow, adhesive	None Detected	Tar and other Non-Fibrous Material > 75%
	b) Homogeneous, off-white, adhesive material.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, grey, levelling compound.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
	d) Homogeneous, dark yellow, hard, adhesive material.	None Detected	Non-Fibrous Material > 75%
	e) Homogeneous, white, levelling compound.	None Detected	Non-Fibrous Material > 75%
Comments:	Due to the condition of the sample, the order of phases reported may not reflect the actual order in situ.		
S0020A Wall, Concrete (poured), Parge Coat, Loc:1, Exterior	Homogeneous, grey, hard, granular, cementitious material.	None Detected	Non-Fibrous Material > 75%
S0020B Wall, Concrete (poured), Parge Coat, Loc:1, Exterior	Homogeneous, grey, hard, granular, cementitious material.	None Detected	Non-Fibrous Material > 75%
S0020C Wall, Concrete (poured), Parge Coat, Loc:1, Exterior	Homogeneous, grey, hard, granular, cementitious material.	None Detected	Non-Fibrous Material > 75%
S0021A Floor, Asphalt, Loc:1, Exterior	Homogeneous, black, cementitious asphalt material.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: King's Road Public School, Ontario
Project No.: 0368273.004
Prepared For: E. Balfour / J. Cozzitorto

Lab Reference No.: b358000
Date Analyzed: March 4, 2026

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0021B Floor, Asphalt, Loc:1, Exterior	Homogeneous, black, cementitious asphalt material.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
S0021C Floor, Asphalt, Loc:1, Exterior	Homogeneous, black, cementitious asphalt material.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%

Reviewed by: **Reporting Analyst:**

Analyzed by: MH/JS/NG

Reviewed by:

Report Sent by:

Pinchin Ltd. - Asbestos Laboratory
Internal Asbestos Bulk Sample Chain of Custody

Special Instructions: only analyze mortar in samples S0001A-D, only analyze joint compound in samples S0007A-B, only analyze caulking in samples S0010A-C and S0012A-C

Client Name:				**Project Address:**	ON		
Portfolio/Building No:	Kings Road PS			**Pinchin File:**	368273.004		
Submitted by:	Emily Balfour			**Email:**	ebalfour@pinchin.com		
CC Email:	Jessica Cozzitorto			**CC Email:**	jcozzitorto@pinchin.com		
Date Submitted:	February	24	2026	**Required by:**	March	4	2026
# of Samples:	58			**Priority:**	5 Day Turnaround		
Year of Building Construction (*Mandatory, Years ONLY*):							
Do NOT Stop on Positive (Sample Numbers):							
Pinchin Group Company (*Mandatory Field*):				Pinchin			
HMIS2 Building Reference #:				160717/202612430326180			
To be Completed by Lab Personnel Only:							
Lab Reference #:	b358000			**Time:**	24 hour clock		
Received by: MHimmelman	FEB 25 2026			**Date:**	Month	Day	Year
Name(s) of Analyst(s):	MHimmelman / J. Stapleton / N. Gerrow						

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)	
S	0001	A	Wall,Mortar,N Wall,Loc:201,Janitorial	ND
S	0001	B	Wall,Mortar,W Wall,Loc:201,Janitorial	ND
S	0001	C	Wall,Mortar,E Wall,Loc:201,Janitorial	ND
S	0001	D	Wall,Mortar,S Wall,Loc:201,Janitorial	ND
S	0002	A	Ceiling,Plaster,Textured,Loc:201,Janitorial	a) ND b) CH 0.5-5
S	0003	A	Piping,Drain,Sweatwrap,Loc:202,Classroom	a) ND b) CH 0.5-5
S	0003	B	Piping,Drain,Sweatwrap,Loc:202,Classroom	a) ND b) (na)
S	0003	C	Piping,Sweatwrap,Loc:201,Janitorial	a) ND b) (na)

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0004	A	Wall,Paint,Loc:30,Corridor 3 ND
S	0004	B	Wall,Paint,Loc:204,Classroom ND
S	0004	C	Wall,Paint,Loc:22,Corridor 2B ND
S	0005	A	Ceiling,Texture Finish - Non Friable,Loc:207,Classroom CH 0.5-5
S	0005	B	Ceiling,Texture Finish - Non Friable,Loc:204,Classroom (na)
S	0005	C	Ceiling,Texture Finish - Non Friable,Loc:125,Classroom (na)
S	0006	A	Wall,Bulkhead,Plaster,Smooth,Loc:204,Classroom a) ND b) ND
S	0006	B	Wall,Bulkhead,Plaster,Smooth,Loc:204,Classroom a) ND b) ND
S	0007	A	Wall,Drywall And Joint Compound,Loc:30,Corridor 3 a) ND b) ND
S	0007	B	Wall,Drywall And Joint Compound,Loc:30,Corridor 3 ND
S	0008	A	Wall,Base,Mastic, Brown,Loc:207,Classroom ND
S	0008	B	Wall,Base,Mastic, Brown,Loc:204,Classroom ND
S	0008	C	Wall,Base,Mastic, Brown,Loc:202,Classroom ND
S	0009	A	Ceiling,Acoustic Tile,Cement Product,Residual Perforated Tiles,Loc:30,Corridor 3 CH 10-25
S	0010	A	Window,Caulking,Loc:30,Corridor 3 ND
S	0010	B	Window,Caulking,Loc:30,Corridor 3 ND
S	0010	C	Window,Caulking,Loc:30,Corridor 3 ND

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0011	A	Floor,Terrazzo,Loc:30,Corridor 3 ND
S	0011	B	Floor,Terrazzo,Loc:30,Corridor 3 a) ND b) ND
S	0011	C	Floor,Terrazzo,Loc:30,Corridor 3 a) ND b) ND
S	0012	A	Door,Caulking,Loc:22,Corridor 2B ND
S	0012	B	Door,Caulking,Loc:22,Corridor 2B ND
S	0012	C	Door,Caulking,Loc:22,Corridor 2B ND
S	0013	A	Door,Sealant,Loc:22,Corridor 2B ND
S	0013	B	Door,Sealant,Loc:22,Corridor 2B ND
S	0013	C	Door,Sealant,Loc:22,Corridor 2B NA
S	0014	A	Door,Caulking,Loc:1,Exterior <0.5-5
S	0014	B	Door,Caulking,Loc:1,Exterior (NA)
S	0014	C	Door,Caulking,Loc:1,Exterior (NA)
S	0015	A	Window,Sealant,Loc:22,Corridor 2B <0.5-5
S	0015	B	Window,Sealant,Loc:22,Corridor 2B (NA)
S	0015	C	Window,Sealant,Loc:22,Corridor 2B (NA)
S	0016	A	Wall,Paint,Loc:120,Classroom ND
S	0016	B	Wall,Paint,Loc:105,Classroom ND

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0016	C	Wall,Paint,Loc:109,Auditorium ND
S	0017	A	Floor,Vinyl Floor Tile And Mastic,12x12 Beige With Light Brown Streaks (stage),Loc:109,Auditorium a:ND b:ND c:ND
S	0017	B	Floor,Vinyl Floor Tile And Mastic,12x12 Beige With Light Brown Streaks (stage),Loc:109,Auditorium a:ND b:ND c:ND
S	0017	C	Floor,Vinyl Floor Tile And Mastic,12x12 Beige With Light Brown Streaks (stage),Loc:109,Auditorium a:ND b:ND
S	0018	A	Floor,Vinyl Floor Tile And Mastic,12x12 Beige With Dark Brown Streaks (109a Side Stage),Loc:109,Auditorium a:ND b:ND
S	0018	B	Floor,Vinyl Floor Tile And Mastic,12x12 Beige With Dark Brown Streaks (109a Side Stage),Loc:109,Auditorium a:ND b:ND
S	0018	C	Floor,Vinyl Floor Tile And Mastic,12x12 Beige With Dark Brown Streaks (109a Side Stage),Loc:109,Auditorium a:ND b:ND
S	0019	A	Floor,Mastic,And Levelling,Loc:117,Library a:ND b:ND c:ND d:ND e:ND
S	0019	B	Floor,Mastic,And Levelling,Loc:117,Library a:ND b:ND c:ND d:ND e:ND
S	0019	C	Floor,Mastic,And Levelling,Loc:117,Library a:ND b:ND c:ND d:ND e:ND
S	0020	A	Wall,Concrete (poured),Parge Coat,Loc:1,Exterior ND
S	0020	B	Wall,Concrete (poured),Parge Coat,Loc:1,Exterior ND
S	0020	C	Wall,Concrete (poured),Parge Coat,Loc:1,Exterior ND
S	0021	A	Floor,Asphalt,Loc:1,Exterior ND
S	0021	B	Floor,Asphalt,Loc:1,Exterior ND
S	0021	C	Floor,Asphalt,Loc:1,Exterior ND

APPENDIX II-B

Lead Analytical Certificates

Your Project #: 368273.004
Your C.O.C. #: N/A

Attention: Jessica Cozzitorto

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2026/03/02
Report #: R8702056
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C619330
Received: 2026/02/25, 14:17

Sample Matrix: Bulk
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Metals in Paint	7	2026/03/02	2026/03/02	CAM SOP-00408	EPA 6010D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 368273.004
Your C.O.C. #: N/A

Attention: Jessica Cozzitorto

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2026/03/02
Report #: R8702056
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C619330
Received: 2026/02/25, 14:17

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Elora Di Bratto, Project Manager
Email: Elora.Di-Bratto@bureauveritas.com
Phone# (905) 817-5700

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

ELEMENTS BY ATOMIC SPECTROSCOPY (BULK)

Bureau Veritas ID		BAFN69		BAFN70		BAFN71		
Sampling Date		2026/02/17 16:00		2026/02/17 16:00		2026/02/17 16:00		
COC Number		N/A		N/A		N/A		
	UNITS	L0001, WALL, CONCRETE BLACK, LOC: 30, CORRIDOR 3	RDL	L0002, OTHER, WOOD, WINDOW SILL, LOC: 30, CORRIDOR	RDL	L0003, OTHER, WOOD, QUARTER ROUND, LOC: 207, CLASSROOM	RDL	QC Batch
Metals								
Lead (Pb)	%	0.00049	0.00013	<0.0014	0.0014	0.019	0.00061	A108238

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		BAFN72		BAFN73		BAFN74		
Sampling Date		2026/02/17 16:00		2026/02/17 16:00		2026/02/17 16:00		
COC Number		N/A		N/A		N/A		
	UNITS	L0004, WALL, DRYWALL AND JOINT COMPOUND, LOC:30, CORRIDOR 3	RDL	L0005, OTHER, WOOD, DOOR AND FRAME, LOC: 1, EXTERIOR	RDL	L0006, OTHER, WOOD, STAGE, LOC: 109, AUDITORIUM	RDL	QC Batch
Metals								
Lead (Pb)	%	0.00096	0.00033	0.86	0.0019	0.049	0.00031	A108238

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		BAFN75		
Sampling Date		2026/02/17 16:00		
COC Number		N/A		
	UNITS	L0007, WALL, CONCRETE BLOCK, LOC: 109, AUDITORIUM	RDL	QC Batch
Metals				
Lead (Pb)	%	0.0066	0.00019	A108238

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

GENERAL COMMENTS

Sample BAFN69 [L0001, WALL, CONCRETE BLACK, LOC: 30, CORRIDOR 3] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample BAFN70 [L0002, OTHER, WOOD, WINDOW SILL, LOC: 30, CORRIDOR] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample BAFN71 [L0003, OTHER, WOOD, QUARTER ROUND, LOC: 207, CLASSROOM] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample BAFN72 [L0004, WALL, DRYWALL AND JOINT COMPOUND, LOC:30, CORRIDOR 3] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample BAFN73 [L0005, OTHER, WOOD, DOOR AND FRAME, LOC: 1, EXTERIOR] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample BAFN74 [L0006, OTHER, WOOD, STAGE, LOC: 109, AUDITORIUM] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample BAFN75 [L0007, WALL, CONCRETE BLOCK, LOC: 109, AUDITORIUM] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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Bureau Veritas Job #: C619330
Report Date: 2026/03/02

Pinchin Ltd
Client Project #: 368273.004
Sampler Initials: EB

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A108238	MEN	QC Standard	Lead (Pb)	2026/03/02		98	%	75 - 125
A108238	MEN	Method Blank	Lead (Pb)	2026/03/02	<0.00010		%	

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C619330
Report Date: 2026/03/02

Pinchin Ltd
Client Project #: 368273.004
Sampler Initials: EB

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Louise Harding, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

C619330
2026/02/25 14:17

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

CHAIN OF CUSTODY RECORD

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin Ltd.	Company Name:	Quotation #:	[X] Regular TAT (5-7 days) Most analyses
Contact Name: Emily Balfour / Jessica Cozzitorto	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	Address:	Project #: 368273.004	Rush TAT (Surcharges will be applied)
		Site Location:	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Phone: Fax:	Phone: Fax:	Site #:	
Email: ebalfour@pinchin.com / jcozzitorto@pinchin.com	Email:	Site Location Province: _____ ON	Date Required:
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY		Sampled By: _____ Emily Balfour	Rush Confirmation #:

Regulation 153	Other Regulations
[ ] Table 1 [ ] Res/Park [ ] Med/ Fine	[ ] CCME [ ] Sanitary Sewer Bylaw
[ ] Table 2 [ ] Ind/Comm [ ] Coarse	[ ] MISA [ ] Storm Sewer Bylaw
[ ] Table 3 [ ] Agri/ Other	[ ] PWQO Region _____
[ ] Table _____	[ ] Other (Specify) _____
FOR RSC (PLEASE CIRCLE) Y / N	[ ] REG 558 (MIN. 3 DAY TAT REQUIRED)
	[ ] REG 406 Table _____

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

LABORATORY USE ONLY

CUSTODY SEAL Y / N (Present / Intact) | COOLER TEMPERATURES

COOLING MEDIA PRESENT: Y / N

SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	Lead (Pb) in Paints	PCBs	HOLD- DO NOT ANALYZE	COMMENTS
L0001, Wall, Concrete Block,Loc:30,Corridor 3	2026/02/17	4:00PM	BULK									X			
L0002, Other, Wood, Window Sill,Loc:30,Corridor 3	2026/02/17	4:00PM	BULK									X			
L0003, Other, Wood, Quarter Round,Loc:207,Classroom	2026/02/17	4:00PM	BULK									X			
L0004, Wall, Drywall and joint compound, ,Loc:30,Corridor 3	2026/02/17	4:00PM	BULK									X			
L0005, Other, Wood, Door And Frame,Loc:1,Exterior	2026/02/17	4:00PM	BULK									X			
L0006, Other, Wood, Stage,Loc:109,Auditorium	2026/02/17	4:00PM	BULK									X			
L0007, Wall, Concrete Block,Loc:109,Auditorium	2026/02/17	4:00PM	BULK									X			

NONT-2026-02-4045

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
Emily Balfour	2026/02/24	2:00PM	Sugam Sharma	2026/02/25	14:17	

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at https://www.bvna.com/coc-terms-and-conditions

Your Project #: 368273.004
Your C.O.C. #: N/A

Attention: Jessica Cozzitorto

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2026/05/11
Report #: R8738820
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C648228
Received: 2026/05/04, 14:30

Sample Matrix: Solid
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Metals in Paint	1	2026/05/08	2026/05/11	CAM SOP-00408	EPA 6010D m
Metals in Paint	1	2026/05/08	2026/05/08	CAM SOP-00408	EPA 6010D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your Project #: 368273.004
Your C.O.C. #: N/A

Attention: Jessica Cozzitorto

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2026/05/11
Report #: R8738820
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C648228
Received: 2026/05/04, 14:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Daria Lisova, Project Manager
Email: daria.lisova@bureauveritas.com
Phone# (905) 817-5700

==========

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)

Bureau Veritas ID		BCKH76	BCKH77		
Sampling Date		2026/04/30 16:00	2026/04/30 16:00		
COC Number		N/A	N/A		
	UNITS	L0008, STRUCTURE, STEEL, RED, LOC:30, CORRIDOR	L0009, PIPING, METAL, LOC:201, JANITORIAL	RDL	QC Batch
Metals					
Lead (Pb)	%	0.072	0.14	0.0010	A148313

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

GENERAL COMMENTS

Sample BCKH76 [L0008, STRUCTURE, STEEL, RED, LOC:30, CORRIDOR] : Metals Analysis: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C648228
Report Date: 2026/05/11

Pinchin Ltd
Client Project #: 368273.004
Sampler Initials: EB

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A148313	JGC	QC Standard	Lead (Pb)	2026/05/08		94	%	75 - 125
A148313	JGC	Method Blank	Lead (Pb)	2026/05/08	<0.00010		%	

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C648228
Report Date: 2026/05/11

Pinchin Ltd
Client Project #: 368273.004
Sampler Initials: EB

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Louise Harding, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

C648228
2026/05/04 14:30

BUREAU VERITAS

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

CHAIN OF CUSTODY RECORD

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Pinchin Ltd.	Company Name:	Quotation #:	[X] Regular TAT (5-7 days) Most analyses
Contact Name: Emily Balfour / Jessica Cozzitorto	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	Address:	Project #: 368273.004	Rush TAT (Surcharges will be applied)
Phone: Fax:	Phone: Fax:	Site Location:	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Email: ebalfour@pinchin.com / jcozzitorto@pinchin.com	Email:	Site #:	Date Required:
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY		Site Location Province: _____ ON	Rush Confirmation #:
		Sampled By: _____ Emily Balfour	

Regulation 153

[ ] Table 1 [ ] Res/Park [ ] Med/ Fine
[ ] Table 2 [ ] Ind/Comm [ ] Coarse
[ ] Table 3 [ ] Agri/ Other
[ ] Table _____
FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations

[ ] CCME [ ] Sanitary Sewer Bylaw
[ ] MISA [ ] Storm Sewer Bylaw
[ ] PWQO Region _____
[ ] Other (Specify) _____
[ ] REG 558 (MIN. 3 DAY TAT REQUIRED)
[ ] REG 406 Table _____

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Analysis Requested

SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	Lead (Pb) in Paints	PCBs	HOLD- DO NOT ANALYZE
L0008, Structure, Steel, Red,Loc:30,Corridor 3	2026/04/30	4:00PM	BULK									X		
L0009, Piping, Metal,Loc:201,Janitorial	2026/04/30	4:00PM	BULK									X		

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	

COOLING MEDIA PRESENT: Y / N

COMMENTS

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
Emily Balfour	2026/05/01	4:00PM	VAISHALI PANCHAL V.S.P.	2026/05/04	14:30	

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas' standard Terms and Conditions. wledgment and acceptance of our terms available at https://www.bvna.com/coc-terms-and-conditions

VAI V.S.P 2026/05/04

NONT-2026-05-371

APPENDIX II-C

PCB Analytical Certificates

Your Project #: 368273.004
Your C.O.C. #: N/A

Attention: Jessica Cozzitorto

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2026/03/06
Report #: R8704638
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C619326
Received: 2026/02/25, 14:17

Sample Matrix: Solid
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Polychlorinated Biphenyl in Solids (1)	1	2026/03/03	2026/03/04	CAM SOP-00309	EPA 8082A m
Polychlorinated Biphenyl in Solids (1)	1	2026/03/03	2026/03/05	CAM SOP-00309	EPA 8082A m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Analysis was conducted according to Bureau Veritas method CAM SOP-00309 and modified where applicable based on the sample matrix. This test is not Standards Council of Canada accredited for this matrix.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Your Project #: 368273.004
Your C.O.C. #: N/A

Attention: Jessica Cozzitorto

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2026/03/06
Report #: R8704638
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C619326
Received: 2026/02/25, 14:17

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Elora Di Bratto, Project Manager
Email: Elora.Di-Bratto@bureauveritas.com
Phone# (905) 817-5700

==========

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOLID)

Bureau Veritas ID		BAFN58		BAFN59		
Sampling Date		2026/02/17 16:00		2026/02/17 16:00		
COC Number		N/A		N/A		
	UNITS	P0001, CAULKING,LOC:30 CORRIDOR 3	RDL	P0002, CAULKING,LOC:1,EXTERIOR	RDL	QC Batch
PCBs						
Aroclor 1262	ug/g	<0.2	0.2	<1	1	A108806
Aroclor 1016	ug/g	<0.2	0.2	<1	1	A108806
Aroclor 1221	ug/g	<0.2	0.2	<1	1	A108806
Aroclor 1232	ug/g	<0.2	0.2	<1	1	A108806
Aroclor 1242	ug/g	<0.2	0.2	<1	1	A108806
Aroclor 1248	ug/g	<0.2	0.2	5	1	A108806
Aroclor 1254	ug/g	<0.2	0.2	3	1	A108806
Aroclor 1260	ug/g	<0.2	0.2	<1	1	A108806
Aroclor 1268	ug/g	<0.2	0.2	<1	1	A108806
Total PCB	ug/g	<0.2	0.2	7	1	A108806
Surrogate Recovery (%)						
Decachlorobiphenyl	%	80		89		A108806

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C619326
Report Date: 2026/03/06

Pinchin Ltd
Client Project #: 368273.004
Sampler Initials: EB

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A108806	MYS	Matrix Spike	Decachlorobiphenyl	2026/03/03		80	%	30 - 130
			Aroclor 1260	2026/03/03		80	%	30 - 130
			Total PCB	2026/03/03		80	%	30 - 130
A108806	MYS	Spiked Blank	Decachlorobiphenyl	2026/03/03		83	%	30 - 130
			Aroclor 1260	2026/03/03		85	%	30 - 130
			Total PCB	2026/03/03		85	%	30 - 130
A108806	MYS	RPD	Aroclor 1260	2026/03/03	3.1		%	50
			Total PCB	2026/03/03	3.1		%	50
A108806	MYS	Method Blank	Aroclor 1262	2026/03/03	<0.1		ug/g	
			Decachlorobiphenyl	2026/03/03		77	%	30 - 130
			Aroclor 1016	2026/03/03	<0.1		ug/g	
			Aroclor 1221	2026/03/03	<0.1		ug/g	
			Aroclor 1232	2026/03/03	<0.1		ug/g	
			Aroclor 1242	2026/03/03	<0.1		ug/g	
			Aroclor 1248	2026/03/03	<0.1		ug/g	
			Aroclor 1254	2026/03/03	<0.1		ug/g	
			Aroclor 1260	2026/03/03	<0.1		ug/g	
			Aroclor 1268	2026/03/03	<0.1		ug/g	
			Total PCB	2026/03/03	<0.1		ug/g	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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2026/02/25 14:17

NONT-2026-02-4043

BUREAU VERITAS
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CAM FCD-01191/6

CHAIN OF CUSTODY RECORD

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: **Pinchin Ltd.**	Company Name:	Quotation #:	[X] **Regular TAT (5-7 days)** Most analyses
Contact Name: Emily Balfour / Jessica Cozzitorto	Contact Name:	P.O. #/ AFE#:	**PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS**
Address:	Address:	Project #: 368273.004	**Rush TAT (Surcharges will be applied)**
Phone: Fax:	Phone: Fax:	Site Location:	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Email: ebalfour@pinchin.com / jcozzitorto@pinchin.com	Email:	Site #:	**Date Required:**
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY		Site Location Province:_____ ON Sampled By:_____ Emily Balfour	**Rush Confirmation #:**

Regulation 153	Other Regulations
[ ] Table 1 [ ] Res/Park [ ] Med/ Fine	[ ] CCME [ ] Sanitary Sewer Bylaw
[ ] Table 2 [ ] Ind/Comm [ ] Coarse	[ ] MISA [ ] Storm Sewer Bylaw
[ ] Table 3 [ ] Agri/ Other	[ ] PWQO Region
[ ] Table _____	[ ] Other (Specify)
FOR RSC (PLEASE CIRCLE) Y / N	[ ] REG 558 (MIN. 3 DAY TAT REQUIRED)
	[ ] REG 406 Table

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Analysis Requested

SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	Lead (Pb) in Paints	PCBs	HOLD- DO NOT ANALYZE
P0001, Caulking,Loc:30,Corridor 3	2026/02/17	4:00PM	BULK										X	
P0002, Caulking,Loc:1,Exterior	2026/02/17	4:00PM	BULK										X	

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	

COOLING MEDIA PRESENT: Y / N

COMMENTS

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
Emily Balfour	2026/02/24	2:00PM	Susan Sullivan	2026/02/25	14:17	

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at https://www.bvna.com/coc-terms-and-conditions

BV

APPENDIX III
Methodology

1.0 GENERAL

An investigation was conducted to identify the type of Hazardous Building Materials incorporated in the structure and its finishes.

Information regarding the location and condition of hazardous building materials encountered and visually estimated quantities were recorded. The locations of any samples collected were recorded on small-scale plans. As-built drawings and previous reports were referenced where provided.

Sample collection was conducted in accordance with our Standard Operating Procedures.

The following methodologies appropriate to each hazardous building material were applied where those materials were included in the scope of work.

1.1 Asbestos

The investigation for asbestos included friable and non-friable asbestos-containing materials (ACM). A friable material is a material that when dry can be crumbled, pulverized or powdered by hand pressure, or a material that has already become crushed, pulverized, or powdered.

A separate set of samples was collected of each type of homogenous material suspected to contain asbestos. A homogenous material is defined by the US EPA as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material. The homogeneous materials were determined by visual examination and available information on the phases of construction and prior renovations.

Samples were collected at a rate that is in compliance with the requirements of local regulations and guidelines. The sampling strategy was also based on known ban dates and phase out dates of the use of asbestos; sampling of certain building materials is not conducted after specific construction dates. In addition, to be conservative, several years past these dates are added to account for some uncertainty in the exact start / finish date of construction and associated usage of ACM. In some cases, manufactured products such as asbestos cement pipe were visually identified without sample confirmation.

The asbestos analysis of select materials was completed using a stop-positive approach. Only one result meeting the regulated criteria was required to determine that a material is asbestos-containing, but all samples must be analyzed to conclusively determine that a material is non-asbestos. The laboratory stopped analyzing samples from a homogeneous material once a result equal to or greater than the regulated criteria is detected in any of the samples of that material. All samples of a homogeneous material were analyzed if no asbestos is detected. In some cases, all samples were analyzed in the sample set regardless of result.

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The analysis was performed in accordance with Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993.

Analytical results were compared to the following criteria:

Jurisdiction	Friable	Non-Friable
Ontario	0.5%	0.5%

Where building materials are described in the report as “non-asbestos” or “does not contain asbestos”, this means that either no asbestos was detected by the analytical method utilized in any of the multiple samples or, if detected, it is below the lower limit of an asbestos-containing material in the applicable regulation. Additionally, these terms are used for materials which historically are known to not include asbestos in their manufacturing.

Asbestos materials were evaluated to determine any remedial work based on the Evaluation Criteria and Basis of Recommendations presented in Annex A.

1.2 Lead

Samples of distinctive paint finishes, and surface coatings present in more than a limited application, where removal of the paint is possible were collected. The samples were collected by scraping the painted finish to include base and covering applications.

Analysis for lead in paints or surface coatings was performed in accordance with regulated or industry accepted methods, including flame atomic absorption or inductively coupled plasma.

Analytical results were compared to the following criteria.

Jurisdiction*	Units (%)	Units (ppm) / (mg/kg)
Ontario	0.009	90

Other lead building products (e.g. batteries, lead sheeting, flashing) were identified by visual observation only.

1.3 Silica

Building materials known to contain crystalline silica (e.g. concrete, cement, tile, brick, masonry, mortar) were identified by visual inspection only. Pinchin did not perform sampling of these materials for laboratory analysis of crystalline silica content.

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1.4 Mercury

Building materials, products or equipment (e.g. thermostats, barometers, pressure gauges, lamp tubes), suspected to contain mercury were identified by visual inspection only. Dismantling of equipment suspected of containing mercury was not performed. Sampling of these materials for laboratory analysis of mercury content was not performed.

1.5 Polychlorinated Biphenyls

The potential for light ballasts to contain PCBs was based on the age of the building and visual observations of the type of fixture and lamp.

The potential for oil filled transformers to contain PCBs was based on the age of the building, a review of maintenance records, and examination of labels or nameplates on equipment, where present and accessible. The information was compared to known ban dates of PCBs and Environment Canada publications. Fluids (mineral oil, hydraulic, Aroclor or Askarel) in transformers or other equipment were not sampled for PCB content.

Non-liquid forms (caulking, sealants, or paints) were sampled and submitted for PCB analysis. Sampling of certain building materials is not conducted after specific construction dates.

Sample results are compared to the criteria as stated in the PCB Regulation SOR/2008-273.

1.6 Visible Mould

The presence of mould or water damage was determined by visual inspection of exposed building surfaces. If any mould growth or water damage was concealed within building cavities it was not addressed in this assessment.

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METHODOLOGY ANNEX A EVALUATION CRITERIA

1.0 EVALUATION CRITERIA AND BASIS OF RECOMMENDATIONS

The detailed asbestos assessment provides information regarding the location, condition, accessibility and friability of the asbestos-containing materials (ACM). In order to make recommendations for compliance with current regulations, Pinchin developed the following criteria.

2.0 EVALUATION OF CONDITION

2.1 Friable Sprayed or Trowelled Fireproofing, Thermal Insulation and Texture Finishes (Surfacing Materials)

To evaluate the condition of ACM sprayed or trowelled on fireproofing, sprayed or trowelled thermal insulation (non-mechanical), or texture, decorative or acoustic finishes, the following criteria are applied:

Good	Surface of material shows no significant signs of damage, deterioration or delamination. Good condition includes unencapsulated or unpainted fireproofing or texture finishes, where no or limited delamination or damage is observed, or encapsulated fireproofing or texture finishes where the encapsulant or paint has been applied after the damage or fallout occurred.
Poor	A sprayed material that shows signs of significant damage or is significantly delaminating or deteriorating. This may be limited to surface delamination or some portion of the substrate may be exposed.

In Locations where damage exists in isolated areas, both good and poor condition may be applicable. The extent of each condition will be recorded. Fair condition is not utilized in the evaluation of ACM sprayed or trowelled fireproofing, sprayed or trowelled thermal insulation (non-mechanical), or texture, decorative or acoustic finishes.

The evaluation of the above products above ceilings may be limited by the number of observations and by building components such as ducts or full height walls that obstruct the above ceiling observations.

2.2 Friable Mechanical or Thermal System Insulation (TSI)

To evaluate the condition of mechanical insulation on vessels, boilers, breeching, ducts, pipes, fan units, equipment etc. the following criteria are applied:

Good	Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor damage (i.e. scuffs or stains), but the jacketing is not penetrated.

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Fair	Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges from minor to none. Damage can be repaired.
Poor	Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired. Includes components where insulation may have been removed incompletely.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. It is often not possible to observe each foot of mechanical insulation from all angles.

2.3 Potentially Friable Materials and Miscellaneous Friable Materials

Potentially friable ACM are products that are basically non-friable while in place but have the potential to generate friable dust upon removal or if significantly disturbed without appropriate procedures. These products may become friable if damaged. Potentially friable materials include materials such as acoustic ceiling tiles and plaster. To evaluate the condition of potentially friable materials, the following criteria are applied:

Good	No significant damage or deterioration. Still serving its intended use as a building material or finish.
Fair	Showing signs of some cracking or breakage, but is not deteriorating (e.g. cracked plaster, broken but in place ceiling tile, missing tile or section of plaster etc.). The condition is such that it is still serving its intended use as a building material or finish but may require repair for mainly cosmetic purposes.
Poor	Significant deterioration or breaking apart of the material. Material has deteriorated to the point it is not serving its intended use as building material or finish. Material has deteriorated to a point it has become friable. Normally potentially friable ACM in Poor condition is not repairable and requires at least localized removal and replacement.

2.4 Non-Friable Materials

Non-friable ACM cover a wide range of products with a wide variation in their tendency to release dust or asbestos fibres to the air. Many of these materials, (particularly where the matrix is an unweathered bitumen, asphalt or tar material) do not release fibres except in very unusual circumstances or during significant disturbance (e.g. use of abrasive power tools). Others with a cementitious matrix (asbestos-cement products) can more readily release dust due to abrasion, demolition, weathering, etc. The

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potential for asbestos release from non-friable ACM is always lower than from friable ACM. To evaluate the condition of non-friable Materials, the following criteria are applied:

Good	No significant damage or deterioration. Still serving its intended use as a building material or finish.
Fair	Showing signs of some cracking or breakage but is not deteriorating (e.g. cracked vinyl floor tile, missing piece of tile or transite, etc.). The condition is such that it is still serving its intended use as a building material or finish but may require repair for mainly cosmetic purposes.
Poor	Significant deterioration or breaking apart of the material to the point at which it cannot be repaired, and it will require at least local removal. Material has deteriorated to the point it is not serving its intended use as building material or finish. Material may have deteriorated to a point where traffic or disturbance may cause it to become friable.

2.5 Evaluation of ACM Debris

The identification of the exact location or presence of debris on the top of ceiling tiles is limited by the number of observations made and the presence of building components such as ducts or full height walls that obstruct observations.

The presence of fallen or dislodged ACM is noted separately from the ACM source and is referred to as Debris. Debris may be friable if from a friable ACM source or a badly deteriorated non-friable ACM source. Debris may also be non-friable (such as fallen pieces of transite sheet or mastic fittings, or broken, dislodged floor tiles).

Debris	Debris may be friable or non-friable but is always identified as “debris” as the component of an observation and quantified as Poor condition.

2.6 Evaluation of Presumed Asbestos-Containing Material (PACM)

Presumed asbestos-containing materials (PACM), are building materials that may contain asbestos but were not sampled or analyzed due to inaccessibility or the need to perform destructive testing to obtain a reasonable sample set. Evaluation of these materials is based on the assumption that these PACM are asbestos-containing.

A list of PACM is provided in the report and they are generally not included in the detailed room by room reports. Typically, they are excluded because they are inaccessible or present in very small quantities. If PACM are evaluated, Pinchin uses the criteria that correspond with the type (and friability) of the material listed above.

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3.0 EVALUATION OF ACCESSIBILITY

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

Access (A)	Common areas of the building within reach of all building users (approximately 8 ’- 9’ from floor or standard ceiling height). Includes other areas where occupant activities may result in disturbance of material that is not normally within reach from floor level, but may be disturbed by common activities (e.g. gymnasiums, workshops, warehouses.)
Access (B)	Areas of the building accessed primarily by Maintenance/Caretaking/Janitorial Staff and within reach without use of a ladder. Includes areas within reach in Boiler Rooms, Electrical Rooms, Janitors Closets, Elevator Rooms, Mechanical Rooms, etc. Includes materials within reach from fixed ladders or catwalks, mezzanines, and accessible pipe chases.
Access (C) and Visible	Areas of the building above 8' - 9’ where use of a ladder or scaffold is required to reach the ACM. Only includes ACM that are visible to view without the removal or opening of other building components such as ceiling tiles or service access panels.
Access (C) and not Visible / Limited Visibility	Areas of the building above 8' - 9’ where use of a ladder or scaffold is required to reach the ACM. Includes ACM that are not visible or partially visible to view and require the removal of a building component to see, such as ceilings tiles or access panels to view and access. Includes rarely entered crawl spaces, attic spaces, etc. Observations will be limited to the extent visible from the access points.
Access (D)	Areas of the building behind inaccessible solid ceiling systems, walls or equipment etc. where demolition of the ceiling, wall or equipment etc. is required to reach the ACM. Material inaccessible due to height or location or is only accessed under unusual situations. Evaluation of condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine materials in Access D.

4.0 ACTION MATRIX AND DEFINITIONS

Pinchin’s evaluation of the viability of a specific asbestos control option is based on the consideration of the friability, condition, accessibility and visibility of a material. The logic used is that damaged ACM located in an area frequently accessed by all building occupants is of a higher priority than damaged ACM located in an infrequently accessed service area. The action matrix considers the potential for fibre release (primarily from friable ACM) and the possible concerns from regulatory bodies and many building occupants to all damaged ACM (including non-friable).

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In any building with asbestos, many current regulations require an Asbestos Management Program be implemented. Depending on the condition and the accessibility, more active measures such as repair or removal may be recommended. The following matrix provides guidance for recommended Actions in the absence of renovation or demolition. In the event of construction or maintenance activity which will disturb ACM more aggressive control or removal will be required.

4.1 Action Matrix

The following tables outline the action decisions based on the relationship of assessed factors. Table I applies to friable ACM. Table II applies to non-friable ACM.

Table I Decision Matrix for Friable ACM

	Condition			
Access	**Good**	**Fair**	**Poor**	**Debris**
(A)	Action 5[1]	Action 5[2]	Action 3	Action 1
(B)	Action 7	Action 6[3]	Action 3	Action 1
(C) Visible	Action 7	Action 6	Action 3	Action 2
(C) Not Visible / Limited Visibility	Action 7	Action 7	Action 4	Action 2
(D)	Action 7	Action 7	Action 7	Action 7

Table II Decision Matrix for Potentially Friable and Non-Friable ACM

	Condition			
Access	**Good**	**Fair**	**Poor**	**Debris**
(A)	Action 7	Action 7[4]	Action 3	Action 1
(B)	Action 7	Action 7	Action 3	Action 1
(C) Visible	Action 7	Action 7	Action 4	Action 2
(C) Not Visible / Limited Visibility	Action 7	Action 7	Action 4	Action 2
(D)	Action 7	Action 7	Action 7	Action 7

[1] If friable ACM in access (A)/Good condition is not proactively removed Action 7 (Manage) is recommended.
[2] If friable ACM in access (A)/Fair condition is not proactively removed repair is recommended.
[3] If friable ACM in access (B)/Fair condition is likely to be disturbed after repair proactive removal is recommended.
[4] Action 7 is recommended for all non-friable ACM in Fair condition however some clients may wish to repair or take some action primarily for cosmetic reasons

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4.2 Action Definitions

The following are the definitions in the Action Matrix Table presented above:

Action Definitions	
Action 1	Clean-Up of ACM Debris Restrict access that is likely to cause a disturbance of the ACM Debris and clean up ACM Debris. Utilize appropriate asbestos precautions.
Action 2	Precautions for Access Which may Disturb ACM Debris Use appropriate means to isolate the debris or to limit entry to the area which may disturb the material. At locations where ACM Debris can remain in place in lieu of removal or clean-up (e.g. Debris on top of ceiling tiles or behind lockable door), Utilize appropriate asbestos precautions to enter the area if this will disturb debris. The precautions will be required until the ACM Debris has been cleaned up.
Action 3	ACM Removal Remove ACM. Utilize asbestos procedures appropriate to the scope of the removal work. Until it is removed, restrict access to the material so it is not disturbed.
Action 4	Precautions for Work Which may Disturb ACM in Poor Condition. Utilize appropriate asbestos precautions if ACM may be disturbed by work on or near ACM. This does not require restricting access to the area, only control of work which may contact or disturb the ACM. Removal is the only viable option if work will disturb ACM.
Action 5	Proactive ACM Removal Remove friable ACM where the presence of friable asbestos in Good condition is not desirable. If friable ACM in Fair condition is not removed, then Repair friable ACM.
Action 6	ACM Repair Repair friable ACM in Fair condition which is not likely to be damaged again or disturbed by normal use of the area or room. Pinchin recommends proactive removal if friable ACM is likely to be damaged or disturbed during normal use of the area or room.
Action 7	Asbestos Management Program with Routine Surveillance Implement an Asbestos Management Program, including routine surveillance of ACM. Reassess materials regularly (typically once per year).

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APPENDIX IV

Location Summary Report

HMIS
HAZARDOUS MATERIALS INVENTORY SYSTEM

LOCATIONS LIST

PINCHIN
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Client:Halton District School Board
Site: 660 Greenwood Drive, Burlington, ON
Building Name: Kings Road Public School
Survey Date: 2026-04-30
Last Re-Assessment:
Building Phases: A: 1955 , B: 1958
Total Rooms Area (sqft): 0

Location No.	Name or Description	Area ft^2	Floor No.	Bldg. Phase	Notes
1	Exterior, room no. EX1	0	E	B	
3	Roof	0	R	B	
10	Corridor 1, room no. CORR.1	0	1	A	
21	Corridor 2A, room no. CORR.2A	0	1	A	
22	Corridor 2B, room no. 2B	0	1	B	
30	Corridor 3, room no. 3	0	2	B	
101	Classroom, room no. 101	0	1	A	
102	Classroom, room no. 102,102A,102B	0	1	A	
103	Classroom, room no. 103	0	1	A	
104	Classroom, room no. 104	0	1	A	
105	Classroom, room no. 105	0	1	A	
106	Mechanical Room, room no. 106,106A	0	1	A	
109	Auditorium, room no. 109,109A	0	1	A	
115	Library, room no. 115	0	1	A	
116	Classroom, room no. 116	0	1	A	
117	Library, room no. 117	0	1	A	
119	Janitorial, room no. 119	0	1	B	
120	Classroom, room no. 120	0	1	A	
122	Classroom, room no. 122	0	1	B	
123	Classroom, room no. 123	0	1	B	
124	Classroom, room no. 124	0	1	B	
125	Classroom, room no. 125	0	1	B	
201	Janitorial, room no. 201	0	2	B	
202	Classroom, room no. 202	0	2	B	
203	Washroom, room no. 203	0	2	A	
204	Classroom, room no. 204	0	2	B	
205	Classroom, room no. 205	0	2	B	
207	Classroom, room no. 207	0	2	B	

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APPENDIX V

Hazardous Materials Summary Report / Sample Log

HMIS
HAZARDOUS MATERIALS INVENTORY SYSTEM

HAZARDOUS MATERIALS SUMMARY / SAMPLE LOG

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Client:Halton District School Board **Site: 660 Greenwood Drive, Burlington, ON** **Building Name: Kings Road Public School** **Survey Date: 2026-04-30**

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	S0001 ABCD	Wall | | Mortar |	22,30,119,122,123,124,125,201,202,204,205,207	B	0	0	0	100	None Detected	No	
Asbestos	S0002 A	Ceiling | | Plaster | Textured	201	B	0	45	0	0	Chrysotile	Yes	PF
Asbestos	S0003 ABC	Piping | Drain | Sweatwrap |	109,119,201,202	A,B	30	0	0	0	Chrysotile	Yes	[NF]*
Asbestos	S0004 ABC	Wall | | Paint |	22,30,204	B	0	0	0	100	None Detected	No	
Asbestos	S0005 ABC	Ceiling | | Texture Coat |	122,123,124,125,202,204,205,207	B	0	8800	0	0	Chrysotile	Yes	F
Asbestos	S0006 AB	Wall | Bulkhead | Plaster | Smooth	204	B	0	200	0	0	None Detected	No	
Asbestos	S0007 AB	Wall | | Drywall And Joint Compound |	30	B	0	200	0	0	None Detected	No	
Asbestos	S0008 ABC	Wall | Base | Mastic, Brown |	202,204,207	B	0	0	0	100	None Detected	No	
Asbestos	S0009 A	Ceiling | Acoustic Tile | Cement Product | Residual Perforated Tiles	30	B	0	10	0	0	Chrysotile	Yes	NF
Asbestos	S0010 ABC	Other | Window | Caulking |	30	B	0	0	0	0	None Detected	No	
Asbestos	S0011 ABC	Floor | | Terrazzo |	10,21,22,30	A,B	0	0	0	0	None Detected	No	
Asbestos	S0012 ABC	Other | Door | Caulking |	22	B	0	0	0	0	None Detected	No	
Asbestos	S0013 ABC	Other | Door | Sealant |	22	B	0	0	0	0	None Detected	No	
Asbestos	S0014 ABC	Other | Door | Caulking |	1	B	40	0	0	0	Chrysotile	Yes	NF
Asbestos	S0015 ABC	Other | Window | Sealant |	22	B	36	0	0	0	Chrysotile	Yes	NF
Asbestos	S0016 ABC	Wall | | Paint |	101,102,103,104,105,106,109,116,120	A	0	0	0	100	None Detected	No	
Asbestos	S0017 ABC	Floor | | Vinyl Floor Tile And Mastic | 12x12 Beige With Light Brown Streaks (stage)	101,109	A	0	0	0	0	None Detected	No	
Asbestos	S0018 ABC	Floor | | Vinyl Floor Tile And Mastic | 12x12 Beige With Dark Brown Streaks (109a Side Stage)	109	A	0	0	0	0	None Detected	No	
Asbestos	S0019 ABC	Floor | | Mastic | And Levelling	115,117	A	0	0	0	0	None Detected	No	
Asbestos	S0020 ABC	Wall | | Concrete (poured) | Parge Coat	1	B	0	0	0	100	None Detected	No	
Asbestos	S0021 ABC	Floor | | Asphalt |	1	B	0	20	0	0	None Detected	No	
Asbestos	S0022 ABC	Wall | | Mortar | Exterior Wall	22,30,125	B	0	0	0	100	None Detected	No	
Asbestos	S0023 ABCD	Wall | | Mortar |	10,21,106,109	A	0	0	0	100	None Detected	No	
Asbestos	S0024 A	Wall | Perimeter | Plaster |	119	B	0	0	0	0	None Detected	No	
Asbestos	S0025 ABC	Wall | | Caulking |	109	A	8	0	0	0	None Detected	No	
Asbestos	S0026 A	Wall | Door Frame | Adhesive/mastic |	109	A	0	0	0	0	None Detected	No	
Asbestos	V0101	Floor | | Vinyl Floor Tile | 9x9 Light Brown With Red And Black Streaks	101,103,105	A	0	1225	0	0	Chrysotile	Yes	NF
Asbestos	V0102	Floor | | Vinyl Floor Tile | 12x12 Beige With Brown And White Fleck	116	A	0	0	0	0	None Detected	No	
Asbestos	V0103	Wall | | Paint |	123	B	0	0	0	0	None Detected	No	
Asbestos	V0104	Wall | | Paint |	115,117	A	0	0	0	0	None Detected	No	
Asbestos	V0105	Wall | | Mortar |	101,102,103,104,105,115,116,117,120	A	0	0	0	0	None Detected	No	
Asbestos	V0106	Wall | | Mortar | Exterior Brick	1	B	0	0	0	0	None Detected	No	
Asbestos	V0107	Floor | | Mastic |	101,103,105	A	0	0	0	0	None Detected	No	

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	V0108	Floor | | Mastic |	102	A	0	0	0	0	None Detected	No	
Asbestos	V0109	Floor | | Mastic |	104	A	0	0	0	0	None Detected	No	
Asbestos	V0110	Floor | | Mastic |	116	A	0	0	0	0	None Detected	No	
Asbestos	V0111	Floor | | Mastic |	120	A	0	0	0	0	None Detected	No	
Asbestos	V0112	Floor | | Floor Levelling Compound |	120	A	0	0	0	0	None Detected	No	
Asbestos	V0113	Floor | | Mastic |	122,123,124,125	B	0	0	0	0	None Detected	No	
Asbestos	V0114	Floor | | Mastic |	202,204,205,207	B	0	0	0	0	None Detected	No	
Asbestos	V0115	Ceiling | | Drywall And Joint Compound |	102,109	A	0	0	0	0	None Detected	No	
Asbestos	V0116	Floor | | Mastic |	109	A	0	0	0	0	None Detected	No	
Asbestos	V0117	Ceiling | Acoustic Tile | Ceiling Tiles (lay-in) | 24x48 Pinhole With Random Small Fissure	10,21,22,30	A,B	0	0	0	0	None Detected	No	
Asbestos	V0119	Wall | | Paper | Behind Exterior Cladding	1	B	0	0	0	0	None Detected	No	
Asbestos	V0120	Wall | | Mortar | Brick	1	B	0	0	0	0	None Detected	No	
Asbestos	V0122	Floor | | Vinyl Floor Tile | 12x12 Beige With Grey And White Speckles	102	A	0	0	0	0	None Detected	No	
Asbestos	V0123	Floor | | Vinyl Floor Tile | 12x12 Cream With Grey Streaks	102	A	0	400	0	0	Chrysotile	Yes	NF
Asbestos	V0124	Floor | | Vinyl Floor Tile | 12x12 Cream With Light And Dark Cream And Grey Speckles	104	A	0	0	0	0	None Detected	No	
Asbestos	V0125	Ceiling | | Plaster | Smooth	109	A	0	0	0	0	None Detected	No	
Asbestos	V0126	Floor | | Vinyl Floor Tile | 12x12 Dark Tan With Brown And White Streaks	109	A	0	0	0	0	None Detected	No	
Asbestos	V0128	Floor, Wall | | Vinyl Floor Tile | 12x12 Off White With Occasional Brown Streaks	120,123	A,B	0	0	0	0	None Detected	No	
Asbestos	V0129	Wall | | Drywall And Joint Compound |	122,123,124,202,203,204,205,207	A,B	0	0	0	0	None Detected	No	
Asbestos	V0130	Floor | | Vinyl Floor Tile | 12x12 Beige With Purple Streaks	122,123,124,125	B	0	0	0	0	None Detected	No	
Asbestos	V0131	Floor | | Vinyl Floor Tile | 12x12 Cream With Brown Swirls	202,204,205,207	B	0	0	0	0	None Detected	No	
Asbestos	V0132	Piping | | Parging Cement |	124,201,202	B	0	0	4	0	Chrysotile	Yes	F
Asbestos	V0134	Ceiling | | Texture Coat |	101,102,103,104,105,115,116,117,120	A	0	8600	0	0	Chrysotile	Yes	F
Asbestos	V0135	Wall | | Plaster | Smooth	122,123,124,125,202,205,207	B	0	0	0	0	None Detected	No	
Asbestos	V0136	Ceiling | | Plaster | Rough	106	A	0	0	0	0	None Detected	No	
Asbestos	V9500	Ceiling | Soffit | Plaster | Textured, Second Floor, No Access	1,122,123,124,125,202,204,205,207	B	0	0	0	100	Presumed Asbestos	Yes	PF
Asbestos	V9500	Other | Sink | Mastic, Black |	101,103	A	0	0	2	0	Presumed Asbestos	Yes	NF
Asbestos	V9500	Other | Roof | Roofing Material |	3	B	0	0	0	100	Presumed Asbestos	Yes	NF
Asbestos	V9500	Other | Door | Thermal Insulation | Inside Doors And Frames, If Present	1	B	0	0	0	100	Presumed Asbestos	Yes	F

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HAZARDOUS MATERIALS SUMMARY / SAMPLE LOG

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	V9500	Piping | | Parging Cement | Assumed Present Behind Counters And Above Bulkheads, No Visibility Inside Column Enclosure, Assumed Present	102,122,123,124,125,202,204,205,207	A,B	0	0	0	100	Presumed Asbestos	Yes	F
Asbestos	V9500	Wall | | Cement Product | Above Stage 109a, Inaccessible	109	A	0	0	0	100	Presumed Asbestos	Yes	NF
Asbestos	V0000	Ceiling | | Drywall And Joint Compound | New, Post 2021	203	A	0	0	0	0	Non Asbestos	No	
Paint	L0001	Wall | Concrete Block |	22,30,122,123,124,125,202,204,205,207	B	0	0	0	100		No	-
Paint	L0002	Other | Wood | Window Sill	30	B	0	0	0	100		No	-
Paint	L0003	Other | Wood | Quarter Round	122,123,124,125,202,204,205,207	B	0	0	0	100		Lead (Low)	-
Paint	L0004	Wall | Drywall And Joint Compound |	30	B	0	0	0	100		No	-
Paint	L0005	Other | Wood | Door And Frame	1,22	B	0	0	0	100		Lead (High)	-
Paint	L0006	Other | Wood | Stage	109	A	0	0	0	100		Lead (Low)	-
Paint	L0007	Wall | Concrete Block |	106,109	A	0	0	0	100		No	-
Paint	L0008	Structure | Steel | Red	30	B	0	0	0	0		Lead (Low)	-
Paint	L0009	Piping | Metal |	201	B	0	0	0	0		Lead (High)	-
Lead Product	V9000	Batteries (other)	106	A	0	0	0	100	Lead Product	Yes	-
Lead Product	V9500	Batteries In Emer. Lights	30	B	0	0	1	0	Presumed Lead Product	Yes	-
Lead Product	V9500	Bell And Spigot Fittings	119,201	B	0	0	0	100	Presumed Lead Product	Yes	-
PCB	P0001	Caulking |	30	B	0	0	0	0	-	No	-
PCB	P0002	Caulking |	1	B	0	0	0	100	-	No	-
PCB	V0000	Transformer	1	B	0	0	1	0	-	No	-
Hg	V9500	Light Fixture	21,22,30,101,102,103,104,105,116,117,120,122 123,124,125,202,204,205,207	A,B	0	0	0	100	Presumed Hg	Yes	-
Hg	V9500	Thermostat	122	B	0	0	1	0	Presumed Hg	Yes	-
Hg	V0000	Light Fixture	106	A	0	0	0	100	-	No	-

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Legend:

Sample number	
S####	Asbestos sample collected
L####	Paint sample collected
P####	PCB sample collected
M####	Mould sample collected
V####	Material visually similar to numbered sample collected
V0000	Known non Hazardous Material
V9000	Material is visually identified as Hazardous Material
V9500	Material is presumed to be Hazardous Material
[Loc. No.]	Abated Material

Units	
SF	Square feet
LF	Linear feet
EA	Each
%	Percentage

NF	Non Friable material.
F	Friable material
PF	Potentially Friable material

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

APPENDIX VI

HMIS All Data Report

HMIS
HAZARDOUS MATERIALS INVENTORY SYSTEM

ALL DATA REPORT

PINCHIN
1.855.PINCHIN www.pinchin.com

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #1 : Exterior **Floor: E** **Room #: EX1** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	Soffit	Plaster, textured, second floor, no access			D	Y		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	PF
Ceiling	Soffit	Fibreglass			C	N										
Ceiling	Soffit	Aluminum			C	Y										
Floor		Asphalt			A	Y		20			SF	S0021ABC	None Detected	N.D.	None	
Other	Door	Thermal Insulation, inside doors and frames, if present			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Other[1]	Door	Caulking			A	Y		40(7)			LF	S0014ABC	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Wall		Concrete (poured), Parge coat			A	Y		100			%	S0020ABC	None Detected	N.D.	None	
Wall		Masonry			A	Y										
Wall		Paper, behind exterior cladding			D	N						V0119	None Detected	N.D.	None	
Wall		Mortar, exterior brick			A	Y						V0106	None Detected	N.D.	None	
Wall		Mortar, brick			A	Y						V0120	None Detected	N.D.	None	

1 - around doors 11 and 10

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #1 : Exterior **Floor: E** **Room #: EX1** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	L0005	Door and frame	Pb: 0.86 %	Lead (High)

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #1 : Exterior **Floor: E** **Room #: EX1** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	Good	Poor	Unit	Sample	Sample Description	Amount	PCB
Caulking	100		%	P0002		7 mg/kg	No
Transformer	1		EA	V0000			No

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #3 : Roof **Floor: R** **Room #:** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Other	Roof	Roofing material			C	Y		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #10 : Corridor 1 **Floor: 1** **Room #: CORR.1** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	Acoustic tile	Ceiling Tiles (lay-in), 24x48 pinhole with random small fissure			C	Y						V0117	None Detected	N.D.	None	
Floor		Terrazzo			A	Y						V0011	None Detected	N.D.	None	
Piping		Not Insulated			C	N										
Structure	Beam and joist	Steel			C	N										
Structure	Deck	Wood			C	N										
Wall		Mortar			A	Y						V0023	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

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Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #21 : Corridor 2A **Floor: 1** **Room #: CORR.2A** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	Acoustic tile	Ceiling Tiles (lay-in), 24x48 pinhole with random small fissure			C	Y						V0117	None Detected	N.D.	None	
Floor		Terrazzo			A	Y						V0011	None Detected	N.D.	None	
Piping		Not Insulated			C	N										
Structure	Beam and joist	Steel			C	N										
Structure	Deck	Wood			C	N										
Wall		Mortar			A	Y						S0023BC	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #21 : Corridor 2A **Floor: 1** **Room #: CORR.2A** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

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Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #22 : Corridor 2B **Floor: 1** **Room #: 2B** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	Acoustic tile	Ceiling Tiles (lay-in), 24x48 pinhole with random small fissure			C	Y						V0117	None Detected	N.D.	None	
Floor		Terrazzo			A	Y						V0011	None Detected	N.D.	None	
Other	Door	Caulking			A	Y					LF	S0012ABC	None Detected	N.D.	None	
Other	Door	Sealant			A	Y					LF	S0013ABC	None Detected	N.D.	None	
Other	Window	Sealant			A	Y		36(7)			LF	S0015ABC	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Piping		Not Insulated			C	N										
Structure	Beam	Steel			C	N										
Structure	Deck	Concrete (poured)			C	N										
Wall		Paint			A	Y		100			%	S0004C	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	S0022B	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #22 : Corridor 2B **Floor: 1** **Room #: 2B** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Concrete Block	100		%	V0001		Pb: 0.00049 %	No
Other	Wood	100		%	V0005	Door and frame	Pb: 0.86 %	Lead (High)

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #22 : Corridor 2B **Floor: 1** **Room #: 2B** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

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Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #30 : Corridor 3 **Floor: 2** **Room #: 3** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS

System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	Acoustic tile	Ceiling Tiles (lay-in), 24x48 pinhole with random small fissure			C	Y						V0117	None Detected	N.D.	None	
Ceiling	Acoustic tile	Cement Product, Residual perforated tiles			C	N		10(7)			SF	S0009A	Chrysotile	10-25%	Confirmed Asbestos	NF
Floor		Terrazzo			A	Y						S0011ABC	None Detected	N.D.	None	
Other	Window	Caulking			A	Y					LF	S0010ABC	None Detected	N.D.	None	
Piping		Horsehair	Straight		C	N										
Piping		Not Insulated			C	N										
Structure	Beam	Steel			C	N										
Structure	Deck	Concrete (poured)			C	N										
Wall		Drywall and joint compound			A	Y		200			SF	S0007AB	None Detected	N.D.	None	
Wall		Paint			A	Y		100			%	S0004A	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Mortar, exterior wall			A	Y		100			%	S0022A	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #30 : Corridor 3 **Floor: 2** **Room #: 3** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT

System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Concrete Block	100		%	L0001		Pb: 0.00049 %	No
Other	Wood	100		%	L0002	Window sill	Pb: <0.0014 %	No
Wall	Drywall and joint compound	100		%	L0004		Pb: 0.00096 %	No
Structure	Steel				L0008	red	Pb: 0.072 %	Lead (Low)

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #30 : Corridor 3 **Floor: 2** **Room #: 3** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS

Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #30 : Corridor 3 **Floor: 2** **Room #: 3** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY

Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

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Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #30 : Corridor 3 **Floor: 2** **Room #: 3** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PCB							
Component	**Good**	**Poor**	**Unit**	**Sample**	**Sample Description**	**Amount**	**PCB**
Caulking				P0001		<0.2 mg/kg	No

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Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #101 : Classroom **Floor: 1** **Room #: 101** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Texture Coat			C	Y		1000(7)			SF	V0134	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Vinyl Floor Tile and Mastic, 12x12 beige with light brown streaks			A	Y						V0017	None Detected	N.D.	None	
Floor		Mastic		Vinyl Floor Tile	D	N						V0107	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 9x9 light brown with red and black streaks			A	Y		925(7)			SF	V0101	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Other	Sink	Mastic, Black			A	N		1(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Structure	Not accessible				D	N										
Structure	Not accessible				D	N										
Wall		Paint			A	Y		100			%	V0016	None Detected	N.D.	None	
Wall		Mortar			A	Y						V0105	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #101 : Classroom **Floor: 1** **Room #: 101** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

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Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #102 : Classroom **Floor: 1** **Room #: 102,102A,102B** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Drywall and joint compound			C	Y						V0115	None Detected	N.D.	None	
Ceiling		Texture Coat			C	Y		1800(7)			SF	V0134	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0108	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 beige with grey and white speckles			A	Y						V0122	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 cream with grey streaks			A	Y		400(7)			SF	V0123	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Piping		Parging Cement, no visibility inside column enclosure, assumed present	Fitting		D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Structure	Not accessible				D	N										
Structure	Not accessible				D	N										
Wall		Paint			A	Y		100			%	V0016	None Detected	N.D.	None	
Wall		Mortar			A	Y						V0105	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #102 : Classroom **Floor: 1** **Room #: 102,102A,102B** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #103 : Classroom **Floor: 1** **Room #: 103** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Texture Coat			C	Y		1000(7)			SF	V0134	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0107	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 9x9 light brown with red and black streaks			A	Y						V0101	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Other	Sink	Mastic, Black			A	N		1(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Structure	Not accessible				D	N										
Structure	Not accessible				D	N										
Wall		Paint			A	Y		100			%	V0016	None Detected	N.D.	None	
Wall		Mortar			A	Y						V0105	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #103 : Classroom **Floor: 1** **Room #: 103** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #104 : Classroom **Floor: 1** **Room #: 104** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Texture Coat			C	Y		100(7)			SF	V0134	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0109	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 cream with light and dark cream and grey speckles			A	Y						V0124	None Detected	N.D.	None	
Structure	Not accessible				D	N										
Structure	Not accessible				D	N										
Wall		Paint			A	Y		100			%	V0016	None Detected	N.D.	None	
Wall		Mortar			A	Y						V0105	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #104 : Classroom **Floor: 1** **Room #: 104** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #105 : Classroom **Floor: 1** **Room #: 105** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Texture Coat			C	Y		500(7)			SF	V0134	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Carpet			A	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0107	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 9x9 light brown with red and black streaks			A	Y		300(7)			SF	V0101	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Structure	Not accessible				D	N										
Wall		Paint			A	Y		100			%	S0016B	None Detected	N.D.	None	
Wall		Mortar			A	Y						V0105	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #105 : Classroom **Floor: 1** **Room #: 105** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #106 : Mechanical Room **Floor: 1** **Room #: 106,106A** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster, rough			C	Y						V0136	None Detected	N.D.	None	
Duct		Not Insulated			C	Y										
Floor		Concrete (poured)			B	Y										
Mechanical Equipment		Not Insulated			C	Y										
Piping		Not Insulated			C	Y										
Wall		Paint			A	Y		100			%	V0016	None Detected	N.D.	None	
Wall		Mortar			B	Y		100			%	S0023A	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #106 : Mechanical Room **Floor: 1** **Room #: 106,106A** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Concrete Block	100		%	V0007		Pb: 0.0066 %	No

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #106 : Mechanical Room **Floor: 1** **Room #: 106,106A** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries (other)	100	%	V9000	Yes

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #106 : Mechanical Room **Floor: 1** **Room #: 106,106A** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V0000	None

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #109 : Auditorium **Floor: 1** **Room #: 109,109A** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Drywall and joint compound			C	Y						V0115	None Detected	N.D.	None	
Ceiling		Plaster, smooth			C	Y						V0125	None Detected	N.D.	None	
Floor		Vinyl Floor Tile and Mastic, 12x12 beige with light brown streaks (stage)			A	Y						S0017ABC	None Detected	N.D.	None	
Floor		Vinyl Floor Tile and Mastic, 12x12 beige with dark brown streaks (109A side stage)			A	Y						S0018ABC	None Detected	N.D.	None	
Floor		Mastic		Vinyl Floor Tile	D	N						V0116	None Detected	<0.5%	None	
Floor		Vinyl Floor Tile, 12x12 dark tan with brown and white streaks			A	Y						V0126	None Detected	N.D.	None	
Piping	Drain	Sweatwrap			A	Y		9(7)			LF	V0003	Chrysotile	0.5-5%	Confirmed Asbestos	[NF]*
Wall		Cement Product, above stage 109A, inaccessible			C	Y		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall		Paint			A	Y		100			%	S0016C	None Detected	N.D.	None	
Wall		Mortar			A	Y						S0023D	None Detected	N.D.	None	
Wall		Caulking			A	Y		8			LF	S0025ABC	None Detected	N.D.	None	
Wall	Door frame	Adhesive/mastic		Wood	D	N						S0026A	None Detected	N.D.	None	

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #109 : Auditorium **Floor: 1** **Room #: 109,109A** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	L0006	Stage	Pb: 0.049 %	Lead (Low)
Wall	Concrete Block	100		%	L0007		Pb: 0.0066 %	No

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #115 : Library **Floor: 1** **Room #: 115** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Texture Coat			C	Y		200(7)			SF	V0134	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Carpet			A	Y										
Floor		Mastic, and levelling		Carpet	D	N						V0019	None Detected	N.D.	None	
Structure	Not accessible				D	N										
Wall		Paint			A	Y						V0104	None Detected	N.D.	None	
Wall		Mortar			A	Y						V0105	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #116 : Classroom **Floor: 1** **Room #: 116** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Texture Coat			C	Y		1000(7)			SF	V0134	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0110	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 beige with brown and white fleck			A	Y						V0102	None Detected	N.D.	None	
Structure	Not accessible				D	N										
Structure	Not accessible				D	N										
Wall		Paint			A	Y		100			%	V0016	None Detected	N.D.	None	
Wall		Mortar			A	Y						V0105	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #116 : Classroom **Floor: 1** **Room #: 116** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #117 : Library **Floor: 1** **Room #: 117** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Texture Coat			C	Y		2000(7)			SF	V0134	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Carpet			A	Y										
Floor		Mastic, and levelling		Carpet	D	N						S0019ABC	None Detected	N.D.	None	
Structure	Not accessible				D	N										
Wall		Paint			A	Y						V0104	None Detected	N.D.	None	
Wall		Mortar			A	Y						V0105	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #117 : Library **Floor: 1** **Room #: 117** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #119 : Janitorial **Floor: 1** **Room #: 119** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Concrete (poured)			B	Y										
Piping		Sweatwrap			A	Y		6(7)			LF	V0003	Chrysotile	0.5-5%	Confirmed Asbestos	[NF]*
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										
Wall	Perimeter	Plaster			C	Y						S0024A	None Detected	N.D.	None	

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #119 : Janitorial **Floor: 1** **Room #: 119** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Bell And Spigot Fittings	100	%	V9500	Presumed

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #120 : Classroom **Floor: 1** **Room #: 120** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Texture Coat			C	Y		1000(7)			SF	V0134	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Floor Levelling Compound		Vinyl Floor Tile	D	N						V0112	None Detected	N.D.	None	
Floor		Mastic		Vinyl Floor Tile	D	N						V0111	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 off white with occasional brown streaks			A	Y						V0128	None Detected	N.D.	None	
Structure	Not accessible				D	N										
Structure	Not accessible				D	N										
Wall		Paint			A	Y		100			%	S0016A	None Detected	N.D.	None	
Wall		Mortar			A	Y						V0105	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #120 : Classroom **Floor: 1** **Room #: 120** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #122 : Classroom **Floor: 1** **Room #: 122** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster		Texture Coat	D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	PF
Ceiling		Texture Coat			C	Y		1100(7)			SF	V0005	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0113	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 beige with purple streaks			A	Y						V0130	None Detected	N.D.	None	
Piping		Parging Cement, assumed present behind counters and above bulkheads			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Piping	Rain water leader	Fibreglass	Insulation		A	Y										
Structure	Not accessible				D	N										
Wall		Drywall and joint compound			A	Y						V0129	None Detected	N.D.	None	
Wall		Plaster, smooth			A	Y						V0135	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #122 : Classroom **Floor: 1** **Room #: 122** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)
Wall	Concrete Block	100		%	V0001		Pb: 0.00049 %	No
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #122 : Classroom **Floor: 1** **Room #: 122** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Thermostat	1	EA	V9500	Presumed Mercury
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #123 : Classroom **Floor: 1** **Room #: 123** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster		Texture Coat	D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	PF
Ceiling		Texture Coat			C	Y		1100(7)			SF	V0005	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0113	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 beige with purple streaks			A	Y						V0130	None Detected	N.D.	None	
Piping		Parging Cement, assumed present behind counters and above bulkheads			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Structure	Not accessible				D	N										
Wall		Drywall and joint compound			A	Y						V0129	None Detected	N.D.	None	
Wall		Plaster, smooth			A	Y						V0128	None Detected	N.D.	None	
Wall		Plaster, smooth			A	Y						V0135	None Detected	N.D.	None	
Wall		Paint			A	Y						V0103	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #123 : Classroom **Floor: 1** **Room #: 123** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)
Wall	Concrete Block	100		%	V0001		Pb: 0.00049 %	No
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #123 : Classroom **Floor: 1** **Room #: 123** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #124 : Classroom **Floor: 1** **Room #: 124** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster		Texture Coat	D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	PF
Ceiling		Texture Coat			C	Y		1100(7)			SF	V0005	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0113	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 beige with purple streaks			A	Y						V0130	None Detected	N.D.	None	
Piping		Parging Cement, behind counter	Fitting		C	N		2(7)			EA	V0132	Chrysotile	25-50%	Confirmed Asbestos	F
Piping		Parging Cement, assumed present behind counters and above bulkheads			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Structure	Not accessible				D	N										
Wall		Drywall and joint compound			A	Y						V0129	None Detected	N.D.	None	
Wall		Plaster, smooth			A	Y						V0135	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #124 : Classroom **Floor: 1** **Room #: 124** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)
Wall	Concrete Block	100		%	V0001		Pb: 0.00049 %	No
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #124 : Classroom **Floor: 1** **Room #: 124** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #125 : Classroom **Floor: 1** **Room #: 125** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster		Texture Coat	D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	PF
Ceiling		Texture Coat			C	Y		1100(7)			SF	S0005C	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0113	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 beige with purple streaks			A	Y						V0130	None Detected	N.D.	None	
Piping		Parging Cement, assumed present behind counters and above bulkheads			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Structure	Not accessible				D	N										
Wall		Plaster, smooth			A	Y						V0135	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	S0022C	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #125 : Classroom **Floor: 1** **Room #: 125** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)
Wall	Concrete Block	100		%	V0001		Pb: 0.00049 %	No
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #125 : Classroom **Floor: 1** **Room #: 125** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #201 : Janitorial **Floor: 2** **Room #: 201** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster, Textured			C	Y		45(7)			SF	S0002A	Chrysotile	0.5-5%	Confirmed Asbestos	PF
Floor		Concrete (poured)			B	Y										
Piping		Parging Cement	End		B	Y		1(7)			EA	V0132	Chrysotile	25-50%	Confirmed Asbestos	F
Piping		Sweatwrap			A	Y		6(7)			LF	S0003C	Chrysotile	0.5-5%	Confirmed Asbestos	[NF]*
Structure	Not accessible				D	N										
Wall		Mortar			A	Y		100			%	S0001ABCD	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #201 : Janitorial **Floor: 2** **Room #: 201** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Piping	Metal				L0009		Pb: 0.14 %	Lead (High)

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #201 : Janitorial **Floor: 2** **Room #: 201** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Bell And Spigot Fittings	100	%	V9500	Presumed

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Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #202 : Classroom **Floor: 2** **Room #: 202** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster		Texture Coat	D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	PF
Ceiling		Texture Coat			C	Y		1100(7)			SF	V0005	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0114	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 cream with brown swirls			A	Y						V0131	None Detected	N.D.	None	
Floor	Base	Wood, quarter round			A	Y										
Piping		Parging Cement, assumed present behind counters and above bulkheads			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Piping		Parging Cement	End		A	Y		1(7)			EA	V0132	Chrysotile	25-50%	Confirmed Asbestos	F
Piping	Drain	Sweatwrap			A	Y		9(7)			LF	S0003AB	Chrysotile	0.5-5%	Confirmed Asbestos	[NF]*
Structure	Not accessible				D	N										
Wall		Drywall and joint compound			A	Y						V0129	None Detected	N.D.	None	
Wall		Plaster, smooth			A	Y						V0135	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										
Wall	Base	Mastic, Brown			D	N		100			%	S0008C	None Detected	N.D.	None	

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #202 : Classroom **Floor: 2** **Room #: 202** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)
Wall	Concrete Block	100		%	V0001		Pb: 0.00049 %	No

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #202 : Classroom **Floor: 2** **Room #: 202** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

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Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #203 : Washroom **Floor: 2** **Room #: 203** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Drywall and joint compound, new, post 2021			C	Y						V0000	Non-Asbestos		None	
Floor		Ceramic Tiles			A	Y										
Piping		Not Insulated			C	N										
Structure	Beam	Steel			C	N										
Structure	Deck	Concrete (poured)			C	N										
Wall		Drywall and joint compound			A	Y						V0129	None Detected	N.D.	None	

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #204 : Classroom **Floor: 2** **Room #: 204** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster		Texture Coat	D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	PF
Ceiling		Texture Coat			C	Y		1100(7)			SF	S0005B	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0114	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 cream with brown swirls			A	Y						V0131	None Detected	N.D.	None	
Floor	Base	Wood, quarter round			A	Y										
Piping		Parging Cement, assumed present behind counters and above bulkheads			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Structure	Not accessible				D	N										
Wall		Drywall and joint compound			A	Y						V0129	None Detected	N.D.	None	
Wall		Paint			A	Y		100			%	S0004B	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										
Wall	Base	Mastic, Brown			D	N		100			%	S0008B	None Detected	N.D.	None	
Wall	Bulkhead	Plaster, Smooth			C	Y		200			SF	S0006AB	None Detected	N.D.	None	

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #204 : Classroom **Floor: 2** **Room #: 204** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)
Wall	Concrete Block	100		%	V0001		Pb: 0.00049 %	No

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #204 : Classroom **Floor: 2** **Room #: 204** **Area (sqft): 0**

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Light Fixture	100	%	V9500	Presumed Mercury

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Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #205 : Classroom **Floor: 2** **Room #: 205** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster		Texture Coat	D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	PF
Ceiling		Texture Coat			C	Y		1100(7)			SF	V0005	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0114	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 cream with brown swirls			A	Y						V0131	None Detected	N.D.	None	
Floor	Base	Wood, quarter round			A	Y										
Piping		Parging Cement, assumed present behind counters and above bulkheads			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Structure	Not accessible				D	N										
Wall		Drywall and joint compound			A	Y						V0129	None Detected	N.D.	None	
Wall		Plaster, smooth			A	Y						V0135	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #205 : Classroom **Floor: 2** **Room #: 205** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	V0003	Quarter round	Pb: 0.019 %	Lead (Low)
Wall	Concrete Block	100		%	V0001		Pb: 0.00049 %	No

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #205 : Classroom **Floor: 2** **Room #: 205** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #207 : Classroom **Floor: 2** **Room #: 207** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Plaster		Texture Coat	D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	PF
Ceiling		Texture Coat			C	Y		1100(7)			SF	S0005A	Chrysotile	0.5-5%	Confirmed Asbestos	F
Duct		Not Insulated			C	Y										
Floor		Mastic		Vinyl Floor Tile	D	N						V0114	None Detected	N.D.	None	
Floor		Vinyl Floor Tile, 12x12 cream with brown swirls			A	Y						V0131	None Detected	N.D.	None	
Floor	Base	Wood, quarter round			A	Y										
Piping		Parging Cement, assumed present behind counters and above bulkheads			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	F
Structure	Not accessible				D	N										
Wall		Drywall and joint compound			A	Y						V0129	None Detected	N.D.	None	
Wall		Plaster, smooth			A	Y						V0135	None Detected	N.D.	None	
Wall		Mortar			A	Y		100			%	V0001	None Detected	N.D.	None	
Wall		Concrete Block			A	Y										
Wall	Base	Mastic, Brown			D	N		100			%	S0008A	None Detected	N.D.	None	

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #207 : Classroom **Floor: 2** **Room #: 207** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Other	Wood	100		%	L0003	Quarter round	Pb: 0.019 %	Lead (Low)
Wall	Concrete Block	100		%	V0001		Pb: 0.00049 %	No

Client: Halton District School Board **Site: Elementary Schools** **Building Name: Kings Road Public School**
Location: #207 : Classroom **Floor: 2** **Room #: 207** **Area (sqft): 0**
Survey Date: 2026-04-30 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed Mercury

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

Legend:

Sample number	
S####	Asbestos sample collected
L####	Paint sample collected
P####	PCB sample collected
M####	Mould sample collected
V####	Material is visually identified to be identical to S####
V0000	Known non hazardous material
V9000	Material visually identified as a Hazardous Material
V9500	Material is presumed to be a hazardous material

Units	
SF	Square feet
LF	Linear feet
EA	Each
%	Percentage
LF	Linear feet

Other	
A	Access
V	Visible
AP	Air Plenum
F	Friable material
NF	Non Friable material
PF	Potentially Friable material
Pb	Lead
Hg	Mercury
As	Arsenic
Cr	Chromium

Access	
A	Accessible to all building occupants
B	Accessible to maintenance and operations staff without a ladder
C	Accessible to maintenance and operations staff with a ladder. Also rarely entered, locked areas
D	Not normally accessible

Condition	
Good	No visible damage or deterioration
Fair	Minor, repairable damage, cracking, delamination or deterioration
Poor	Irreparable damage or deterioration with exposed and missing material

Visible	
Y	The material is visible when standing on the floor of the room, without the removal or opening of other building components (e.g. ceiling tiles or access panels).
N	The material is not visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceilings tiles or access panels) to view and access. Includes rarely entered crawlspaces, attic spaces, etc. Observations will be limited to the extent visible from the access points.
L	The material is partially visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceiling system or access panels) to view completely and access. Includes partially viewed access points to crawlspaces, attic spaces, etc. without entering. Observations are limited to the extent visible from the access points.

Air Plenum	
Yes or No	The material is in a return air plenum or in a direct airstream or there is evidence of air erosion (e.g. duct for heating or cooling blowing directly on or across an ACM). This field is only completed where Air Plenum consideration is required by regulation.

Colour Coding	
	The material is a hazardous material, either by analytical results or by visible identification.
	The material is presumed to be a hazardous material, based on visual appearance, and was not sampled due to limited access or the non-destructive nature of sampling.

Action					
(1)	Clean up of ACM Debris	(2)	Precautions for Access Which may Disturb ACM Debris	(3)	ACM removal
(4)	Precautions for Work Which may Disturb ACM in Poor Condition	(5)	Proactive ACM removal (Minimum repair required for fair condition)	(6)	ACM repair
(7)	Management program and surveillance				

Quantities shown above are based on visual approximations only and may be subject to variation. Copyright Pinchin Ltd. 2026

1.1 GENERAL CONDITIONS

1.1.1 CCDC 2 - 2020 The General Conditions of the Stipulated Price Contract is the General Conditions between the Owner and the Contractor.

END OF DOCUMENT

PART 1 - GENERAL

1.1 Work Covered by Contract Documents

.1 Work of this Contract comprises general construction and renovations to the King's Road Public School located at 660 Greenwood Dr, Burlington ON, identified as Project No. 25115.

1.2 Contract Method

.1 Construct the Work under a single fixed price contract.

1.3 Work Sequence

.1 Construct Work in stages to accommodate Owner's continued use of premises during construction and as follows:
- .1 Commence Work after June 29, 2026, or as instructed by the Owner. Work to include:
- .2 Provision of construction hoarding and isolation as required of Work Areas and staging areas.
- .3 Establishment of temporary exits during construction if required, reviewed and approved by local authorities having jurisdiction.
- .4 Commence after awarded contract, and complete by September 8, 2026:
  - .1 Provide Foundations, load bearing walls, steel structure and level, compacted grade for Vestibule 126 to establish egress through construction area.
  - .2 Provide temporary lighting to OBC requirements.
  - .3 Leave existing exit door and frame in place until Vestibule 126 can be secured weather tights.
  - .4 Maintain temporary exit for free and clear egress at all times.
  - .5 Details of construction to achieve the required phases can be determined by the Contractor in consultation with Consultant and Board.

.2 Complete all Work, ready for Occupancy, on or before January 31, 2027 subject to delivery and installation of the elevator.

.3 Coordinate Progress Schedule and coordinate with Owner Occupancy during construction.

.4 Required stages:
- .1 Mobilization including preparation of Shop Drawings and ordering of materials and equipment are to commence immediately upon the award of Contract.
- .2 Contractor to co-ordinate parts of the Work to expedite the required stages.

1.4 Progress Draw Breakdown

.1 Submit proposed breakdown to Consultant for review following award of Contract. Itemized in detail indicating proportions of work of each subtrade in accordance with Sections of this specification, and in further detail as required by the Consultant to accurately assess the progress of Work.

1.5 Contractor Use of Premises

.1 Contractor has unrestricted use of the Work Area until Substantial Performance as scheduled and co-ordinated with the Board.

.2 Contractor shall limit use of premises for Work, for storage, and for access, to allow;
- .1 Owner occupancy.
- .2 Work by other contractors.
- .3 Public usage.

.3 Coordinate use of premises under direction of Owner and Consultant.

.4 Assume full responsibility for protection and safekeeping of products under this Contract.

.5 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.6 Owner Occupancy

.1 Owner will occupy premises during entire construction period for execution of normal operations.

.2 Cooperate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.7 No Smoking Policy

.1 No person is allowed to smoke at any time on the property. It is the Contractor's responsibility to ensure that his employees and Sub-Contractors, if any, comply with this policy.

1.8 Vehicle and Operation

.1 Conform to regulation of Municipality regarding cleanup of tracking on streets and protection of sidewalks and curbs and other applicable Laws, By-laws and Regulations.

.2 Make arrangements with Owner for suitable access for the site. Pay all charges in connection therewith.

.3 Drivers of motor vehicles shall not operate their vehicles beyond the parking area. Such vehicles shall be operated with due caution at all times while on school property. Speed limits shall not exceed 8 kilometers (5 miles) per hour at any time.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

1 Requirements Included

.1 Cash allowances

2 Cash Allowances

.1 Refer to GC 4.1.

.2 Include in the Contract Price, cash allowances stated herein.

.3 Cash allowances, unless otherwise specified, cover the net cost to the Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage and other authorized expenses incurred in performing the Work.

.4 The Contract Price, and not the cash allowance, includes the Contractor's overhead and profit in connection with such cash allowance.

.5 The Contract Price will be adjusted by written order to provide for an excess or deficit to each cash allowance.

.6 Where costs under a cash allowance exceed the amount of the allowance, the Contractor will be compensated for any excess incurred and substantiated plus an allowance for overhead and profit as set out in the Contract Documents.

.7 Progress payments on accounts of work authorized under cash allowances shall be included in the Consultant's monthly certificate for payment.

.8 A schedule shall be prepared jointly by the Consultant and Contractor to show when items called for under cash allowances must be authorized by the Consultant for ordering purposes so that the progress of the Work will not be delayed.

.9 The total value of the Cash Allowance, $100,000.00 for items not included in the Contract including:

- .1 Testing and Inspections
- .2 Furniture Moving
- .3 Items as designated by the consultants at later date.

3 Contingency Allowances

.1 Refer to GC 4.2.

.2 Include in the Contract Price a stipulated sum contingency allowance in the amount of $250,000.00.

.3 Do not include in the Contract Price, additional sums for products, installation, overhead or profit.

.4 Expenditures under the contingency allowance will be authorized in accordance with the procedures provided in Part 6 - Changes in the Work, and evaluated under GC 6.3.

PART 1 - GENERAL

1.1 Section Includes

.1 Project meetings.

.2 Project coordination.

.3 Cutting and patching.

.4 Field engineering.

.5 Identification systems.

1.2 Related Sections

.1 Section 01601 - Material and Equipment.

.2 Individual Product Sections: Cutting and patching incidental to work of the section. Advance notification to other sections required.

1.3 Meetings

.1 Schedule and administer project meetings throughout the progress of the work at the call of the Consultant.

.2 Provide physical space and make arrangements for meetings.

.3 Record the minutes. Reproduce and distribute copies of minutes within three days after each meeting and transmit to meeting participants.

.4 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.5 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.6 During the course of Work schedule progress meetings monthly.

.7 Contractor, major Subcontractors involved in Work and Consultants and Owner are to be in attendance.

1.4 Coordination

.1 Allocate of mobilization areas of site; for field offices and sheds, access, traffic, and parking facilities.

.2 During construction coordinate use of site and facilities through procedures for submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.

.3 Provide information required for preparation of coordination drawings. Review and approve revised drawings for submission to Consultant.

.4 Mechanical and Electrical Coordinator: Employ and pay for services of a person or firm technically qualified and experienced in field coordination for the type of mechanical and electrical work required for this Project, for duration of construction work.

1.5 Cutting and Patching

.1 Execute cutting, fitting, and patching including excavation and fill, to complete the Work.

.2 Remove and replace defective and non-conforming work.

.3 Restore work with new products in accordance with requirements of Contract Documents.

.4 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical work.

.5 Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.

.6 Employ original installer to perform cutting and patching for exposed to view materials.

.7 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed with masonry materials without prior approval.

.8 Refinish surfaces to match adjacent finishes: For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.

1.6 Field Engineering

.1 Qualified registered land surveyor, acceptable to Owner.

.2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

.3 Report to Consultant when a reference point is lost or destroyed, or requires relocation because of necessary changes in grades or location.

.4 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

.5 Establish lines and levels, locate and lay out, by instrumentation.

.6 On completion of foundation, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

1.7 Identification Systems

.1 Submit 2 typed copies of schedules for nameplates and valve tags 15 days prior to inspection for Substantial Performance or 5 days prior to date scheduled for instruction of Owner's personnel.

.2 Nameplate schedules shall list: Pump, control, valves and electrical equipment nameplates.

.3 Include nameplate designation, manufacturer's nameplate data, equipment and component parts; numbers, location of equipment, and switch location and normal operating position of switch.

.4 Valve tag schedules shall list each tag by system. Include reference

number, valve location and usage, system identification, colour code, and function, size and valve manufacturer with model number, and normal operating position of valve.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

1 Section Includes

.1 Shop drawings and product data

.2 Samples

.3 Certificates and transcripts

2 Related Sections

.1 Section 01310 - Construction Schedule: Submissions of schedules

.2 Section 01400 - Quality Control: Submission of test and mix design mill tests.

.3 Section 01601 - Material and Equipment: Submission of manufacturer's instructions.

.4 Section 01655 - Facility Start-Up: Submission of system and equipment documents.

.5 Section 01721 - Project Record Documents: Operating and maintenance manuals, and record drawings.

3 Administrative

.1 Submit to Consultant submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in the Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Work affected by the submittal shall not proceed until review is complete.

.3 Review submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and

co-ordinated with the requirements of the Work and the Contract Documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and shall be considered rejected.

.4 Verify field measurements and affected adjacent Work are coordinated.

.5 Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.

.6 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.

.7 Keep one reviewed copy of each submission on site.

4 Shop Drawings and Product Data

.1 Refer to G.C 3.10.

.2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by the Contractor to illustrate details of a portion of the Work.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of the Section under which the adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Adjustments made on shop drawings by the Consultant are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Consultant prior to proceeding with the Work.

.5 Make changes in shop drawings as the Consultant may require, consistent with Contract Documents. When resubmitting, notify the Consultant in writing of any revisions other than those requested.

.6 Submit one transparency and six (6) prints of shop drawings for each requirement requested in specification Sections and as the consultant may reasonably request.

.7 Submit six (6) copies of product data sheets or brochures for requirements requested in specification Sections and as the Consultant may reasonably request where shop drawings will not be prepared due to standardized manufacture of product.

.8 If upon review by the Consultant, no errors or omissions are discovered or if only minor corrections are made, the transparency will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through the same procedure indicated above, shall be performed before fabrication and installation of Work may proceed.

5 Samples

.1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples as to origin and intended use in the Work.

.2 Deliver samples prepaid to Consultant's business address.

.3 Notify the Consultant in writing, at the time of submission of deviations in samples from requirements of Contract Documents.

.4 Adjustments made on samples by the Consultant are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Consultant prior to proceeding with the Work.

.5 Make changes in samples which the Consultant may require, consistent with Contract Documents.

6 Certificates and Transcripts

.1 Immediately after award of Contract, submit Workers' Compensation Board status transcription of insurances.

1 Section Includes

.1 Schedule, form, content

.2 Scheduled revisions

.3 Critical path scheduling

2 Related Sections

.1 Section 01770 - Take-Over Procedures: Project closeout requirements.

3 Schedules Required

.1 Submit the following schedules:
.1 Construction Progress Schedule
.2 Submittal Schedule for Shop Drawings and Product Data
.3 Submittal Schedule for Samples
.4 Submittal Schedule for timeliness of Owner furnished Products
.5 Product Delivery Schedule
.6 Cash Allowance Schedule for purchasing Products

4 Format

.1 Prepare schedule in the form of a horizontal bar chart.

.2 Provide a separate bar for each trade or operation.

.3 Provide horizontal time scale identifying the first work day of each week.

.4 Format for listings: The chronological order of trades for the Work.

.5 Identification of listings: By specification Section numbers and

Specification subjects .

5 Submission

.1 Submit initial schedules within 15 days after award of Contract.

.2 Submit one opaque reproduction, plus 2 copies to be retained by the Consultant.

.3 Consultant will review schedule and return review copy within 10 days after receipt.

.4 Resubmit finalized schedule within 7 days after return of review copy.

.5 Submit revised progress schedule with each application for payment.

.6 Distribute copies of the revised schedule to:
.1 Job site office.
.2 Subcontractors.
.3 Other concerned parties.

.7 Instruct recipients to report to the Contractor within 10 days, any problems anticipated by the timetable shown in the schedule.

6 Construction Progress Schedule

.1 Include the complete sequence of construction activities.

.2 Include the dates for the commencement and completion of each major elements of construction including the following.
.1 Site clearing.
.2 Site utilities.
.3 Foundation Work.
.4 Structural framing.
.5 Special Subcontractor work.
.6 Equipment Installations.
.7 Finishes.

.3 Show projected percentage of completion of each item as of the first day of the month.

.4 Indicate progress of each activity to date of submission schedule.

.5 Show changes occurring since previous submission of schedule:
.1 Major changes in scope.
.2 Activities modified since previous submission.
.3 Revised projections of progress and completion.
.4 Other identifiable changes.

.6 Provide a narrative report to define:
.1 Problem areas, anticipated delays, and the impact on the schedule.
.2 Corrective action recommended and its effect.
.3 The effect of changes on schedules of other prime contractors.

7 Submittals Schedule

.1 Include schedule for submitting shop drawings, product data, samples .

.2 Indicate dates for submitting, review time, resubmission time, float time, last date for meeting fabrication schedule.

.3 Include dates when reviewed submittals will be required from the Consultant.

1 Section Includes

.1 Inspection and testing, administrative and enforcement requirements.

.2 Tests and mix designs.

.3 Mock-ups.

.4 Mill tests.

.5 Equipment and system adjust and balance.

2 Related Sections

.1 Section 01300 - Submittals: Submission of samples to confirm product quality.

.2 Section 01601 - Material and Equipment: Material and workmanship quality, reference standards.

3 Inspection

.1 Refer to GC 2.3.

.2 The Owner and the Consultant shall have access to the Work. If part of the Work is in preparation at locations other than the Place of the Work, access shall be given to such work whenever it is in progress.

.3 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions, or the law of the Place of the Work.

.4 If the Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have the inspections or tests satisfactorily completed and make good such Work.

.5 The Consultant may order any part of the Work to be examined if the

Work is suspected to be not in accordance with the Contract Documents. If, upon examination such work is found not in accordance with the Contract Documents, correct such work and pay the cost of examination and correction. If such Work is found in accordance with the Contract Documents, the Owner shall pay the cost of examination and replacement.

4 Independent Inspection Agencies

.1 Independent Inspection/Testing Agencies will be engaged by the Owner for the purpose of inspecting and/or testing portions of Work.

.2 Costs shall be allocated as set out in Section 01021 - Allowances.

.3 Provide equipment required for executing inspection and testing by the appointed agencies.

.4 Employment of inspection/testing agencies does not relax the responsibility to perform Work in accordance with the Contract Documents.

.5 If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to the Owner. Pay costs for retesting and reinspection.

5 Access to Work

.1 Allow inspection/testing agencies access to the Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

6 Procedures

.1 Notify the appropriate agency and Consultant in advance of the requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

7 Rejected Work

.1 Refer to GC 2.4.

.2 Remove defective Work, whether the result of poor workmanship, use of defective products or damage and whether incorporated in the Work or not, which has been rejected by the Consultant as failing to conform to the Contract Documents. Replace or re-execute in accordance with the Contracts Documents.

.3 Make good other Contractor's work damaged by such removals or replacements promptly.

.4 If in the opinion of the Consultant it is not expedient to correct defective Work or Work not performed in accordance with the Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work performed and that called for by the Contract Documents, the amount of which shall be determined by the Consultant.

8 Reports

.1 Submit 4 copies of inspection and test reports to the Consultant.

.2 Provide copies to Subcontractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested .

9 Tests and Mix Designs

.1 Furnish test results and mix designs as may be requested.

.2 The cost of tests and mix designs beyond those called for in the Contract Documents or beyond those required by the law of the Place of Work shall

be appraised by the Consultant and may be authorized as recoverable.

10 Mockup

.1 Prepare mock-up for Work specifically requested in the specifications. Include for Work of all Sections required to provide mock-ups.

.2 Construct in all locations acceptable to the Consultant.

.3 Prepare mock-up for Consultant review with reasonable promptness and in an orderly sequence, so as not to cause any delay in the Work.

.4 Failure to prepare mock-up in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, the Consultant will assist in preparing a schedule fixing the dates for preparation.

.6 Mock-up may remain as part of the Work.

11 Mill Tests

.1 Submit mill test certificates as may be requested.

12 Equipment and Systems

.1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

PART 1 - GENERAL

1.1 Section Includes

.1 Temporary utilities.

1.2 Related Sections

.1 Construction Section 01535 Temporary facilities: Construction Facilities

.2 Temporary Section 01560 Temporary controls

1.3 Installation and Removal

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.4 Dewatering

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.5 Sanitary Facilities

.1 Provide sufficient sanitary facilities for workers in accordance with

local health authorities.

.2 Maintain in clean condition.

1.6 Water Supply

.1 The Owner will provide a continuous supply of potable water for construction use.

.2 Arrange for connection with appropriate utility company and pay all costs for installation, maintenance and removal.

.3 Pay for utility charges at prevailing rates.

1.7 Temporary Heating

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders not permitted.

.3 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress, unless indicated otherwise in specifications.

.4 Ventilate heated areas and keep building free of exhaust or combustion gases.

.5 The use of the permanent heating system of building, or portions thereof, may not be used.

.6 Date of Substantial Performance and Warranties for heating system do not commence until entire system is in as near original condition as possible and is so certified by Consultant.

.7 Be responsible for damage to work due to failure in providing adequate heat and protection during construction.

1.8 Temporary Power and Light

.1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools, to a maximum supply of 230 volts 30 amps.

.2 Arrange for connection with appropriate utility company. Pay all costs for installation, maintenance and removal.

.3 Temporary power for electric cranes and other equipment requiring in access of above is responsibility of Contractor.

.4 Provide and maintain temporary lighting throughout project. Level of illumination on all floors and stairs shall not be less than 15 foot candles 162 Lx.

1.9 Temporary Telephone

.1 Provide and pay for temporary telephones necessary for own use and use of Consultant and Owner.

1.10 Fire Protection

.1 Provide and maintain temporary fire protection equipment during performance of work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

.2 Open and burning rubbish are not permitted on site.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

PART 1 - GENERAL

1.1 Section Includes

.1 Construction aids.

.2 Traffic controls.

.3 Office and sheds.

.4 Project identification.

1.2 Related Sections

.1 Temporary Section 01510 utilities: Temporary Utilities

.2 Temporary Section 01560 controls: Temporary Controls

1.3 Installation and Removal

.1 Provide construction facilities in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.4 Scaffolding

.1 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms and temporary stairs.

1.5 Hoisting

.1 Provide, operate and maintain hoists required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof.

.2 Hoists shall be operated by qualified operator.

1.6 Site Storage/ Loading

.1 Refer to GC 3.3.

.2 Confine work and operations of employees by Contract documents. Do not unreasonably encumber premises with products.

.3 Do not load or permit to load any part of work with a weight or force that will endanger the work.

1.7 Security

.1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.8 Offices

.1 Provide and maintain in clean condition during progress of work, adequately lighted, heated and ventilated Consultant's temporary office and Contractor's office with space for filing and layout of Contract Documents and Contractor's normal site office staff.

.2 Provide adequate required first aid facilities.

.3 Subcontractors may provide their own offices as necessary. Direct location of these offices.

1.9 Equipment, Tool and Materials Storage

.1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.

PART 2 - PRODUCTS Not used.

PART 3 - EXECUTION Not used.

PART 1 - GENERAL

1.1 Section Includes

.1 Barriers.

.2 Environmental Controls.

.3 Traffic Controls.

1.2 Related Sections

.1 Temporary Section 01510 Temporary Utilities

.2 Construction Section 01535 Temporary Facilities: Construction Facilities

1.3 Installation and Removal

.1 Provide temporary controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

.3 Conform to requirements of authorities having jurisdiction.

1.4 Hoarding

.1 Erect hoarding where indicated on drawings to protect the public, workers, public and private property from injury or damage.

.2 Provide hoarding with solid 16mm plywood barricade painted to Owner's

approval 2.4 m high, protecting public and private property from injury or damage. Provide lockable gates within hoarding for access to site by workers and vehicles.

.3 Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to building.

.4 Provide barriers around trees and plants designated to remain. Protect from damage.

1.5 Guard Rails and Barricades

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.

.2 Provide as required by governing authorities.

1.6 Weather Enclosures

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure and snow loading.

1.7 Dust Tight Screens

.1 Provide dust tight screens or partitions to localize dust generating activities, and for the protection of workers, finished areas of work and the public.

.2 Maintain and relocate protection until such work is complete.

1.8 Access to Site

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to the work.

1.9 Public Traffic Flow

.1 Provide and maintain flagpersons, traffic signals, barricades and flares, lights, or lanterns as required to perform the work and protect the public.

1.10 Protection for Off-Site and Public Property

.1 Protect surrounding private and public property from damage during performance work.

.2 Be responsible for damage incurred.

1.11 Protection of Building Finishes and Equipment

.1 Provide protection for finished and partially finished building finishes and equipment during performance of work.

.2 Provide necessary screens, covers, and hoardings as required.

.3 Be responsible for damage incurred due to lack of or improper protection.

1.12 Maintainance of Existing Building Exits

.1 Maintain and protect existing building exits during Contruction. Provide temporary exits through the work area as required.

.2 Review temporary exits with Consultant and local Building Officials and provide as required.

1.13 Fire Routes

.1 Maintain access to property including overhead clearance for use by emergency response vehicles.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

PART 1 - GENERAL

1.1 Section Includes

.1 Reference standards.

.2 Product quality, availability, storage, handling, protection, transportation.

.3 Manufacturer's instructions.

.4 Workmanship, coordination and fastenings.

.5 Existing facilities.

1.2 Related Sections

.1 Section 01400 - Quality Control: Quality control and inspection of Work.

1.3 Reference Standards

.1 Within the text of the specifications, reference may be made to the following standards: ACI - American Concrete Institute AISC - American Institute of Steel Construction ANSI - American National Standards Institute ASTM - American Society of Testing and Materials CEC - Canadian Electrical Code (published by CSA) CEMA - Canadian Electrical Manufacturer's Association CGSB - Canadian General Standards Board CISC - Canadian Institute of Steel Construction CLA - Canadian Lumberman's Association CPCA - Canadian Painting Contractors' Association CPCI - Canadian Prestressed Concrete Institute CRCA - Canadian Roofing Construction Association CSA - Canadian Standards Association FM - Factory Mutual Engineering Corporation IEEE - Institute of Electrical and Electronic Engineers IPCEA - Insulated Power Cable Engineers Association NAAMM - National Association of Architectural Metal Manufacturers NBC - National Building Code NEMA - National Electrical

Manufacturers' Association TTMAC - Terrazzo, Tile and Marble Association of Canada ULC - Underwriters' Laboratories of Canada

.2 Conform to these standards, in whole or in part as specifically requested in the specifications.

.3 If there is question as to whether any product or system is in conformance with applicable standards, the Consultant reserves the right to have such products or systems tested to prove or disprove conformance.

.4 The cost for such testing will be born by the Owner in the event of conformance with Contract Documents or by the Contractor in the event of non-conformance.

.5 Conform to latest date of issue of referenced standards in effect on date of submission of bids, except where a specific date or issue is specifically noted.

1.4 Associations

.1 AA - Aluminum Association, 900 19th Street N.W., Washington, D.C., U.S.A. 20006 http://www.aluminum.org

.2 AASHTO - American Association of State Highway and Transportation Officials, 444 N Capitol Street N.W., Suite 249, Washington, D.C., U.S.A. 20001 http://www.aashto.org

.3 ACI - American Concrete Institute, P.O. Box 9094, Farmington Hills, Michigan U.S.A. 48333 http://www.aci-int.org

.4 AHA - American Hardboard Association, 887-B Wilmette Road, Palatine, Illinois, U.S.A. 60067

.5 AITC - American Institute of Timber Construction, 7012 S. Revere Parkway, Suite 140, Englewood, Colorado, U.S.A. 80112 http://www.aitc-glulam.org

.6 AMCA - Air Movement and Control Association Inc., 30 West University Drive, Arlington Heights, Illinois, U.S.A. 60004-1893 http://www.amca.org

.7 ANSI - American National Standards Institute, 11 West 42nd Street, New York, New York, U.S.A. 10036 http://www.ansi.org

.8 API - American Petroleum Institute,1220 L St. Northwest, Washington,

D.C., U.S.A. 20005-4070 http://www.api.org

.9 ARI - Air Conditioning and Refrigeration Institute, 1815 North Fort Myer Drive, Arlington, Virginia, U.S.A. 22209 http://www.ari.org

.10 ASHRAE - American Society of Heating, Refrigeration and Air-Conditioning Engineers, 1791 Tullie Circle NE, Atlanta, Georgia, U.S.A. 30329 http://www.ashrae.org

.11 ASME - American Society of Mechanical Engineers, United Engineering Centre, 345 East 47th Street, New York, New York, U.S.A. 10017-2392 http://www.asme.org

.12 ASTM - American Society for Testing and Materials, 100 Barr Harbor Drive West, Conshohocken, Pennsylvania 19428-2959 http://www.astm.org

.13 AWCI - Association of the Wall and Ceiling Industries, 1711 Connecticut Avenue N.W., Washington, D.C. U.S.A. 20009 http://www.awci.org

.14 AWMAC - Architectural Woodwork Manufacturers Association of Canada, 516 4 Street West, High River, Alberta T1V 1B6 http://www.awmac.com

.15 AWS - American Welding Society, 550 N.W. LeJeune Road, Miami, Florida U.S.A. 33126 http://www.amweld.org

.16 AWWA - American Water Works Association, 6666 W. Quincy Avenue, Denver, Colorado, U.S.A. 80235 http://www.awwa.org

.17 CFFM - Canadian Forces Fire Marshal, 101 Colonel By Drive, 8NT MGen George R. Pearkes Bldg., Ottawa, Ontario K1A 0K2

.18 CGA - Canadian Gas Association, 243 Consumers Road, Suite 1200, North York, Ontario M2J 5E3 http://www.cga.ca

.19 CGSB - Canadian General Standards Board, Place du Portage, Phase III, 6B1, 11 Laurier Street, Hull, Quebec K1A 1G6 http://w3.pwgsc.gc.ca/cgsb

.20 CISC - Canadian Institute of Steel Construction, 201 Consumers Road, Suite 300, Willowdale, Ontario M2J 4G8

.21 CITC - Canadian Institute of Timber Construction, 200 Cooper Street, Ottawa, Ontario K2P 0G1

.22 CMB - Construction Materials Board, 101 Colonel By Drive, 8NT MGen George R. Pearkes Bldg., Ottawa, Ontario K1A 0K2

.23 COFI - Council of Forest Industries, 555 Burrard, Suite 1200, Vancouver, B.C. V7X 1S7 http://www.cofi.org

.24 CRCA - Canadian Roofing Contractors Association, 151 Slater Street, Suite 606, Ottawa, Ontario K1P 5H3

.25 CSA - Canadian Standards Association, 178 Rexdale Blvd., Etobicoke, Ontario M9W 1R3 http://www.csa.ca

.26 CSC - Construction Specifications Canada, 100 Lombard Street, Suite 200, Toronto, Ontario M5C 1M3 http://www.csc-dcc.ca

.27 CSDFMA - Canadian Steel Door and Frame Manufacturing Association One Yonge Street, Suite 1400, Toronto, Ontario M5E 1J9

.28 CSPI - Corrugated Steel Pipe Institute, 201 Consumers Road, Suite 306, Willowdale, Ontario M2J 4G8

.29 CSSBI - Canadian Sheet Steel Building Institute, 201 Consumers Road, Suite 305, Willowdale, Ontario M2J 4G8 http://www.cssbi.ca

.30 CWC - Canadian Wood Council, 1400 Blair Place, Suite 210, Ottawa, Ontario K1J 9B8 http://www.cwc.ca

.31 EEMAC - Electrical and Electronic Manufacturers' Association of Canada, 1 Yonge Street, Suite 1608, Toronto, Ontario M5E 1R1 http://www.electro.ca

.32 FCC - Fire Commissioner of Canada, Place du Portage, Phase II, 165 rue Hotel de Ville, Hull Quebec K1A 0J2

.33 ICPI - Interlocking Concrete Pavement Institute, P.O. Box 23053, Milton, Ontario L9T 2M0 http://www.icpi.org/icpi

.34 IEEE - Institute of Electrical and Electronics Engineers, 345 East 47th Street, New York, New York U.S.A. 10017 http://www.ieee.org

.35 MSS - Manufacturers Standardization Society of the Valve and Fittings Industry, 127 Park Street, N.E., Vienna, Virginia U.S.A.22180

.36 NAAMM - National Association of Architectural Metal Manufacturers, 8 South Michigan Avenue, Suite 1000, Chicago, Illinois U.S.A. 60603 http://www.naamm.org

.37 NEMA - National Electrical Manufacturers Association,1300 N. 17th Street, Suite 1847, Rosslyn, Virginia 22209 http://www.nema.org

.38 NFPA - National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts, U.S.A. 02269-9101 http://www.nfpa.org

.39 NFSA - National Fire Sprinkler Association, P.O. Box 1000, Patterson,

New York, U.S.A. 12563 http://www.nfsa.org

.40 NHLA - National Hardwood Lumber Association, P.O. Box 34518, Memphis, Tennessee, U.S.A 38184-0518 http://www.natlhardwood.org

.41 NLGA - National Lumber Grades Authority, 260-1055 West Hastings, Vancouver, B.C. V6E 2E9

.42 NRC - National Research Council, Montreal Road, Ottawa, Ontario K1A 0S2

.43 PCI - Prestressed Concrete Institute, 175 W. Jackson Blvd., Suite 1859, Chicago, Illinois, U.S.A. 60604 http://www.pci.org

.44 QPL - Qualification Program List, c/o Canadian General Standards Board, Place du Portage, Phase III, 6B1, 11 Laurier Street, Hull, Quebec K1A 1G6 http://w3.pwgsc.gc.ca/cgsb

.45 SAE - Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, Pennsylvania 15096-0001 http://www.sae.org

.46 SCC - Standards Council of Canada, 1200-45 O'Connor Street, Ottawa, Ontario K1P 6N7 http://www.scc.ca

.47 SMACNA - Sheet Metal and Air Conditioning Contractors' National Association, 4201 Lafayette Center Drive, Chantilly, Virginia 20151-1209 http://www.smacna.org

.48 SSPC - Steel Structures Painting Council, 40 24th Street, Pittsburgh, Pennsylvania 15222-4656 http://www.sspc.org

.49 TTMAC - Terrazzo, Tile and Marble Association of Canada, 30 Capston Gate, Unit 5 Concord, Ontario L4K 3E8 http://www.ttmac.com

.50 UL - Underwriters' Laboratories, 333 Pfingsten Road, Northbrook, Illinois, U.S.A. 60062 http://www.ul.com

.51 ULC - Underwriters' Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario M1R 3A9 http://www.ulc.ca

.52 USACE - United States Army Corps Engineers, Huntsville, Alabama http://www.hnd.usace.army.mil

1.5 Quality

.1 Refer to GC 3.8.

.2 Products, materials, equipment and articles (referred to as Products throughout the specifications) incorporated in the Work shall be new, not damaged or defective, and of the best quality (compatible with specifications) for the purpose intended. If requested, furnish evidence as to type, source and quality of Products provided.

.3 Defective Products, whenever identified prior to the completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is a precaution against oversight or error. Remove and replace defective Products at own expense and be responsible for delays and expenses caused by rejection.

.4 Should any dispute arise as to the quality or fitness of Products, the decision rests strictly with the Consultant based upon the requirements of the Contract Documents.

.5 Unless otherwise indicated in the specifications, maintain uniformity of manufacture for any particular or like item throughout the building.

.6 Permanent labels, trademarks and nameplates on Products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.6 Availability

.1 Immediately upon signing Contract, review Product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of Products are foreseeable, notify the Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In the event of failure to notify the Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Consultant reserves the right to substitute more readily available products of similar character, at no increase in Contract Price.

1.7 Storage, Handling and Protection

.1 Handle and store Products in a manner to prevent damage, adulteration,

deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled Products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in the Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in a heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged Products at own expense and to the satisfaction of the Consultant.

1.8 Transportation

.1 Pay costs of transportation of Products required in the performance of Work.

.2 Transportation cost of Products supplied by the Owner will be paid for by the Owner. Unload, handle and store such Products.

1.9 Manufacturer's Instructions

.1 Unless otherwise indicated in the specifications, install or erect Products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with Products. Obtain written instructions directly from manufacturers.

.2 Notify the Consultant in writing, of conflicts between the specifications and manufacturer's instructions, so that the Consultant may establish the course of action.

.3 Improper installation or erection of Products, due to failure in complying with these requirements, authorizes the Consultant to require removal and re-installation at no increase in Contract Price.

1.10 Workmanship

.1 Workmanship shall be the best quality, executed by workers experienced and skilled in the respective duties for which they are employed. Immediately notify the Consultant if required Work is such as to make it impractical to produce required results.

.2 Do not employ any unfit person or anyone unskilled in their required duties. The Consultant reserves the right to require the dismissal from the site, workers deemed incompetent, careless, insubordinate or otherwise objectionable.

.3 Decisions as to the quality or fitness of workmanship in cases of dispute rest solely with the Consultant, whose decision is final.

1.11 Co-Ordination

.1 Insure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.12 Concealment

.1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation, inform the Consultant if there is a contradictory situation. Install as directed by Consultant.

1.13 Remedial Work

.1 Refer to GC 2.4 and Section 01040.

.2 Perform remedial work required to repair or replace the parts or portions of the Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.

.3 Perform remedial work by specialists familiar with the materials affected. Perform in a manner to neither damage nor endanger any portion of Work.

1.14 Location of Fixtures

.1 Consider the location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Inform the Consultant of a conflicting installation. Install as directed.

1.15 Fastenings

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use noncorrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in the affected specification Section.

.4 Space anchors within their load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.16 Protection of Work in Progress

.1 Adequately protect Work completed or in progress. Work damaged or defaced due to failure in providing such protection is to be removed and replaced, or repaired, as directed by the Consultant, at no increase in Contract Price.

.2 Prevent overloading of any part of the building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Consultant.

1.17 Existing Utilities

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with a minimum of disturbance to Work, and/or building occupants and pedestrian and vehicular traffic.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in a manner approved by authority having jurisdiction, stake and record location of capped service.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

PART 1 - GENERAL

1.1 Section Includes

.1 Testing, adjusting and balancing of building equipment and systems.

.2 Procedures for demonstration and instruction of equipment and systems to Owner's personnel.

1.2 Related Section

.1 Section 01400 - Quality Control: Employment of testing agency and payment for services.

.2 Individual Sections: Demonstrating systems and equipment.

1.3 References

.1 Associated Air Balance Council (AABC): National Standards For Field Measurements and Instrumentation, Total Systems Balance, Air Distribution Hydronics Systems.

1.4 Quality Assurance

.1 Testing organization: Current member in good standing of AABC certified to perform specified services.

.2 Comply with applicable procedures and standards of the certification sponsoring association.

.3 Perform services under direction of supervisor qualified under certification requirements of sponsoring association.

1.5 Submittals

.1 Prior to start of Work, submit name of organization proposed to perform services and names of specialty personnel proposed to perform services. Designate who has managerial responsibilities for coordination of entire testing, adjusting and balancing.

.2 Submit documentation to confirm organization compliance with quality assurance provision.

.3 Submit 3 preliminary specimen copies of each of report forms proposed for use.

.4 Fifteen days prior to Substantial Performance, submit 3 copies of final reports on applicable forms.

.5 Submit reports of testing, adjusting, and balancing postponed due to seasonal, climatic, occupancy, or other reasons beyond Contractor's control, promptly after execution of those services.

1.6 Procedures

.1 Comply with procedural standards of certifying association under whose standard services will be performed.

.2 Report to Consultant any deficiencies or defects noted during performance of services.

.3 Prepare each system for testing and balancing.

.4 Cooperate with testing organization, provide access to equipment and systems.

.5 Notify testing organization 7 days prior to time project will be ready for testing, adjusting, and balancing.

1.7 Final Reports

.1 Organization having managerial responsibility shall make reports.

.2 Ensure each form bears signature of recorder, and that of supervisor of reporting organization.

.3 Identify each instrument used, and latest date of calibration of each.

.4 Submit 3 copies of final reports on applicable forms.

1.8 Contractor Responsibilities

.1 Prepare each system for testing and balancing.

.2 Cooperate with testing organization and provide access to equipment and systems.

.3 Provide personnel and operate systems at designated times, and under conditions required for proper testing, adjusting, and balancing.

.4 Notify testing organization 7 days prior to time project will be ready for testing, adjusting, and balancing.

1.9 Preparation

.1 Provide instruments required for test, adjust, and balance operations.

.2 Verify systems installation is complete and in continuous operation.

.3 Verify lighting is turned on when lighting is included in cooling load.

.4 Verify equipment such as computers, laboratory and electronic equipment are in full operation.

.5 Test equipment, balance distribution systems, and adjust devices for HVAC systems.

1.10 Systems Demonstration

.1 Demonstrate start-up, operation, control, adjustment,

trouble-shooting, servicing, and maintenance of each item of equipment at agreed upon times, at the equipment designated location.

.2 Owner will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon times.

.3 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.

.4 Review contents of manual in detail to explain all aspects of operation and maintenance.

.5 Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

PART 1 - GENERAL

1.1 Section Includes

.1 Progressive cleaning.

.2 Final cleaning.

1.2 Related Section

.1 Section 01770 - Take-Over Procedures.

1.3 Project Cleanliness

.1 Maintain the Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the Owner or other Contractors.

.2 Remove waste material and debris from the site and deposit in waste container at the end of each working day. Do not burn waste materials on site.

.3 Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site containers for collection of waste materials and debris.

.6 Dispose of waste materials and debris off site .

.7 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.8 Provide adequate ventilation during use of volatile or noxious

substances. Use of building ventilation systems is not permitted for this purpose.

.9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.10 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.4 Final Cleaning

.1 Refer to GC 3.13.

.2 When the Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for the performance of the remaining Work.

.3 Remove waste products and debris other than that caused by the Owner, other contractors or their employees, and leave the Work clean and suitable for the occupancy by Owner.

.4 Prior to final review, remove surplus products, tools, construction machinery and equipment. Remove waste products and debris other than that caused by the Owner or other Contractors.

.5 Remove waste materials and the site at regularly scheduled times or dispose of as directed by the consultant. Do not burn waste materials on site, unless approved by the Consultant.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Leave the work broom clean before the inspection process commences.

.8 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.9 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.

.10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

.11 Wax, seal, shampoo or prepare floor finishes, as recommended by the manufacturer.

.12 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.13 Broom clean and wash exterior walks, steps and surfaces.

.14 Remove dirt and other disfiguration from exterior surfaces.

.15 Clean and sweep roofs, gutters, areaways, sunken wells.

.16 Sweep and wash clean paved areas.

.17 Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment.

.18 Clean roofs, downspouts, and drainage systems.

.19 Clean lighting reflectors, lenses and other lighting surfaces.

.20 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.21 Remove snow and ice from access to building.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

PART 1 - GENERAL

1.1 Section Includes

.1 Record documents, samples, specifications.

.2 Equipment and systems.

.3 Product data, materials and finishes, and related information.

.4 Operation and maintenance data.

.5 Warranties and bonds.

1.2 Related Sections

.1 Section 01040 - Coordination

.2 Section 01300 - Submittals: Shop drawings, samples, manufacturers instructions, photographs.

.3 Section 01310 - Construction Schedule: Total project Schedule.

.4 Section 01400 - Quality Control: Test and inspect reports.

.5 Section 01655 - Facility Start-up: Test and balance, system performance verification and takeover procedures.

.6 Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.3 Submission

.1 Prepare instructions and data by personnel experienced in maintenance and operation of described products.

.2 Submit one copy of completed volumes in final form 15 days prior to substantial performance.

.3 Copy will be returned after final inspection, with Consultant comments.

.4 Revise content of documents as required prior to final submittal.

.5 Two weeks prior to Substantial Performance of the work, submit to the Consultant, two final copies of operating and maintenance manuals.

1.4 Format

.1 Organize data in the form of an instructional manual.

.2 Binders: commercial quality, 8 1/2 x 11 inch maximum ring size.

.3 When multiple binders are used, correlate data into related consistent groupings.

.4 Cover: Identify each binder with type or printed title "Project Record Documents"; list title of Project, identify subject matter of contents.

.5 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Test: Manufacturer's printed data, or typewritten data on 20 pound paper.

.8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.5 Contents, Each Volume

.1 Table of Contents: provide title of project; names, addresses, and telephone numbers of Consultant and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

.2 For Each Product or System: list names, addresses and telephone numbers

of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01400.

1.6 Record Documents and Samples

.1 In addition to requirements in General Conditions, Maintain at the site for Owner one record copy of:
- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders and other modifications to the Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.

.2 Store Record Documents and Samples in Field Office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.

.5 Keep Record Documents and samples available for inspection by Consultant.

.6 Consolidate, index, bind and submit record documents in accordance with Section 1780 Closeout Submittals.

1.7 Recording Actual Site Conditions

.1 Record information on a full set of black line opaque As-Built drawings provided by Owner, and in a copy of a Project Manual.

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal work until required information is recorded.

.4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
- .1 Measure depths of elements of foundation in relation to finish first floor datum.
- .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
- .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
- .4 Field changes of dimension and detail.
- .5 Changes made by change orders.
- .6 Details not on original Contract Drawings.
- .7 References to related shop drawings and modifications.

.5 Specifications: legibly mark each item to record actual construction, including:
- .1 Manufacturer, trade name, and catalog number of each project actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.8 Record Drawings

.1 Contruction drawings for this project have been prepared on a CAD system. The software used is AutoCAD 2010.

.2 Submit As-Built drawings to Consultant for preparation of Record

Drawings.

.3 Submit As-Built drawings to the Consultant for review prior to Application for Certificate for Substantial Performance of the work.

.4 The Consultant will update computer drawings and submit computer disk copies and print copies directly to the Owner. Cost for preparation of Record Drawings is included in Section 01021. Consultant will submit invoices directly to Contractor for direct payment. Invoice is due and payable upon receipt.

1.9 Equipment and Systems

.1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panelboard Circuit Directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break- in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.

.12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports as specified in Section 01400 and 01655.

.15 Additional Requirements: As specified in individual specification sections.

1.10 Materials and Finishes

.1 Building Products, Applied Materials, and Finishes: include product data, with catalog number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommend schedule for cleaning and maintenance.

.4 Additional Requirements: as specified in individual specifications sections.

1.11 Warranties and Bonds

.1 Separate each warranty or bond with index tab sheets keyed to the List of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.

.4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.

.5 Verify that documents are in proper form, contain full information, and are notarized.

.6 Co-execute submittals when required.

.7 Retain warranties and bonds until time specified for submittal.

1 Manual

.1 An organized compilation of operating and maintenance data including detailed technical information, documents and records describing operation and maintenance of individual products or systems as specified in individual sections of Divisions 02 - 16.

2 General

.1 Assemble, coordinate, bind and index required data into Operation and Maintenance Manual.

.2 Submit complete operation and maintenance manual to Consultant 2 weeks prior to application for Substantial Performance.

.3 Submit 4 bond hard copies and one USB flash drive with each page coverted .pdf file format matching order of hard copy submission.

.4 Organize data into same numerical order as contract specifications.

.5 Material: label each section with tabs protected with celluloid covers fastened to hard paper dividing sheets.

.6 Type lists and notes.

.7 Drawings, diagrams and manufacturers literature must be legible.

3 Binders

.1 Binders: vinyl, hard covered, 3 "D" ring, loose leaf, sized for 215 x 280 mm paper, with spine pocket.

.2 Identify contents of each binder on spline.

4 Contents

.1 Binder 1:
  .1 Cover sheet containing:
    .1 Date submitted.
    .2 Project title, location and project number.
    .3 Names and addresses of Contractor, and all Sub-contractors.
  .2 Table of Contents of all binders.
  .3 List of maintenance materials as specified in Section 01750 - Maintenance Materials, Special Tools and Spare Parts.
  .4 List of special tools as specified in Section 01750 - Maintenance Materials, Special Tools and Spare Parts.
  .5 List of spare parts as specified in Section 01750 - Maintenance Materials, Special Tools and Spare Parts.
  .6 Warranties, guarantees.
  .7 Copies of approvals, and certificates.

.2 Remaining binders:
  .1 Cover sheet containing:
    .1 Date submitted.
    .2 Project title, location and project number.
  .2 Table of Contents of individual binder.
  .3 Provide data as specified in individual sections of Divisions 02 to 16.
    .1 List of equipment including service depot.
    .2 Nameplate information including equipment number, make, size, capacity, model number and serial number.
    .3 Parts list.
    .4 Installation details.
    .5 Operating instructions.
    .6 Maintenance instructions for equipment.
    .7 Maintenance instructions for finishes.

.3 Shop drawings:
  .1 Bind separately one complete set of reviewed final shop drawings and product data.

PART 1 - GENERAL

1.1 Section includes

.1 Section includes:
- .1 Spare parts.
- .2 Maintenance materials.
- .3 Special tools.

1.2 Related Sections

.1 Delivery Section 01655 and receipt of Testing, Adjusting spare parts and Balancing of associated with Systems testing, adjusting and balancing:

.2 Systems Section 01655 Facility Start-up

.3 Take-over procedures: Section 01770 Take-Over Procedures

.4 Project record Section 01721 Project Record Documents

.5 Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.3 Quality

.1 Spare parts, maintenance materials and special tools provided shall be new, not damaged or defective, and of the same quality and manufacture as Products provided in the Work.

.2 If requested, furnish evidence as to type, source and quality of Products provided.

.3 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

1.4 Transportation

.1 Pay costs of transportation.

1.5 Storage, handling and protection

.1 Store spare parts, maintenance materials and special tools in a manner to prevent damage, or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

1.6 Spare Parts

.1 Provide spare parts in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in the Work.

.3 Deliver to Project site or location as directed; place and store.

.4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual specified in Section 01300.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.7 Maintenance Materials

.1 Provide maintenance and extra materials in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in the Work.

.3 Deliver to Project site or location as directed; place and store.

.4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual specified in Section 01300.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.8 Special Tools

.1 Provide special tools in quantities specified in individual specification Sections.

.2 Provide items with tags identifying their function and equipment to which they are associated.

.3 Deliver to Project site or location as directed; place and store.

.4 Receive and catalogue all items. Include listings in Maintenance Manual specified in Section 01300.

PART 2 - PRODUCTS Not used

PART 3 - EXECUTION Not used

PART 1 - GENERAL

1.1 Section Includes

.1 Administrative procedures preceding preliminary and final inspections of the Work.

1.2 Related Sections

.1 Testing, adjusting Section 01655 and balancing: Testing, Adjusting and Balancing of Systems

.2 Conform to OAA/OGCA Take-Over Procedures Document No. 100 dated November 1983.

1.3 Inspection and Declaration Procedures

.1 Contractor's Inspection: Contractor and all Subcontractors shall conduct an inspection of the Work, identify deficiencies and defects; repair as required to conform to Contract Documents. Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made. Request a Consultant's Inspection.

.2 Consultant's Inspection: Consultants and Contractor will perform an inspection of the Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.

.3 Completion: submit a written certificate that following have been performed:

- .1 Work has been completed and inspected for compliance with Contract Documents,
- .2 Defects have been corrected and deficiencies have been completed,
- .3 Equipment and systems have been tested, adjusted and balanced and are fully operational,
- .4 Certificates required by authorities having jurisdiction have

been submitted,

.5 Operation of systems have been demonstrated to Owner's personnel, and

.6 Work is complete and ready for Final Inspection.

.4 Final Inspection: when items noted above are completed, request a final inspection of the Work by Owner, Consultants, and Contractor. If Work is deemed incomplete by Owner and Consultant, complete outstanding items and request a reinspection.

.5 Declaration of Substantial Performance: when Owner and Consultants consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance. Refer to General Conditions Article GC 5.4 Substantial Performance of the Work. Submission of Project Record Documents in accordance with Section 01721 and Operation and Maintenance Manual in accordance with Section 01730 is a requirement for Substantial Performance.

.6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance shall be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of the Place of the Work.

.7 Final Payment: When Owner and Consultant consider final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, make application for final payment. Refer to CCDC 2, General Conditions Article GC 5.7 for specifics to application. If Work is deemed incomplete by Owner and Consultant , complete outstanding items and request reinspection.

.8 Payment of Holdback: After issuance of certificate of Substantial Performance of Work, submit an application for payment of holdback amount in accordance with CCDC 2, General Conditions Article 5.5.

1.4 Reinspection

.1 Should status of the Work require reinspection by Consultant due to failure of Work to comply with Contractor's claims for inspection, Owner will deduct amount of Consultant's compensation for reinspection services from payment to Contractor.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

PART 1 - GENERAL

1.1 Section Includes

.1 As-built, samples, and specifications.

.2 Equipment and systems.

.3 Product data, materials and finishes, and related information.

.4 Operation and maintenance data.

.5 Spare parts, special tools and maintenance materials.

.6 Warranties and bonds.

.7 Final site survey.

1.2 Related Sections

.1 Section 01300 - Submittals.

.2 Section 01400 - Quality Control.

.3 Section 01770 - Closeout Procedures.

1.3 Submission

.1 Prepare instructions and data by personnel experienced in maintenance and operation of described products.

.2 Copy will be returned after final inspection, with Consultant's comments.

.3 Revise content of documents as required prior to final submittal.

.4 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, four final copies of operating and maintenance manuals in English.

.5 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

.6 If requested, furnish evidence as to type, source and quality of products provided.

.7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

.8 Pay costs of transportation.

1.4 Format

.1 Organize data in the form of an instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: Manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

.9 USB flash drive with each page coverted .pdf file format matching order of hard copy submission.

1.5 Contents - Each Volume

.1 Table of Contents: provide title of project;
- .1 date of submission; names,
- .2 addresses, and telephone numbers of Consultant and Contractor with name of responsible parties;
- .3 schedule of products and systems, indexed to content of volume.

.2 For each product or system:
- .1 list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01450 - Quality Control .

.6 Training: Co-ordinate with Owner and submit schedule for demonstrations and training.

1.6 As-builts and Samples

.1 In addition to requirements in General Conditions, maintain at the site for ConsultantOwner one record copy of:
- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders and other modifications to the Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Consultant .

1.7 Recording Actual Site Conditions

.1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Consultant .

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
- .1 Measured depths of elements of foundation in relation to finish first floor datum.
- .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
- .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
- .4 Field changes of dimension and detail.
- .5 Changes made by change orders.
- .6 Details not on original Contract Drawings.
- .7 References to related shop drawings and modifications.

.5 Specifications: legibly mark each item to record actual construction, including:
- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.8 Final Survey

.1 Submit final site survey certificate certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.9 Equipment and Systems

.1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.

.12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports as specified in Section 01450 - Quality Control and 01810 - Commissioning .

.15 Additional requirements: As specified in individual specification sections.

1.10 Materials and Finishes

.1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional Requirements: as specified in individual specifications sections.

1.11 Spare Parts

.1 Provide spare parts, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to site location as directed; place and store.

.4 Receive and catalogue all items. Submit inventory listing to Engineer Consultant . Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.12 Maintenance Materials

.1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed ; place and store.

.4 Receive and catalogue all items. Submit inventory listing to Consultant.

Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.13 Special Tools

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to location as directed; place and store.

.4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

1.14 Storage, Handling and Protection

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

1.15 Warranties and Bonds

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.

.4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.

.5 Verify that documents are in proper form, contain full information, and are notarized.

.6 Co-execute submittals when required.

.7 Retain warranties and bonds until time specified for submittal.

PART 2 - PRODUCTS

PART 3 - EXECUTION

PART 1 - GENERAL

1.1 Protection

.1 Protect existing items designated to remain and materials designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Consultant and at no cost to Owner.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION

3.1 Preparation

.1 Inspect site and verify with Consultant items designated for removal and items to remain.

.2 Locate and protect utility lines. Preserve in operating condition active utilities traversing site.

.3 Notify utility companies before starting demolition.

3.2 Removal

.1 Remove items as indicated.

.2 Do not disturb adjacent items designated to remain in place.

3.3 Salvage

.1 Carefully dismantle items containing materials for salvage and stockpile salvaged materials at locations as indicated or as directed by Consultant.

3.4 Disposal of Material

.1 Dispose of materials not designated for salvage or re-use in work, off-site.

3.5 Restoration

.1 Upon completion of work, remove debris, trim surfaces and leave work site clean.

.2 Reinstate areas and existing works outside areas of demolition to match condition of adjacent, undisturbed areas.

PART 1 - GENERAL

1.1 References

.1 ASTM D 698-12, Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (600kN-m/m3).

1.2 Site Conditions

.1 Known underground and surface utility lines and buried objects are as indicated on site plan. Investigate subsurface utilities and buried objects in the vicinity of the Work Area. Establish locations of utility lines prior to commencing work.

.2 If other subsurface utility lines and buried objects are encountered, contact the Consultant for further instructions.

1.3 Protection

.1 Protect existing fencing trees, landscaping, natural features, bench marks, buildings, pavement, surface or underground utility lines which are to remain. If damaged, restore to original or better condition unless specified otherwise.

.2 Maintain access roads to prevent accumulation of mud on roads.

PART 2 - PRODUCTS

2.1 Materials

.1 Fill material: in accordance with Section 31 23 01 - Excavating, Trenching and Backfilling.

.2 Use excavated or graded material existing on site as fill for grading work if approved by Consultant. Protect approved material from contamination.

PART 3 - EXECUTION

3.1 Stripping of Topsoil

.1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected.

.2 Commence topsoil stripping of areas as directed by Consultant after area has been cleared of brush weeds and grasses and removed from site.

.3 Strip topsoil to depths as directed by Consultant. Avoid mixing topsoil with subsoil.

.4 Stockpile in locations as directed by Consultant. Stockpile height not to exceed 2 m.

.5 Dispose of unused topsoil off site.

3.2 Grading

.1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.

.2 Rough grade to following depths below finish grades:
- .1 150 mm for grassed areas.
- .2 300 mm for flowerbeds.
- .3 500 mm for shrub beds.
- .4 500 mm for asphalt paving.

.5 300 mm for concrete paving, walks and precast paving units.

.3 Slope rough grade away from building 1:50 minimum.

.4 Grade ditches to depth required for maximum run-off.

.5 Prior to placing fill over existing ground, scarify surface to depth of 150 mm. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.

.6 Compact filled and disturbed areas to corrected maximum dry density to ASTM D 698-12 as follows or as indicated in soils report:
.1 90% for general fill in areas with no structural requirements.
.2 100% Standard Proctor maximum dry density for fill under the building addition.

.7 Do not disturb soil within branch spread of trees or shrubs to remain.

3.3 Inspection and Testing

.1 Inspection and testing of soil compaction will be carried out by Inspection and Testing Company appointed and paid by the Owner. Contractor to provide notifications and assistance required under Section 01 45 00 Quality Control.

3.4 Surplus Material

.1 Refer to Section 31 23 01 for off-site haulage of excavated site soils.

PART 1 - GENERAL

1.1 References

.1 Canadian Council of Ministers of the Environment (CCME).
- .1 CCME EPC-LST-61E - March 1993 , Environmental Code of Practice for Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products.
- .2 CCME EPC-LST-71E - August 1994 , Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products.

.2 Canadian Federal Legislation
- .1 Canadian Environmental Protection Act (CEPA), 1988.
- .2 Canadian Environmental Assessment Act (CEAA), 1995.
- .3 Transportation of Dangerous Goods Act (TDGA), 1992.
- .4 Motor Vehicle Safety Act (MVSA), 1995.

.3 Canadian Standards Association (CSA).
- .1 CSA S350-M1980 (R1998) (R1998) (R1998) M1980 , Code of Practice for Safety in Demolition of Structures.

.4 Underwriters Laboratories of Canada (ULC)
- .1 ULC ORD-C107.19-1992, Secondary Containment of Underground Piping for Flammable and Combustible Liquids.
- .2 ULC ORD-C58.15-1992, Overfill Protection Devices for Flammable Liquid Storage Tanks.
- .3 ULC ORD-C58.19-1992, Spill Containment Devices for Underground Flammable Liquid Storage Tanks.

1.2 Existing Conditions

.1 Should material resembling spray or trowel applied asbestos or any other designated substance listed be encountered in the course of demolition, stop work, take preventative measures, and notify Consultant immediately. Do not proceed until written instructions have been

received.

.2 List of items to be salvaged for reuse:
.1 Reserved

.3 Structures to be demolished to be based on their condition on date that tender is accepted.
.1 Remove, protect and store salvaged items as directed by Consultant . Salvage items as identified by Consultant . Deliver to Consultant as directed.

1.3 Demolition Drawings

.1 Where required by authorities having jurisdiction, submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning.

.2 Submit drawings stamped and signed by qualified professional engineer registered or licensed in Province of Ontario, Canada.

1.4 Protection

.1 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, landscaping, adjacent grades parts of existing building to remain . Provide bracing, shoring and underpinning as required. Repair damage caused by demolition as directed by Consultant .

.2 Support affected structures and, if safety of structure being demolished or adjacent structures or services appears to be endangered, take preventative measures and then cease operations and notify Consultant .

.3 Prevent debris from blocking surface drainage system, elevators, mechanical and electrical systems which must remain in operation.

.4 Ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.5 Fires and burning of waste or materials is not permitted on site.

.6 Do not bury waste or materials on site.

.7 Do not dispose of waste or volatile materials such as: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers. Ensure proper disposal procedures are maintained throughout project.

.8 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.

.9 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authorities.

.10 Protect trees, plants and foliage on site and adjacent properties where indicated.

.11 Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.

.12 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on all temporary roads.

1.5 Regulatory Requirements

.1 Ensure work is performed in compliance with CEPA, CEAA, TDGA, MVSA, and all applicable provincial regulations .

PART 2 - PRODUCTS

2.1 Equipment

.1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

PART 3 - EXECUTION

3.1 Preparation

.1 Disconnect and re-route electrical and telephone service lines entering buildings to be demolished. Post warning signs on electrical lines and equipment which must remain energized to serve other properties during period of demolition.

.2 Disconnect and cap designated mechanical services.
- .1 Natural gas supply lines: remove in accordance with gas company requirements.
- .2 Sewer and water lines: remove to property line.
- .3 Other underground services: remove and dispose of as directed by Consultant.

.3 Do not disrupt active or energized utilities traversing premises designated to remain undisturbed.

3.2 Safety Code

.1 Do demolition work in accordance with safety codes and requirements of local municipality.

3.3 Demolition

.1 Demolish parts of structure to permit construction of addition and as indicated.

.2 Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as work progresses.

.3 At end of each day's work, leave work in safe and stable condition. Protect interiors of parts not to be demolished from exterior elements at all times .

.4 Demolish to minimize dusting. Keep materials wetted as directed by Consultant.

.5 Remove structural framing.

.6 Dispose of materials as directed by Consultant .

.7 Removal from site.

.1 Remove stockpiled material as directed by Engineer Consultant , when it interferes with operations of project construction.

.2 Remove stockpiles of like materials by an alternate disposal option once collection of materials is complete.

.3 Contain all fibrous materials (e.g. Insulation) to minimize release of airborne fiber while being transported within facility.

.8 Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.

.9 Use natural lighting to work by wherever possible. Shut off all lighting except those required for security purposes at the end of each day.

PART 1 - GENERAL

1.1 Examination of Site

.1 Refer to Instructions to Bidders Article 5, Site Investigation, included in this specification, for details regarding co-ordination of earthworks activities.

.2 Recommendations in the Soil Report, PML Ref.: 17BF054, Report: 1, dated November 14, 2017 constitute part of the Tender Document. Interpretation of the factual data by the contractor for his purposes is solely the responsibility of the contractor Contractor shall examine site and ascertain for himself extent and nature of materials it may be necessary to remove or supply to reach or provide depth levels, and grades required by drawings and specifications.

1.2 References

.1 American Society for Testing and Materials (ASTM)

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-8.1 Sieves, Testing, Woven Wire, Inch Series.
- .2 CAN/CGSB-8.2 Sieves, Testing, Woven Wire, Metric.

.3 Canadian Standards Association (CSA)
- .1 CAN/CSA-A23.1 and A23.2, Concrete Materials and Methods of Concrete Construction.

.4 Ministry of Transportation, Ontario (MTO)
- .1 LS-601 Method of Test for Materials Finer than 75m Sieve in Mineral Aggregates by Wasing.
- .2 LS-602 Method of Test for Sieve Analysis of Aggregates.
- .3 LS-625 Guidelines for Sampling of Aggregate Materials.
- .4 LS-631 Method of Test for Determination of Presence of Plastic Fines in Aggregates.
- .5 Ontario Provincial Standard Sepcification (OPSS)
  - .1 OPSS MUNI 1004 Material Specifications for Aggregates -

Miscellaneous

.2 OPSS 1010 Material Specification for Aggregates - Base, Subbase, Select Subgrade, and Backfill Material

.5 References to standards and tests as noted refer to the most recent version and update of the reference.

1.3 Definitions

.1 Rock excavation: excavation of material from solid masses of igneous, sedimentary or metamorphic rock which, prior to its removal, was integral with its parent mass, and boulders or rock fragments having individual volume in excess of 1 m^3.

.2 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation including dense tills, hardpan and frozen materials.

.3 Topsoil: material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

1.4 Protection of Existing Features

.1 Existing buried utilities and structures:

.1 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.

.2 Prior to commencing any excavation work, notify applicable owner or authorities, establish location and state of use of buried utilities and structures. Clearly mark such locations to prevent disturbance during work.

.3 Confirm locations of buried utilities by careful test excavations.

.4 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered. Obtain direction of Consultant before moving or otherwise disturbing utilities or structures.

.5 Advise utility company to remove or re-route existing lines in area of excavation. Pay costs for such work.

.6 Record location of maintained, re-routed and abandoned underground lines.

.2 Existing buildings and surface features:

.1 Conduct, with Consultant, condition survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks and paving, survey bench marks and monuments which may be affected by work.

.2 Protect existing buildings and surface features which may be affected by work from damage while work is in progress and repair damage resulting from work.

1.5 Shoring, Bracing and Underpinning

.1 Comply with applicable local regulations to protect existing features.

.2 Engage services of qualified professional engineer who is registered in Ontario to design and inspect shoring, bracing and underpinning required for work.

.3 At least 2 weeks prior to commencing work, submit design and supporting data.

.4 Design and supporting data submitted to bear the stamp and signature of qualified professional engineer registered in in the Province of Ontario.

.5 Professional engineer responsible for design of temporary structures to submit proof of insurance coverage for professional liability except where engineer is employee of contractor, in which case contractor shall submit proof that work by professional engineer is included in contractor's insurance coverage.

1.6 Samples

.1 At least 4 weeks prior to commencing work, inform Consultant of proposed source(s) of fill materials and provide access for sampling by the Inspection and Testing Company.

.2 Supply only those materials approved by the Inspection and Testing Company for use on the project.

PART2 - MATERIALS

1.7 Granular Materials

.1 Granular A conforming to OPSS 1010 to be used as base course below pavement (and slab-on-grade, if specified).

.2 Granular B conforming to OPSS 1010 to be used as subbase course below pavement and engineered fill below slab-on-grade.

.3 Select Subgrade Material (SSM) conforming to OPSS 1010 to be used as backfill below pavement and engineered fill below slab-on-grade.

.4 19 mm crushed rock conforming to OPSS 1004 to be used as granular base below slab-on-grade, if specified, and embedment for exterior foundation drainage.

.5 Select Excavated Material: Excavated site soil, free of deleterious materials that is at a suitable moisture content to achieve the specified degree of compaction, for use as engineered fill and below paved areas below design subgrade elevation and/or as general fill, subject to geotechnical field review and approval.

PART 2 - EXECUTION

3.1 Site Preparation

.1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

.2 Cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly in accordance with Section 02222 Structure Demolition.

3.2 Stripping of Topsoil

.1 Commence topsoil stripping of areas as directed by Consultant after area has been cleared of brush weeds and grasses and removed from site.

.2 Strip topsoil to depths as directed by Consultant. Avoid mixing topsoil with subsoil.

.3 Stockpile in locations as directed by Consultant. Stockpile height not to exceed 2 m.

.4 Dispose of unused topsoil off site.

3.3 Stockpiling

.1 Stockpile fill materials in areas designated by Consultant. Stockpile granular materials in manner to prevent segregation.

.2 Protect fill materials from contamination.

3.4 Shoring, Bracing and Underpinning

.1 Construct temporary works to depths, heights and locations as approved by Consultant.

.2 During backfill operation:
- .1 Unless otherwise as indicated or as directed by Consultant, remove shoring from excavations.
- .2 Do not remove bracing until backfilling has reached respective levels of such bracing.

.3 Upon completion of substructure construction:
- .1 Remove shoring and bracing.
- .2 Remove excess materials from site and restore water courses as indicated and as directed by Consultant.

3.5 Dewatering and Heave Prevention

.1 Keep excavations free of water while work is in progress.

.2 Avoid excavation below groundwater table if quick condition or heave is likely to occur. Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut-offs, or other means.

.3 Protect open excavations against flooding and damage due to surface run-off.

.4 Dispose of water in a manner not detrimental to public and private property, or any portion of work completed or under construction.

.5 Submit for Consultant's review details of proposed dewatering or heave prevention methods, such as dikes, well points, and sheet pile cut-offs.

.6 Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials before discharging to storm sewers, water courses or drainage areas.

3.6 Excavation

.1 Advise Consultant sufficiently in advance of excavation operations to enable original cross sections to be taken.

.2 Excavate to lines, grades, elevations and dimensions as indicated on drawings and in the soil report, whichever is deeper and wider as required to complete the work. Provide shoring and bracing as required to complete this work.

.3 Remove concrete masonry paving walks demolished foundations and rubble and other obstructions encountered during excavation in accordance with Section 02222 Structure Demolition.

.4 Excavation must not interfere with normal 7 Vertical to 10 Horizontal angle from bottom of any footing.

.5 For trench excavation, unless otherwise authorized by Consultant in writing, do not excavate more than 30 m of trench in advance of installation operations and do not leave open more than 15 m at end of day's operation.

.6 Do not obstruct flow of surface drainage or natural watercourses.

.7 Inspection and Testing Company to approve base of excavation before backfilling.

.8 Where unacceptable bearing or other subsurface conditions are encountered, do not excavate beyond the design elevation or extent of contract or as indicated in the soil report without written authorization of the consultant. All additional excavation to proceed only as follows.

.1 Contractor to excavate to elevations noted.
.2 Contractor to arrange for Inspection and Testing Company to be present to document presence of unacceptable subsurface conditions and to confirm that additional excavation is required.
.3 Removal of all additional material to be removed and quantified by independent Inspection and Testing Company designated by Owner.
.4 Inspection and Testing Company to outline extent of required additional excavation and to confirm and document all new elevations and quantities of removal and replaced material.
.5 Inspection and Testing Company to verify all additional quantities as submitted by the contractor.
.6 All requests for extras to be submitted with Inspection and Testing Company verification documentation.

.9 Unauthorized over excavation to be corrected at no extra cost to Owner using imported granular materials as approved by the Inspection and Testing Company.

3.7 Fill Types and Compaction

.1 Use fill of types as indicated or specified below. Compaction densities are percentages of maximum densities obtained from ASTM D 698-12.

.2 100% Standard Proctor maximum dry density for
.1 Granular A base course and Granular B subbase course below pavement and engineered fill below floor slab-on-grade.
.2 Granular A below concrete slabs, if specified.
.3 Select Excavated Soil and Select Subgrade Material for fill under paved areas, and engineered below building addition.

.3 95% Standard Proctor maximum dry density for

.1 Service trench backfill to design subgrade elevation / underside of Granular B subbase.
.2 Backfill to the exterior side of perimeter walls.

.4 90% Standard Proctor maximum dry density for general fill in areas with no structural requirements.

.5 Asphalt: In accordance with OPSS 310 (Refer to Section 02513).

3.8 Excavation and Backfilling for Underground Services

.1 Application:

.1 Excavate all existing materials, including rock, to extents, depths and limits as indicated on drawings for all site services. Maintain excavations large enough to permit placement, inspection, and testing of pipe work as required. Provide all shoring and bracing required to execute this work.

.2 Excavate to provide granular frost tapers for service trenches in accordance with OPSD 803.030 and OPSD 803.031.

.3 After excavation to the design grade and before placing pipes, contact the Inspection & Testing Company for inspection and approval of the trench base.

.4 Areas to be backfilled to be free from debris, snow, ice, water or frozen ground. Backfill material to be free from debris, snow, ice and water.

.5 Place appropriate bedding materials around pipe work as indicated on drawings. Backfill remainder of trench with Select Subgrade Material. Select Excavated Soil may be used as backfill below a depth of 1 m below the pavement design subgrade elevation / below underside of Granular B subbase.

.6 Deposit and spread material in uniform layers not exceeding 200 mm loose measurement, in depth. Shape each layer to a smooth contour and compact to 95% Standard Proctor Density before placing succeeding layers.

.7 Supply compaction equipment suitable for achieving the specified degree of compaction.

.8 Co-ordinate work with Inspection & Testing Company to allow inspection and testing and approval of earthworks.

.9 Install insulation over storm sewer to extent shown on drawings. Do not cover until inspected and approved by Civil Consultant.

3.9 Backfilling

.1 Vibratory compaction equipment: appropriate to achieve specified degree of compaction.

.2 Do not proceed with backfilling operations until Consultant has inspected and approved installations.

.3 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.

.4 Do not use backfill material which is frozen or contains ice, snow or debris.

.5 Place backfill material in uniform layers not exceeding 200 mm loose measurement up to grades indicated. Compact each layer to specified degree of compaction before placing succeeding layer.

.6 Backfilling around installations.

.1 Place bedding and surround material as specified elsewhere.

.2 Do not backfill around or over cast-in- place concrete within 24 h after placing of concrete.

.3 Place layers simultaneously on both sides of installed work to equalize loading. Difference not to exceed .6 m.

.4 Where temporary unbalanced earth pressures are liable to develop on walls or other structures:

.1 Permit concrete to cure for minimum 14 days or until it has sufficient strength to withstand earth and compaction pressure and approval obtained from Consultant or:

.2 If approved by Consultant, erect bracing or shoring to counteract unbalance, and leave in place until removal is approved by Consultant.

3.10 Restoration

.1 Upon completion of work, remove surplus materials and debris, trim slopes, and correct defects as directed by Consultant.

.2 Replace topsoil.

.3 Reinstate pavement and sidewalks and lawns to elevation which existed before excavation and blend to ensure smooth transition.

.4 Clean and reinstate areas affected by work as directed by Consultant.

3.11 Quality Assurance

.1 Materials and installation shall be subject to approval by independent Inspection and Testing Company appointed and paid by the Owner.

3.12 Off-Site Haulage of Excavated Site Soil

.1 The soil Report included in the Tender Document (PML Ref: 17BF054, Report: 3, dated November 21, 2017) has identified the Site Condition Standards for the project site to be Table 2 with Residential / Parkland / Institutional land use, in accordance with Ontario Regulation 153/04, as amended. (O.Reg. 153/04, as amended)

.2 Limited testing has identified that the site soils meet the Table 2 Residential / Parkland / Institutional Site Condition Standards and can be re-used on-site, subject to geotechnical requirements and approval by the Consultant.

.3 Excess excavated soil shall be taken to a receiving site, where the receiving Site Condition Standards comply with any of the following O.Reg. 153/04, as amended, criteria

.1 Table 2, Any Land Use
.2 Table 3, Any Land Use
.3 Table 6, Any Land Use
.4 Table 7, Any Land Use

.4 Excavated site soil shall not be hauled to a site where Table 1, Table 8 or Table 9 Site Condition Standards apply, or to a site where a Record of Site Condition (RSC) is being carried out as outlined in O.Reg.153/04, as amended.

.5 The contractor is fully and solely responsible for all activities related to haulage of soil off-site, including, but not limited to:

.1 Conduct sampling and testing to verify the environmental quality of the actual soil to be removed off-site, and confirm applicable handling and disposal options.
.2 Disclose all available analytical results and environmental assessment reports to the receiving site owners/authorities and provide confirmation that they have agreed to receive the material.
.3 Satisfy all requirements of the receiving site, including any additional testing that the receiving site may require.
.4 Select a receiving site with Site Condition Standards that are compatible with the environmental quality of the soil originating from the source site.
.5 Supply all equipment suitable for handling and transporting the material, including licensed haulage contractors.
.6 Complete any and all manifest and documents that are necessary for this activity.
.7 Complying with all requirements of MOE, other regulating agencies and the receiving site authority.

PART 1 - GENERAL

1.1 References

.1 American Society for Testing and Materials (ASTM)
- .1 ASTM D 698, Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3) (600 kN-m/m3)
- .2 ASTM D 6752, Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method

.2 Canadian Standards Association (CSA)
- .1 CAN/CSA A23.1/A23.2 Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete

.3 Ministry of Transportation, Ontario (MTO)
- .1 LS-261, Preparation of Marshall Specimens
- .2 LS-262, Bulk Relative Density of Compacted Bituminous Mixtures
- .3 LS-263, Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
- .4 LS-264, Theoretical Maximum Relative Density of Bituminous Pavement Mixtures
- .5 LS-265, Percent Air Voids in Compacted Dense Bituminous Pavement Mixtures
- .6 LS-282, Quantitative Extraction of Asphalt Cement and Analysis of Extracted Aggregate from Bituminous Paving Mixtures

.4 Ontario Provincial Standards Specification(OPSS)
- .1 OPSS.MUNI 310, Construction Specification for Hot Mix Asphalt
- .2 OPSS 1003, Material Specification for Aggregates - Hot Mix Asphalt
- .3 OPSS.MUNI 1101, Material Specification for Performance Graded Asphalt Cement
- .4 OPSS.MUNI 1003, Material Specification for Emulsified Asphalt
- .5 OPSS.MUNI 1103, Rev. Date: 11/2006, Material Specification for Aggregates - Hot Mix Asphalt

1.2 Samples

.1 Submit samples in accordance with Section 01300 - Submittals.

.2 At least 4 weeks prior to commencing work inform Consultant of proposed source(s) of aggregates and provide access for sampling by the Inspection and Testing Company.

.3 Supply only those materials approved by the Inspection and Testing Company for use on the Project.

1.3 Protection

.1 Keep vehicular traffic off newly paved areas until paving surface temperature has cooled below 38°C. Do not permit stationary loads on pavement until 24 h after placement.

.2 Provide access to buildings as required. Arrange paving schedule so as not to interfere with normal use of premises.

1.4 Mix Design

.1 Submit to the Consultant for approval, a minimum of 2 weeks prior to construction, current mix designs for concrete and asphalt verifying conformance to the OPSS requirements. No materials shall be delivered to the site until the mix designs have been approved.

1.5 Warranty

.1 Provide extended warranty 2 years for material and labour, refer to Section 01 61 00.

PART 2 - MATERIALS

2.1 Granular Materials

.1 Granular A conforming to OPSS 1010 to be used as base course below pavement and exterior concrete slabs, if specified.

.2 B conforming to OPSS 1010 to be used as subbase course below pavement.

2.2 Asphaltic Concrete Pavement

.1 The materials used in the production of Hot Mix Asphalt shall be according to OPSS 1150.

.2 Asphalt Cement - Performance Graded Asphalt Cement conforming to OPSS 1101.

.3 Tack Coat shall consist of SS-1 emulsified asphalt diluted within equal volume of water. The undiluted material shall be according to OPSS 1103.

.4 Aggregates to be used in the production of Hot Mix Asphalt shall meet the gradation requirements detailed in OPSS 1003.

PART 3 - EXECUTION

3.1 Subgrade Inspection

.1 Install 100 mm diameter perforated subdrain with factory wrapped geosynthetic filter fabric at all storm manhole and catchbasin locations to extending out 1.5 m from all four sides. Subdrain installation to conform to OPSD 216.021 and OPSS 405.

.2 Inspect existing subgrade materials over which new granulars and asphalt are to be placed to ensure that they are stable and compacted to 95% Standard Proctor maximum dry density as indicated under Section 02223. Report deficiencies to General Contractor for rectification prior to commencement of work.

3.2 Granular Sub-base and Granular Base

.1 Place granular base and sub-base material on clean unfrozen surface, properly shaped and compacted and free from snow and ice and prepared in accordance with Article 3.1, Item 2.

.2 Place granular base and sub-base to compacted thicknesses as indicated.

.3 Place in layers not exceeding 200 mm loose thickness and compact to 100% Standard Proctor maximum dry density.

.4 Finished granular base surface to be within 10 mm of specified grade, but not uniformly high or low.

3.3 Tack Coat

.1 Emulsified asphalt:
- .1 Dilute asphalt emulsion with clean water at 1:1 ratio for application. Mix thoroughly by pumping or other method approved by Consultant.
- .2 Apply diluted asphalt emulsion at rate directed by Consultant but do not exceed 5 L/m².
- .3 Apply to all existing pavement surfaces to receive new asphalt, vertical and horizontal.

3.4 Plant and Mixing Requirements

.1 To OPSS 1150.

3.5 Equipment

.1 Pavers: mechanical grade controlled self-powered pavers capable of spreading mix within specified tolerances, true to line, grade and crown indicated.

.2 Rollers, general: sufficient number of rollers of type and weight to obtain specified density of compacted mix.

.3 Vibratory rollers for parking lots and driveways:
- .1 Minimum drum diameter: 750 mm.

.2 Maximum amplitude of vibration (machine setting): 0.5 mm for lifts less than 40 mm thick.

.4 Haul trucks: of adequate size, speed and condition to ensure orderly and continuous operation.

.5 Suitable hand tools.

3.6 Asphalt Concrete Paving

.1 Obtain approval of granular base from Consultant before placing asphalt mix.

.2 Place hot mix asphalt to extent shown on drawings.

.3 Place asphalt mix only when granular base or previous pavement course is dry and air temperature is above 5°C.

.4 Place asphalt concrete in compacted layers not exceeding 50 mm each lift.

.5 Asphalt shall be delivered to site at a sufficient temperature to achieve a minimum of 120°C in the pavement mat after placement and prior to initial rolling.

.6 Maximum 160°C mix temperature permitted at any time.

.7 Compact each course with roller as soon as it can support roller weight without undue cracking or displacement.

.8 Roll until roller marks are eliminated. Compact asphaltic concrete to density not less than 92% of mixes' Maximum Relative Density in accordance with OPSS 310.

.9 Keep roller speed slow enough to avoid mix displacement and do not stop roller on fresh pavement.

.10 Moisten roller wheels with water to prevent mix adhesion. .

.11 Compact mix with hot tampers or other equipment approved by Consultant, in areas inaccessible to roller.

.12 Finish surface smooth, true to grade to within 6 mm and with no irregularities greater than 6 mm in 3 m.

3.7 Joints

.1 Cut existing pavement to full depth in neat lines to provide full cross section against which new paving will be laid. Remove loose material. Should the existing pavement exceed 50 mm in thickness, a minimum 300 mm wide step joint should be constructed immediately adjacent to the new work to a minimum depth of 40 mm.

.2 Paint exposed vertical edge of asphaltic joints, edges of drainage structures, curbs and similar items with tack coat prior to placing of fresh mix.

.3 Overlap previously laid strip with spreader by 150 mm, plus or minus 50 mm.

.4 Carefully place and compact hot asphaltic material against joints.

3.8 Asphaltic Curbs

.1 Form asphaltic curbs by machine to profiles as indicated. Curve curbs uniformly.

3.9 Speed Bumps

.1 Form speed-limiting bumps as indicated. Stop bumps 300 mm short of curb edge of driveway.

3.10 Paving Schedule

.1 Specified granular and pavement thicknesses are as shown on drawings and no less than as follows below:

.1 40 mm HL 3 Surface
.2 50 mm HL 8 Binder
.3 150 mm Granular A

.4 300 mm Granular B Type I

3.11 Inspection and Testing

.1 Inspection and testing of asphalt pavement will be carried out by Independent Inspection and Testing Company appointed and paid by Owner.

PART 1 - GENERAL

1.1 Related Sections

.1 Section 02223 - Excavating, Trenching and Backfilling .

1.2 References

.1 Canadian Standards Association (CSA)
- .1 CSA B182.1, Plastic Drain and Sewer Pipe and Pipe Fittings.
- .2 G401, Corrugated Steel Pipe Products.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-34.22, Asbestos-Cement Drain Pipe.
- .2 .2

.3 American Society for Testing and Materials (ASTM)
- .1 ASTM D 698, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft n (600 kN-m/m n)).

.4 Ontario Provincial Standard Specification (OPSS)

1.3 Site Conditions

.1 Examine sub-surface investigation report which is bound into specification following Section 00225.

.2 Known underground utility lines and buried objects are as indicated on plans.

PART 2 - PRODUCTS

2.1 Bedding and Surround Materials

.1 19mm Clear Crushed Stone conforming to OPSS.MUNI 1004.

.2 Flexible plastic tubing and fittings. Corrugated Perforated nominal inside diameter 150 mm.

.3 Rigid plastic pipe and fittings: to CSA B182.1-96, size NPS 2 , complete with fittings.

.4 Geotextile filter: Terrafix 270R or equal.

.5 Glass fibre rigid board building insulation, 112 kg/m n density, unfaced.

.6 Prefabricated drainage system with long term flow capacity and compressive strength to suit application.

.7 Cleanouts: as recommended by manufacturer .

2.2 Backfill Material

.1 Type 2, in accordance with Section 02223 - Excavating, Trenching and Backfilling.

PART 3 - EXECUTION

3.1 Inspection

.1 Ensure graded subgrade, sub-base, and base conforms with required

drainage pattern before placing bedding material.

.2 Ensure improper slopes, unstable areas, areas requiring additional compaction or other unsatisfactory conditions are corrected to approval of Consultant .

.3 Ensure foundation wall and dampproofing have been installed and approved by Consultant before placing bedding material.

3.2 Bedding Preparation

.1 Cut trenches in subgrade base sub-base and place bedding material s in uniform layer s not exceeding 150 mm compacted thickness to depth of 300 mm minimum or to depth as indicated.

.2 Shape bed true to grade and to provide continuous, uniform bearing surface for tubing.

.3 Shape transverse depressions, as required, to suit joints.

.4 Compact each layer full width of bed to at least 95% maximum density to ASTM D 698-00a.

.5 Fill excavation below design elevation of bottom of specified bedding with compacted bedding material.

3.3 Pipe or Tubing Installation

.1 Ensure tubing interior and coupling surfaces are clean before laying.

.2 Lay perforated tubing level minimum to slope of 1:100. Face perforations and coupling slots downward.

.3 Grade bedding to establish tubing slope.

.4 Install end plugs at ends of collector drains to protect tubing ends from damage and ingress of foreign material.

.5 Connect non-perforated tubing to storm sewer by appropriate adapters manufactured for this purpose.

.6 Provide flush cleanouts where directed by Consultant .

.7 Connect drainage system to building storm sewers, as indicated.

3.4 Pipe or Tubing Surround Material

.1 Upon completion of tubing laying and after Consultant has inspected work in place, surround and cover tubing and install geotextile filter as indicated.

.2 Hand place surround material in uniform layers not exceeding 150 mm compacted thickness, as indicated. Do not drop material within 1 m of tubing.

.3 Place layers uniformly and simultaneously on each side of tubing.

.4 Compact each layer from tubing invert to mid-height of tubing to at least 95% maximum density to ASTM D 698.

.5 Compact each layer from mid-height of tubing to underside of backfill to at least 95% maximum density to ASTM D 698.

3.5 Backfill Material

.1 Place backfill material above tubing surround in uniform layers not exceeding 150 mm compacted thickness up to grades as indicated.

.2 Under paving and walks, compact backfill to at least 95% maximum density to ASTM D 698. In other areas, compact to at least 90% maximum density to ASTM D 698.

PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Related work specified elsewhere:

Section 02 82 00.01	Asbestos Abatement – Type 1 Procedures
Section 02 82 00.02	Asbestos Abatement – Type 2 Procedures
Section 02 82 00.04	Asbestos Abatement – Type 2 Glove Bag Method
Section 02 83 10	Lead Abatement – Class 1 Procedures
Section 02 83 11	Lead Abatement – Class 2 Procedures

.3 Site Conditions identifies all known hazardous building materials within the Project Area. The information provided is for general reference only. Each Contractor must confirm existing conditions on site prior to tender close.

.1 The specification fulfils the requirements of Section 30 of the Ontario Occupational Health and Safety Act.

.2 The specification fulfils the requirements of the Section 10 of Ontario Regulation 278/05.

.4 The Outline of Work identifies the location, condition and quantities of hazardous building materials to be removed as part of this project.

.1 It is the intent that work prescribed this Section will result in the removal of all hazardous materials as outlined and the decontamination of all surfaces or materials which may have been or become contaminated by hazardous materials either during or prior to work of this Contract.

1.2 Site Conditions

.1 Refer to the report entitled "Hazardous Building Materials Assessment (Pre-construction), Accessibility Upgrades, Kings Road Public School, 660 Greenwood Drive, Burlington, Ontario", dated May 25, 2026, prepared by Pinchin Ltd., file number 368273.004.

1.3 Outline of Work

.1 Coordinate the following items with the Owner's Project Manager and the Construction Manager, which are to be included in the abatement contractor's scope of work, including but not limited to: electrical isolations, GFI connection, water connections, HVAC and exhaust ventilation system isolation, bin placement, schedule, disconnects, etc.

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.2 Refer to the Contract Drawings for the extent of construction work and the Work Areas.

.3 Install Hoarding Walls between Abatement Work Areas and Occupied Areas as required.

.4 Using Type 1 procedures prescribed in the Section identified in Related Work, remove and dispose of the following.

.1 Asbestos-containing vinyl floor tiles from Rooms 101, 102, 103 and 105 (HMIS Locations 101, 102, 103 and 105).

.2 Exterior door frames and vestibule door and window frames where scheduled for removal with asbestos-containing caulking/putty.

.1 Remove all residual caulking from substrates.
.2 Windows with asbestos-containing putty to be disposed of entirely as asbestos waste.
.3 Doors to be disposed of entirely as asbestos waste due to presumed internal asbestos insulation.

.3 All asbestos-containing residual Transite board present above ceiling tiles around the perimeter of Corridor 3 (HMIS Location 30).

.4 Remove presumed asbestos-containing roofing materials, plaster soffit and/or caulking on flashing where they will be disturbed by work. Removal is to be completed using non-powered hand tools.

.1 Use Type 2 asbestos procedures, as outlined in Section 02 82 00.02, if removal is done using power tools equipped with HEPA filtered dust collection devices.

.5 Using Type 2 procedures prescribed in the Section identified in Related Work, remove and dispose of asbestos-containing textured plaster ceiling in Janitorial Room 201, Location 201 and all asbestos-containing pipe insulation concealed above the solid ceiling.

.6 Use Type Glove Bag Procedures to remove and dispose of asbestos-containing pipe insulation where present within the work areas (allow for 50 units). Reinsulate removed insulation with fibreglass and ASJ where pipes are not scheduled for removal.

.1 If for reasons of pipe geometry or access, Glove Bag procedures cannot be used, remove and dispose of asbestos-containing insulations as per Section 02 82 11 for less than 1 square meter, or following Type 3 procedures in accordance with Ontario Regulation 278/05 for greater than 1 square meter.

.7 Follow lead procedures prescribed in the Section identified in Related Work to remove exterior doors and frames with lead-containing paint.

.8 Follow silica procedures prescribed in the MOL Silica on Construction Projects Guidelines when disturbing silica-containing materials.

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.9 Refer to Specification Sections identified in the Related Work for specified personnel protective measures for the safe handling, removal, clean-up, enclosure, or repair of hazardous materials in each phase or work area.

.10 Visit the site prior to tender close to confirm the location and extent of any hazardous building materials or materials contaminated by hazardous materials.

.11 Protect surfaces, building fabrics and items remaining within the Abatement Work Area.

.12 Without disturbing hazardous materials, perform removals where required, prior to abatement work.

.1 Maximize waste diversion by use of resale of building materials, or recycling.

.13 Isolate the Abatement Work Area from adjoining Occupied and Non-Occupied Areas whether present at an interior or exterior location.

.14 Maintain emergency and fire exits from Abatement Work Area, or establish alternative exits satisfactory to Provincial Fire Marshall and local authorities having jurisdiction. Maintain extra routes from occupied areas. Place emergency exit signs at locations to clearly mark exit route. Seal emergency exit doors so as not to impede use of door during emergency evacuation.

.15 Remove, clean, store and replace at completion of work, non-operating mechanical and electrical equipment, ducts, building components, materials or items removed to accommodate asbestos removal.

.16 Remove and dispose of as appropriate waste, building components, materials and items contaminated by hazardous materials that cannot be effectively cleaned.

.17 Encapsulate remaining hazardous materials at locations where removal is deemed impractical by the Abatement Consultant.

.18 Encapsulation will not be permitted where removal of building materials or structures scheduled for demolition will facilitate access to the asbestos materials in question.

.19 Final clean work area to remove visible signs of asbestos and other hazardous materials, other debris or settled dust.

.20 Apply lock-down agent to exposed surfaces throughout the work area and to surfaces from which any hazardous materials have been removed.

.1 Do not apply lock-down to materials which would be damaged by its application.

.21 Unless otherwise specified, the handling, removal, clean-up or repair of hazardous materials or surfaces contaminated with hazardous materials is to be performed following wet removal techniques.

1.4 Schedule

.1 Provide necessary manpower, supervision, equipment and materials to maintain and complete the project on schedule.

.2 Work Hours:

.1 Coordinate all work, scheduling and phasing with the Owner.

.2 Duration for which HVAC systems may remain shutdown to accommodate quiet hours work will vary in accordance with outside weather conditions and internal demand. Duration of quiet hours work will have to be scheduled accordingly and in consultation with the Abatement Consultant and Owner.

.3 Provide 48 hours written notice to the Abatement Consultant of any request to work outside normal working hours. Obtain written approval before proceeding.

1.5 Definitions

.1 Abatement Consultant: Owner's Representative providing inspection and air monitoring.

.2 Abatement Contractor: Contractor or sub-contractor performing work of this section.

.3 Abatement Work Area: Area where work takes place which will, or may, disturb hazardous materials.

.4 Amended Water: Water with wetting agent added for the purpose of reducing surface tension to allow thorough wetting of materials.

.5 Asbestos: Any of the fibrous silicates defined in Regulation 278/05 including: actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite.

.6 Asbestos-Containing Material (ACM): Material identified under Site Conditions including any debris, overspray, fallen material and settled dust.

.7 Authorized Visitors: Building Owner, Abatement Consultant, or designated representative, and persons representing regulatory agencies.

.8 Competent Worker: A worker who is qualified because of knowledge, training and experience to perform the work, is familiar with Regulation 278/05 and the Occupational Health and Safety Act, and has knowledge of the potential or actual danger to health and safety in the work.

.9 Contaminated Waste: Material identified under Site Conditions, including fallen material, settled dust, other debris and materials or equipment deemed to be contaminated by the Abatement Consultant.

.10 Curtained Doorway: Doorway consisting of two (2) overlapping flaps of rip-proof polyethylene arranged to permit ingress and egress from one room to another while permitting minimal air movement between rooms.

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.11 DOP Test: A testing method used to determine the integrity of the Negative Pressure unit or vacuum using a Dispersed Oil Particulate (DOP) or Poly Alpha Olefin (PAO) HEPA filter leak test. This test is to be conducted on site where units are to be installed. Refer to the Environmental Abatement Council of Canada (EACC) DOP/PAO Testing Guideline 2013 or ANSI/ASME N510-2007.

.12 Fitting: Individual segments or pieces of a mechanical service line which may include but is not limited to the hangers, tees, elbows, joints, valves, unions, etc.

.13 Friable Material: Material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.14 HEPA: High Efficiency Particulate Aerosol filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.

.15 Lead-Containing: The Ontario Ministry of Labour (MOL) has not established a lower limit for concentrations of lead in paint, below which precautions do not need to be considered during construction projects. Pinchin follows the recommendations of the Environmental Abatement Council of Canada (EACC) Lead Guideline for Construction, Renovation, Maintenance or Repair. The Guideline suggests that 0.1% (1,000 ppm) lead in paint represents a de minimis concentration of lead in paint for construction hygiene purposes, that is a concentration below which the lead content is not the limiting hazard in any disturbance of leaded paint for non-aggressive disturbance of painted finishes, (hand powered demolition, chipping, scraping, light sanding, etc.).

.16 Lead Waste: Waste generated from removal of lead-containing materials, or the substrate and paint finish where left intact.

.17 Milestone Inspection: Inspection of the Abatement Work Area at a defined point in the abatement operation.

.18 Negative Pressure: A reduced pressure within the Abatement Work Area (> 0.02 inches of water column) established by extracting air directly from Abatement Work Area and discharging it to exterior of building.

.19 Non-Friable Material: Material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.20 Occupied Area: Any area of the building or adjoining space outside the Abatement Work Area.

.21 Personnel: All Contractor's employees, sub-contractors employees, supervisors.

.22 PCM: Phase Contrast Microscopy.

.23 Remove: Remove means remove and dispose of (as applicable type of waste) unless followed by other instruction (e.g. remove and turn over to Owner).

.24 TEM: Transmission Electron Microscopy.

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1.6 Regulations and Guidelines

.1 Comply with Federal, Provincial, and local requirements, provided that in any case of conflict among those requirements or with these Specifications, the more stringent requirements shall apply. Work shall be performed under regulations in effect at the time work is performed.

.2 Where regulations are not present, follow accepted industry standards and applicable Guideline documents.

.3 Regulations and Guidelines include but are not limited to the following:

.1 Ministry of Labour Occupational Health and Safety Act Regulations for Construction Projects including Revised Statutes of Ontario 1990, Chapter 0.1 and Ontario Regulation 278/05.

.2 Ministry of the Environment and Climate Change Regulation for the disposal of waste, including R.R.O. 1990, Reg. 347 as amended.

.3 PCB Regulations, SOR 2008-273 and R.R.O. 1990, Reg 362.

.4 Regulation 490/09 Designated Substances.

.5 Environmental Abatement Council of Canada (EACC), Lead Guideline For Construction, Renovation, Maintenance or Repair, February 2025.

.6 Ministry of Labour, Guideline, Silica on Construction Projects, 2011.

1.7 Quality Assurance

.1 Removal and handling of hazardous materials is to be performed by persons trained in the methods, procedures and industry practices for Abatement.

.2 Ensure work proceeds to schedule, meeting all requirements of this Specification.

.3 Complete work so that at no time airborne dust, visible debris, or water runoff contaminate areas outside the Abatement Work Area.

.4 Any contamination of surrounding area (indicated by visual inspection or air monitoring) shall necessitate the clean-up of affected area, and in the same manner applicable to an Abatement Work Area at no cost to the Owner.

.5 All work involving electrical, mechanical, carpentry, glazing, etc., shall be performed by licensed persons experienced and qualified for the work required.

1.8 Supervision

.1 Provide on site for each work shift, a Shift Superintendent(s), who has authority regarding all aspects related to manpower, equipment and production.

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.2 Supervisory personnel must hold a recognized certificate proving attendance at an asbestos removal training course (2 day minimum duration) and have performed supervisory functions on at least five (5) other asbestos abatement projects of similar size and complexity.

.3 At all times during work, the Shift Superintendent(s) must be on site. Failure to comply with this requirement will result in a stoppage of all work, at no cost to the Owner.

.4 Replace supervisory personnel, with approved replacements, within three (3) working days of a written request from the Owner. Owner reserves the right to request replacement of supervisory personnel without explanation.

.5 Do not replace supervisory personnel without written approval from the Owner.

1.9 Instruction and Training

.1 Instruction and training must be provided by a competent person.

.2 All workers completing Type 1, 2 or 3 asbestos abatement must be trained in compliance with Section 19 of O.Reg. 278/05.

.1 For Type 3 asbestos abatement, workers must be trained and certified per Section 20 of O.Reg. 278/05.

1.10 Notification

.1 Before commencing work, notify orally and in writing, an inspector at the office of the Ontario Ministry of Labour nearest the project site, where required.

.2 Inform all trades on site of the presence and location of hazardous materials identified in the Contract documents.

.3 Notify the Owner or Owner's Representative, the Joint Occupational Health and Safety Committee and the Provincial Ministry of Labour, if suspected asbestos-containing materials not identified in the contract documents are discovered during the course of the work. Stop work in these areas immediately.

.4 Notify Sanitary Landfill site as per O.Reg. 347/90 as amended.

1.11 Submittals

.1 Submit prior to starting work:

.1 Provincial Workers' Compensation Board Clearance Certificate.

.2 Insurance certificates.

.3 Copy of Company Health and Safety Policy and applicable programs.

.4 Ministry of Labour Notice of Project form.

.5 Copy of Certificate of Approval for disposal of hazardous materials waste and location of landfill.

.6 Pre-removal damage survey of the Abatement Work Area(s), waste transport routes, and bin storage areas

.2 Submit the following information regarding personnel prior to starting work:

.1 Proof in the form of a certificate that supervisory personnel have attended a training course on asbestos removal or are certified as supervisors under the Ministry of Training, Colleges and Universities course 253S.

.2 Written statement that personnel have had instruction on hazards of exposure to hazardous materials identified within this scope, the use of respirator, protective clothing, worker and waste decontamination procedures, and all aspects of work procedures and protective measures.

.3 WHMIS training certificates for all personnel.

.4 Certificate proving that each worker on site has been fit tested for the respirator appropriate for the work being performed.

.3 Submit the following information regarding HEPA filtered devices prior to construction of enclosure or asbestos abatement:

.1 Performance data on HEPA filtered vacuums including DOP tests no more than 3 months old.

.2 Performance data on negative air units including DOP tests which must be no more than 3 months old if the unit is vented outdoors or which must be performed on site immediately prior to initial usage and when HEPA filters are changed if the unit is vented indoors.

.3 DOP tests to be performed by an independent testing company.

.1 DOP testing company is required to submit a detailed technical report of testing protocol, including Introduction, Methodology, Results, Conclusions, and Recommendations, including results of the Air-Aerosol Mixing Uniformity test as per ASME N510-1989 (1995).

.2 DOP testing company must also provide calibration certificates from an independent calibration firm or from the manufacturer of the testing equipment for both the aerosol photometer and the pressure gauge on the aerosol generator dated within 1 calendar year from the on-site testing date.

.3 DOP testing company must also provide the National Sanitation Foundation (NSF) certification name and number of the on-site technician performing the testing.

.4 Proof of calibration of DOP testing equipment.

.4 Submit the following prior to isolating the work area:

.1 Safety Data Sheets for chemicals or material used in the course of the Abatement Project.

.5 Submit the following upon completion of the work.

.1 Manifests, waybills, bills of ladings etc. as applicable for each type of waste.

1.12 Insurance

.1 Maintain a Commercial General Liability Policy with an insurance company acceptable to Halton District School Board and the General Contractor. The intent of this policy is to hold Halton District School Board and the General Contractor harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Commercial General Liability insurance shall be provided on an "occurrence" basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period.

.2 Maintain an Automobile or Fleet Policy, and Non-owned Automobile Policy with an insurance company acceptable to Halton District School Board and the General Contractor. The intent of these policies is to hold Halton District School Board and the General Contractor harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract.

.3 Maintain a Pollution Liability Policy (or asbestos/lead liability policy or specific coverage under the CGL for asbestos/lead abatement) with an insurance company acceptable to Halton District School Board and the General Contractor. The intent of this policy is to hold Halton District School Board and the General Contractor harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Pollution Liability shall be provided on an "occurrence" basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period. Without limiting the generality of the foregoing, the policy shall insure the operations of abatement and shall not contain any environmental and/or health hazard exclusions relating to remediation operations.

.4 Forward all certificates to Halton District School Board and the General Contractor before work is commenced, showing Halton District School Board and the General Contractor as additional insured as their interest may appear.

.5 Halton District School Board and the General Contractor may request a certified true copy of the policies.

.6 The limits will not be less than:

.1	Commercial General Liability	$5,000,000.00
.2	Automobile	$2,000,000.00
.3	Pollution Policy	$5,000,000.00

1.13 Inspection

.1 From commencement of work until completion of clean-up operations, the Abatement Consultant is empowered by the Owner to inspect for compliance with the requirements of governing authorities, adherence to specified procedures and materials, and to inspect for final cleanliness and completion.

.2 The Abatement Consultant is empowered by the Owner to order a shutdown of work when leakage of asbestos from the controlled work area has occurred or is likely to occur.

.3 Any deviation from the requirements of the Specifications or governing authorities that is not approved in writing may result in a stoppage of work, at no cost to the Owner.

.4 Additional labour or materials expended by the Contractor to rectify unsatisfactory conditions and to provide performance to the level specified shall be at no additional cost to the Owner.

.5 Inspection and air monitoring performed as a result of Contractor's failure to perform satisfactorily regarding quality, safety, or schedule, shall be back-charged to the Contractor.

.6 Facilitate inspection and provide access as necessary. Make good work disturbed by inspection and testing at no cost to the Owner.

.7 Refer to the Sections identified in Related Work for specified milestone inspections which are to take place at defined points throughout the abatement operation specific to each phase or work area.

.8 Provide 24 hours written notice to the Abatement Consultant of any request for scheduling of milestone inspections or transportation of waste through Occupied Areas.

.9 The following Milestone Inspections may take place, at the Owner's cost, as outlined in each related specification section:

.1 Milestone Inspection - Clean Site Preparation

.1 Inspection of preparations and set-up prior to contaminated work in the Abatement Work Area.

.2 Milestone Inspection – Bulk Removal Inspection

.1 Inspection during asbestos removal, monitoring removal methods, site deficiencies, performing occupied air monitoring, etc.

.3 Milestone Inspection - Visual Clearance

.1 Inspection of Abatement Work Area after completion of all abatement, but prior to application of lock-down agents or dismantling of enclosure.

.10 Refer to the Sections identified in Related Work for specified milestone inspections which are to take place at defined points throughout the abatement operation specific to each phase or work area.

.11 Do not proceed with next phase of work until written approval of each milestone is received from the Abatement Consultant.

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1.14 Air Monitoring - Asbestos

.1 Air monitoring will be performed using Phase Contrast Microscopy (PCM) following the National Institute for Occupational Safety and Health Method 7400.

.2 Co-operate in the collection of air samples, including providing workers to wear sample pumps for up to full-shift periods. Contractor will be responsible for the cost of testing equipment repairs or resampling resulting from the actions of the Contractor's forces.

.3 Results of PCM samples at or exceeding 0.05 fibres per cubic centimeter of air (fibre/cc) or greater, outside an Abatement Work Area, or from within the Abatement Work Area during or following Glove Bag Work, will indicate asbestos contamination of these areas. Respond as follows:

.1 Suspend work within the adjoining Abatement Work Area until written authorization to resume work has been received from the Abatement Consultant.

.2 Isolate and clean area in the same manner applicable to the Abatement Work Area.

.3 Maintain work area isolation, and repeat clean-up operations until visual inspection and air monitoring results are at a level equal to that specified.

.4 At the discretion of the Abatement Consultant provide additional negative air units at locations specified in response to elevated fibre levels being detected in the Clean Change Room or Occupied Areas.

.4 Results of PCM samples at or greater than 0.01 fibres per cubic centimeter of air (fibre/cc), collected within the Abatement Work Area enclosure after the site has passed a visual inspection, and an acceptable coat of lock-down agent has been applied, will indicate asbestos contamination of these areas. Respond as follows:

.1 Maintain work area isolation and re-clean entire work area. Then apply another acceptable coat of lock-down agent to exposed surfaces throughout the work area.

.2 Repeat above measures until visually inspected and air monitoring results are at a level equal to that specified

.3 Alternate to items above, the Asbestos Abatement Contractor can pay for analysis of PCM samples by Transmission Electron Microscopy (TEM) at NVLAP accredited laboratory.

.1 Enclosure to remain sealed, with negative pressure maintained, and subject to required daily inspections until TEM results are received.

.5 Additional labour or materials expended by the Contractor to rectify unsatisfactory conditions and to provide performance to the level specified shall be at no additional cost to the Owner.

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.6 Cost of additional inspection and sampling performed as a result of elevated fibre levels in areas outside the Abatement Work Area or from within the work area following completion of work, will be back-charged to the Contractor.

1.15 Worker Protection

.1 Instruct workers before allowing entry to the Abatement Work Area. Instruction shall include training in use of respirators, dress, showering, entry and exiting from an Abatement Work Area, and all other aspects of work procedures and protective measures.

.2 Workers shall not eat, drink, chew gum or tobacco, vape or smoke in the Abatement Work Area.

.3 Workers shall be fully protected at all times when possibility of disturbance of hazardous materials exists.

.4 Provide soap, towels and facilities for washing of hands and face, which shall be used by all personnel when leaving the Abatement Work Area.

.5 Respiratory Protection

.1 Refer to each particular Section of the Specification for specified type of respiratory equipment specific to each phase or work area.

.2 Respirators shall be:

.1 Certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to the Ministry of Labour.
.2 Fitted so that there is an effective seal between the respirator and the worker's face. Ensure that no person required to enter an Abatement Work Area has facial hair which affects the seal between respirator and face.
.3 Assigned to a worker for their exclusive use.
.4 Maintained in accordance with manufacturer's specifications.
.5 Cleaned, disinfected and inspected by a competent person after use on each shift, or more often if required.
.6 Repaired or have damaged or deteriorated parts replaced.
.7 Stored in a clean and sanitary location.
.8 Provided with new filters as necessary, according to manufacturer's instructions.
.9 Worn by personnel who have been fit checked by qualitative or quantitative fit-testing.
.10 Instruction on proper use of respirators must be provided by a competent person as defined by the Occupational Health and Safety Act.

.3 Provide protective clothing, to all personnel which:

.1 Is made of a material that does not readily retain nor permit penetration of asbestos fibres or lead/silica dust.
.2 Consists of head covering and full body covering that fits snugly at the ankles, wrists and neck.
.3 Once coveralls are worn, treat and dispose of as contaminated waste.
.4 Is replaced or repaired if torn or ripped.

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.4 Use hard hats, safety footwear and other protective equipment and apparel required by applicable construction safety regulations.

1.16 Visitor Protection

.1 Provide clean protective clothing and equipment to Authorized Visitors.

.2 Instruct Authorized Visitors in the use of protective clothing and Abatement Work Area entry and exit procedures.

.3 Authorized visitors are required to be fit tested on respirators, prior to entering Abatement Work Area.

.1 Respirator worn must be compliant with Section 13 and Table 2 of O.Reg. 278/05.

1.17 Signage

.1 Asbestos Abatement Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:

.1 There is an asbestos dust hazard.

.2 Access to the work area is restricted to persons wearing protective clothing and equipment.

.2 Lead Abatement Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:

.1 There is a lead dust, fume or mist hazard.

.2 Access to the work area is restricted to authorized persons.

.3 Respirators must be worn in the work area.

.3 Silica Warning Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:

.1 There is a silica dust hazard.

.2 Access to the work area is restricted to authorized persons.

.3 Respirators must be worn in the work area.

.4 Vehicles, Bins and Asbestos Waste Containers: Post signs on both sides of every vehicle used for the transportation of asbestos waste and on every asbestos waste container. Signs must display thereon in large, easily legible letters that contrast in colour with the background the word "CAUTION" in letters not less than ten centimetres in height and the words:

.1 CONTAINS ASBESTOS FIBRES

.2 Avoid Creating Dust and Spillage

.3 Asbestos May be Harmful To Your Health

.4 Wear Approved Protective Equipment.

.5 Place placards in accordance with Transportation of Dangerous Goods Act.

1.18 Waste and Material Handling

.1 Waste bins must be placed on grade or in receiving.

.2 All bins for hazardous materials must be covered and locked when waste transfer is not being performed.

.3 Ensure redundant non-ACM, rubble, debris, etc. removed during contaminated work are treated, packaged, transported and disposed of as appropriate waste.

.4 Clean, wash and apply Post Removal Sealant to metal waste prior to removal from Abatement Work Area. Recycle metals.

.5 Clean, wash and apply Post Removal Sealant to non-porous materials prior to disposal as clean waste. Obtain prior written approval from the Abatement Consultant for each individual type of material.

.6 Clean and wash equipment prior to removal from Abatement Work Area if removed prior to completion.

.7 Place all equipment, tools and unused materials that cannot be cleaned in Abatement Waste Containers.

.8 As work progresses, and at regular intervals, transport the sealed and labelled waste containers from the Abatement Work Area to waste bin.

.9 Place items in bins according to waste classification. Place asbestos waste, lead waste, metals, non-asbestos waste, etc. in separate bins.

.10 Removal of waste containers and decontaminated tools and materials from the Abatement Work Area shall be performed as follows:

.1 Remove any visible contamination from the surface of non-porous or cleanable waste being removed from the Abatement Work Area. If the item can be cleaned, remove it from the site as clean waste.

.2 Place waste or item in Waste Container and seal closed.

.3 Wet wipe outside of Waste Container.

.4 Within Decontamination Facility, Transfer Room or at the perimeter of the Abatement Work Area, place in second Waste Container. Seal closed.

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.5 Remove waste containers and transport to appropriate bin.

.11 Transport waste and materials via the predetermined routes and exits. Arrange waste transfer route with Owner. Use a closed, covered cart to transport through Occupied Areas.

.12 Provide workers transporting waste with means to access full personal protective equipment and all tools required to properly clean up spilled material in the case of a rupture of a Waste Container.

.13 Pick-up and drop off of garbage bin shall be at pre-approved times, and must not interfere with the Owners operations.

.14 Transport hazardous waste to landfill or waste transfer station licensed by the provincial Ministry of the Environment.

.15 Cooperate with the provincial Ministry of the Environment inspectors and immediately carry out instructions for remedial work at dump to maintain environment, at no additional cost to the Owner.

1.19 Re-establishment of Objects and Systems

.1 Re-establish objects and items relocated by the Contractor's workforce to facilitate work.

.2 Re-establish electrical, communication, HVAC and other services previously disconnected or otherwise isolated to accommodate work by this Section.

.3 Make good at completion of work, all damage not identified in pre-removal survey.

PART 2 PRODUCTS AND FACILITIES

2.1 Materials and Equipment

.1 Refer to the Sections identified in Related Work for specified materials, equipment or facilities specific to each phase or work area.

.2 Materials and equipment must be in good condition and free of debris and fibrous materials. Disposable items must be of new materials only.

.3 Airless Sprayer: AC powered pressure washer that allows wetting agent to mix with water, uses no air or compressed air, and has a nozzle to regulate power and pressure.

.4 Amended Water: Water with wetting agent added for purpose of reducing surface tension to allow thorough wetting of materials.

.5 Asbestos Waste Container: A container acceptable to disposal site, Ministry of the Environment, and Ministry of Labour, comprised of the following:

.1 Dust tight.

.2 Suitable for the type of waste.

.3 Impervious to asbestos.

.4 Identified as asbestos waste.

.6 Discharge Ducting: Polyethylene Tubing. Reinforced with wire. Diameter to equal negative pressure machine discharge. Not to be longer than required, or so long that negative pressure is compromised.

.7 Ground Fault Panel: Electrical panel as follows:

.1 Ground fault circuit interrupters of sufficient capacity to power temporary electrical equipment and lights in Asbestos Work Area.

.2 Interrupters to have a 5 mA ground fault protection.

.3 Necessary accessories including main switch disconnect, ground fault interrupter lights, test switch to ensure unit is working, and reset switch.

.4 Openings sealed to prevent moisture or dust penetration.

.5 Inspected by the Electrical Safety Authority.

.6 Panel uses CSA approved parts and been constructed, inspected and installed by a licensed electrician.

.7 Provide one Ground Fault Panel for each 5,000 square feet (500 square metres) of Abatement Work Area.

.8 HEPA Filtered Negative Pressure Machine: Portable air handling system which extracts air directly from the Abatement Work Area and discharges the air to the exterior of the building. Equipped as follows:

.1 Prefilter and HEPA filter. Air must pass HEPA filter before discharge.

.2 Pressure differential gauge to monitor filter loading.

.3 Auto shut off and warning system for HEPA filter failure.

.4 Separate hold down clamps to retain HEPA filter in place during change of prefilter.

.9 HEPA Vacuum: Vacuum with necessary fittings, tools and attachments. Discharged air must pass through a HEPA filter.

.10 Lead Waste Container: An impermeable container acceptable to disposal site and Ministry of the Environment, that is:

.1 Dust tight.

.2 Suitable for the type of waste.

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.3 Evaluated for leachable lead content, and disposed of in accordance with applicable regulations.

.1 Where lead waste exceeds 5.0 mg/L of lead in the TCLP analysis, label as lead waste and dispose of as leachate toxic hazardous waste.

.2 Where lead waste is below 5.0 mg/L of lead in the TCLP analysis, disposed of as construction waste.

.11 Polyethylene Sheeting: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.

.12 Post Removal Sealant (or Lockdown): Sealant that when applied to surfaces serves the function of trapping residual asbestos fibres or other dust. Product must have flame spread and smoke development ratings both less than 50. Product shall leave no stain when dry. Post Removal Sealant shall be compatible with replacement insulation or fireproofing where required and capable of withstanding service temperature of substrate. Apply to manufacturer's instructions.

.13 Protective Clothing: Disposable coveralls complete with head covering and full body covering that fits snugly at the ankles, wrists and neck.

.14 Rip-Proof Polyethylene Sheeting: 8 mil (0.20 mm) fabric made up from 5 mil (0.13 mm) weave and two (2) layers of 1.5 mil (0.05 mm) poly laminate or approved equal. In sheet size to minimize on-site seams and overlaps.

.15 Sprayer: Garden type portable manual sprayer or water hose with spray attachment if suitable.

.16 Tape: Duct tape or tape suitable for sealing polyethylene to surfaces under both dry and wet conditions in the presence of Amended Water.

.17 Wetting Agent: Non-sudsing surfactant added to water to reduce surface tension and increase wetting ability.

PART 3 EXECUTION

.1 Refer to the Sections identified in Related Work for specified procedures for work area preparation, maintenance, site dismantlement, application of lock-down agent and all other procedures for the safe handling, removal and clean-up of hazardous materials specific to each phase or work area.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 1 or Low Risk procedures, and Pinchin and Owner specific requirements.

1.3 Personal Protection

.1 Protect all personnel at all times when possibility of disturbance of ACM exists.

.1 Provide non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters when requested by personnel.

.2 When requested by personnel, provide protective clothing.

.2 Provide protective clothing, to all personnel entering the Abatement Work Area.

.3 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

.4 Milestone Inspection – Clearance Sampling

PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

PART 3 EXECUTION

3.1 Site Preparation

.1 Remove stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.

.2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.

.3 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.4 Install one layer of polyethylene sheeting on walls, floors, finishes, millwork, electrical

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equipment, equipment and furnishings remaining in the Abatement Work Area.

.5 Install one layer of rip-proofing polyethylene sheeting over one layer of polyethylene sheeting on walls, floors, finishes, millwork, electrical equipment, equipment and furnishings remaining in the Abatement Work Area.

.6 Install polyethylene drop sheets below areas of work.

.7 Install polyethylene sheeting on openings in walls and floors (as required) and seal.

.8 Install signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

.9 Isolate, at panel, and disconnect existing power supply to Abatement Work Area. Power supply to remaining areas of building must not be disrupted during work of this section.

.1 Lock-out/tag-out power at electrical panels.

.2 Mark/tag any items within or passing through the Abatement Work Area that are to remain live including but not limited to cable, conduit, wire, fixtures, equipment panels, etc.

.10 Provide power from ground fault interrupt circuits.

.11 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.12 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc).

.13 Without disturbing asbestos-containing materials, remove and dispose of non-hazardous materials as clean waste prior to asbestos removal work, where possible.

3.2 Maintenance of Abatement Work Area

.1 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.

.2 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.

.3 Maintain Abatement Work Area in tidy condition.

.4 Remove any standing water on polyethylene/floor at the end of every shift.

.5 Turn off water supply to any hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.3 Asbestos Removal - General

.1 Do not use powered tools or non-hand held tools.

.2 Do not use compressed air to clean or remove dust or debris.

.3 Do not break, cut, drill, abrade, grind, sand or vibrate ACM if it cannot be wetted. Type 2 procedures would be required if the material cannot be wetted due to hazard or damage.

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.4 Wet ACM prior to work and keep ACM wet throughout the removal process.

.5 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.

.6 Frequently and at regular intervals, place all waste in asbestos waste containers.

.7 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.4 Asbestos Removal - Vinyl Asbestos Tile

.1 Wedge a heavy duty scraper in seam of two adjoining tiles and gradually force edge of one tile up and away from floor. Do not break off pieces of tile, but continue to force balance of tile up.

.2 Place tile, without breaking into smaller pieces, into Asbestos Waste Container.

.3 Force scraper through tightly adhered areas by striking scraper handle with a hammer.

.4 Heat tile thoroughly with a hot air gun until heat penetrates through tile and softens adhesive in areas where scraper will not remove tile.

.5 Deposit waste into asbestos waste disposal bag.

.6 HEPA vacuum floor on completion of work in area.

3.5 Asbestos Removal - Removal of Other Non-Friable Asbestos Materials – Caulking and Putty

.1 Wet all material to be disturbed.

.2 Undo fasteners if necessary to remove material.

.3 Break material only if unavoidable, and wet material if broken during work.

.4 Use only non-powered hand-held tools to remove ACM.

.5 Scrape to remove material adhered to substrate.

.6 Place removed ACM directly into an asbestos waste container.

3.6 Asbestos Removal - Removal of Other Non-Friable Asbestos Materials – Doors

.1 Wet all material to be disturbed.

.2 Undo fasteners if necessary to remove material.

.3 Remove door from hinges and place on poly sheeting.

.4 Wrap door in poly and place directly into an asbestos waste container.

3.1 Asbestos Removal - Removal of Other Non-Friable Asbestos Materials – Roofing Materials and/or Caulking on Flashing

.1 Wet all material to be disturbed.

.2 Undo fasteners if necessary to remove material.

.3 Break material only if unavoidable, and wet material if broken during work.

.4 Use only non-powered hand-held tools to remove ACM.

.5 Scrape to remove material adhered to substrate.

.6 Place removed ACM directly into an asbestos waste container.

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3.2 Asbestos Removal - Removal of Other Non-Friable Asbestos Materials – Residual Transite Panels

.1 Wet all material to be disturbed.

.2 Undo fasteners if necessary to remove material.

.3 Break material only if unavoidable, and wet material if broken during work.

.4 Use only non-powered hand-held tools to remove ACM.

.5 Remove material flush to wall.

.6 Place removed ACM directly into an asbestos waste container.

3.3 Abatement Work Area Dismantling

.1 Wash or HEPA vacuum equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.

.2 Place tools and equipment used in contaminated work site but not cleaned in polyethylene bags prior to removal from Abatement Work Area.

.3 Clean polyethylene sheeting and drop sheets which with HEPA vacuum or wet cleaning methods at completion of work.

.4 Wet drop sheets and polyethylene sheeting.

.5 Carefully roll polyethylene sheeting and drop sheets toward the centre. As polyethylene is rolled away, immediately remove visible debris beneath with a HEPA vacuum.

.6 Remove remaining polyethylene sheeting and tape.

.7 Place polyethylene sheeting, drop sheets, tape, disposal clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

3.4 Waste and Material Handling

.1 Refer to Section 02 81 00.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 2 or Moderate Risk procedures, and Pinchin and Owner specific requirements.

1.3 Personal Protection

.1 Protect all personnel at all times when possibility of disturbance of ACM exists.

.2 Provide the following minimum respiratory protection to all personnel:

.1 Full face respirators with P100 high efficiency (HEPA) cartridge filters, for:

.1 Removal of all or part of a ceiling if asbestos is likely lying on the surface.

.2 Use of a HEPA filtered power tool on non-friable ACM if the material is not wetted.

.2 Non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters.

.3 Provide protective clothing, to all personnel entering the Abatement Work Area.

.4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

2.2 Hoarding Walls

.1 Type A Hoarding Wall: One layer of rip-proof polyethylene sheeting installed floor to ceiling, secured with telescopic poles, clips, or other suitable methods.

.2 Windows: Install sufficient transparent windows area in hoarding walls to allow observation of entire work area from outside the enclosure where existing solid walls do not make up the perimeter.

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2.3 Transfer Room

.1 Transfer Room to be generally 2000 mm x 2000 mm x 2200 mm high. Increase size accordingly to accommodate number of workers.

.2 Install walls as follows:

.1 Install 38 x 89 mm wood framing at 610 mm o/c with continuous top and sill plates.

.2 Install one layer rip-proof polyethylene sheeting on interior walls of Transfer Room.

.3 Install one layer of rip-proof polyethylene sheeting over two layers of 6 mil polyethylene sheeting beneath entire Transfer Room.

.4 Install one layer rip-proof polyethylene sheeting over roof.

.5 Turn 600 mm of polyethylene down the sides over polyethylene on the perimeter walls.

.6 Install a fire extinguisher, mount to wall.

2.4 Curtained Doorways

.1 Construct as follows:

.1 Install two flap doors, full width and height of door opening at all doors to Abatement Work Area and both ends of Transfer Room.

.2 Construct each flap door of two layers of polyethylene sheeting with all edges reinforced with tape. Use wood strapping to securely fasten flap doors to head and alternate jambs.

.3 Install weights attached to bottom edge of each door flap.

.4 Provide direction arrows on flaps to indicate opening.

PART 3 EXECUTION

3.1 Site Preparation - General

.1 Remove stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.

.2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.

.3 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.4 Isolate, at panel, and disconnect existing power supply to Abatement Work Area. Power supply to remaining areas of building must not be disrupted during work of this section.

.1 Lock-out/tag-out power at electrical panels.

.2 Mark/tag any items within or passing through the Abatement Work Area that are to remain live including but not limited to cable, conduit, wire, fixtures, equipment panels, etc.

.5 Provide power from ground fault interrupt circuits.

.6 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

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.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.7 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc).

3.2 Site Preparation –Enclosure Required

.1 Install polyethylene enclosure complete with Windows at Abatement Work Areas for the following work:

.1 Removal of friable asbestos-containing materials (less than 1 square metre).

.2 Removal of a false ceiling (or part of) where asbestos-containing material is presumed or known to be present on the surface.

.2 Install Transfer Room where duration of work is to last longer than one 8 hour shift.

.3 Seal openings in floor using tape, polyethylene, etc. Floor openings are to be sealed independently prior to installation of floor polyethylene.

.4 Install polyethylene sheeting on floors of Abatement Work Area. Use sufficient layers to provide adequate protection for carpeting and equipment.

.1 Minimum requirement over carpet is one layer of 6 mil polyethylene under one layer of rip-proof polyethylene.

.2 Cover floors first so that polyethylene on walls is overlapped by at least 305 mm.

.5 Construct Hoarding Walls between Abatement Work Area perimeter and occupied areas as required.

.6 Install polyethylene sheeting at openings in walls (as required) and seal.

.7 Install 6 mil polyethylene sheeting on walls within the Abatement Work Area., including existing walls that make up, or are within, the Abatement Work Area.

.8 Provide a completely sealed polyethylene top for free standing enclosures.

.9 Extend to underside of ceiling system, enclosures for access into ceilings. Enclosure may be supported from the ceiling system if ceiling can support the polyethylene.

.10 Install Curtained Doorways.

.11 Install one layer of 6 mil polyethylene sheeting so as to protect all equipment and finishes in the Abatement Work Area that may be damaged. Items to remain include but are not limited to:

.1 Millwork.

.2 Doors.

.3 Bulkheads.

.4 Toilet Partitions.

.5 Plumbing fixtures.

.6 Electrical Equipment.

.7 Mechanical Equipment.

.12 Install temporary lighting in enclosure to a level that will provide for safe and efficient use of work area - minimum 550 LUX.

.13 Establish negative pressure in Abatement Work Areas as follows:

.1 Provide sufficient HEPA filtered negative pressure machines to exchange a volume of air equivalent to that of the Abatement Work Area a minimum of every 20 minutes.

.2 Provide additional HEPA filtered negative pressure machines as required to ensure air flow from Occupied Area into Abatement Work Area.

.3 Arrange negative air units to maximize the distance between units and decontamination facilities.

.4 Provide weighted flaps in perimeter Hoarding Walls as necessary to provide make-up air.

.5 Operate HEPA filtered negative pressure machines continuously from first disturbance of ACM until completion of dismantling.

.6 Replace prefilters to maintain specified flow rate.

.7 Replace HEPA filter as required to maintain flow rate and integrity of unit.

.8 Discharge HEPA filtered negative air machines as follows:

.1 To building exterior.

.1 Remove existing glazing where necessary and replace with a 19 mm plywood panel.

.2 Install panel securely in window frame so that it cannot be pushed into the building and make weather-tight with caulking.

.3 For each negative pressure unit, provide a 300 mm diameter, screened, duct opening through panel.

.4 Direct discharge away from building access points.

.5 Reinstall glazing to match existing upon completion of work.

.2 Into Occupied Areas as required.

.1 Install and make airtight all negative air discharge ducting.

.2 Use metal reinforced polyethylene discharge ducting in locations where the ducting must be protected from damage or collapse.

.14 Place required tools to complete the abatement with the Abatement Work Area.

.15 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

3.3 Site Preparation – No Enclosure Required

.1 Install caution tape around work area where existing walls are not present.

.2 Cover walls, floors, finishes, millwork, equipment and furnishings remaining in the Abatement Work Area with polyethylene sheeting before disturbing ACM to control the spread of dust.

.3 Install one layer of 6 mil polyethylene sheeting so as to protect all equipment and finishes in the Abatement Work Area that may be damaged. Items to remain include but are not limited to:

.1 Millwork.

.2 Doors.

.3 Bulkheads.

.4 Toilet Partitions.

.5 Plumbing fixtures.

.6 Electrical Equipment.

.7 Mechanical Equipment.

.4 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

.5 Install temporary lighting in enclosure to a level that will provide for safe and efficient use of work area - minimum 550 LUX.

.6 Place HEPA vacuum in Abatement Work Area.

.7 Place required tools to complete the abatement with the Abatement Work Area.

3.4 Maintenance of Abatement Work Area

.1 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.

.2 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.

.3 Inspect HEPA filtered negative pressure machines including discharge ducting at the beginning and end of each working period. Inspection must be performed by competent person.

.4 Maintain Abatement Work Area in tidy condition.

.5 Remove standing water on polyethylene/floor at the end of every shift.

.6 Turn off water supply to any hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.5 Asbestos Removal - General

.1 Do not use compressed air to clean or remove dust or debris.

.2 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.

.3 Frequently and at regular intervals, place all waste in asbestos waste containers.

.4 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.6 Asbestos Removal – Thermal Systems Insulation (less than 1 Square Metre)

.1 Construct an enclosure around Abatement Work Area and use the procedures described above under *Site Preparation –Enclosure Required*.

.2 Adequately wet exterior of the ACM with amended water to suppress dust.

.3 Remove asbestos-containing mechanical insulations in layers, maintaining all exposed surfaces of insulation in a wet condition.

.4 Remove wetted ACM directly into waste containers. Do not allow ACM to fall to the floor of the Abatement Work Area.

.5 Clean all surfaces from which ACM has been removed with scouring pads, vacuuming or wet-sponging to remove all visible material after completion of removal of ACM.

.6 Remove visible dust and debris.

.7 Seal exposed ends of asbestos-containing insulation to remain, with canvas and lagging.

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.8 HEPA vacuum or wet clean entire Abatement Work Area, including any surfaces not covered with polyethylene sheeting. Any materials removed to access ACM that are to be re-used, and any abatement equipment, must be wet cleaned or HEPA vacuumed prior to completion.

.9 Apply Post Removal Sealant to all surfaces within the Abatement Work Area including those from which ACM has been removed.

3.7 Asbestos Removal - Textured Plaster

.1 Use the procedures described above under *Site Preparation –Enclosure Required*.

.2 Protect walls around area to be removed by covering with polyethylene and taping seams to wall.

.3 Cut and remove plaster using non-powered hand-held tools or power tools equipped with a HEPA filtered dust collection device. Place directly into polyethylene waste bag, or sealed container until at waste bin.

.4 Place ACM directly into waste containers.

.5 Wet clean or HEPA vacuum the entire Abatement Work Area, including surfaces not covered with polyethylene sheeting. Any materials or equipment removed to access ACM that are to be reused, must be wet cleaned or vacuumed prior to reinstatement.

3.8 Asbestos Removal - Other Non-Friable Asbestos Materials with HEPA Filtered Power Tools

.1 Use the procedures described above under *Site Preparation –No Enclosure Required*.

.2 Wet all material to be disturbed.

.3 Turn on HEPA vacuum. Vacuum to remain operation throughout work.

.4 Place removed ACM directly into an asbestos waste container.

.5 If power tool can disconnect from HEPA vacuum, remove tool, and HEPA vacuum tool and bit, blade, etc, and shrouds.

.6 Wet clean or HEPA vacuum the entire Abatement Work Area, including surfaces not covered with polyethylene sheeting. Any materials or equipment removed to access ACM that are to be reused, must be wet cleaned or vacuumed prior to reinstatement.

3.9 Application of Post Removal Sealant

.1 Apply one coat of Post Removal Sealant with an airless sprayer, in accordance with Manufacturer's Instructions, to cover all surfaces on all items in the Abatement Work Area, including but not limited to polyethylene, ACM substrate, structural steel, and surfaces scheduled for demolition.

.2 Do not apply post removal sealant to materials that will be damaged by its application.

3.10 Abatement Work Area Dismantling

.1 Wash or HEPA vacuum equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.

.2 Place tools and equipment used in contaminated work site but not cleaned in polyethylene bags prior to removal from Abatement Work Area.

.3 Clean polyethylene sheeting and drop sheets which with HEPA vacuum or wet cleaning methods at completion of work.

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.4 Wet drop sheets and polyethylene sheeting.

.5 Carefully roll polyethylene sheeting and drop sheets toward the centre of enclosure. As polyethylene is rolled away, immediately remove visible debris beneath with a HEPA vacuum.

.6 Remove remaining polyethylene sheeting and tape, and dispose of as asbestos waste.

.7 Place polyethylene sheeting, drop sheets, tape, disposal clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

.8 Remove remaining site isolation, seals, tape, etc.

.9 Remove Transfer Room.

.10 Remove seals, tape, Signage etc.

.11 Immediately upon shutting down negative air units, seal air inlet grill and exhaust vent with polyethylene and tape.

.12 Seal openings in HEPA vacuums.

.13 Remove and dispose of the pre-filters from HEPA filtered negative pressure machines as asbestos waste.

.14 Remove HEPA filtered negative pressure machines and discharge ducting or HEPA vacuums.

.15 Remove temporary lights.

.16 Remove ground fault panels.

.17 Place contaminated materials including polyethylene sheeting, drop sheets, seals, tape, disposable coveralls, and other contaminated waste in asbestos waste containers.

3.11 Waste and Material Handling

.1 Refer to Section 02 81 00.

3.12 Re-Establishment of Items

.1 Upon completion of work:

.1 Move items that were removed from Abatement Work Area prior to work, back into same location within Abatement Work Area.

.2 Remove and disconnect Ground fault Panel, tags and locks from electrical panels and re-energize equipment and items.

.3 Clean, mop and vacuum Abatement Work Area and area beneath Decontamination Facilities.

.4 Enable building air handling systems.

END OF SECTION

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PART 1 GENERAL

1.1 General and Related Work

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Glove Bag procedures, and Pinchin and Owner specific requirements.

.3 If for reasons of pipe temperature, geometry or access, Glove Bag procedures cannot be used, remove and dispose of asbestos-containing insulations as per Section 02 82 11 for less than 1 square meter, or Section 02 82 13 for greater than 1 square meter.

1.3 Personal Protection

.1 Protect all personnel at all times when possibility of disturbance of ACM exists.

.2 Provide the following minimum respiratory protection to all personnel:

.1 Non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters.

.3 Provide protective clothing, to all personnel entering the Abatement Work Area.

.4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

2.1 Materials and Equipment

.1 Refer to Section 02 81 00.

.2 Glove Bag: Prefabricated bag which provides a completely sealed envelope surrounding a given section of piping to permit the removal of asbestos-containing insulation from within the bag while maintaining the integrity of the bag and preventing the spread of airborne asbestos fibres. The glove bag shall be equipped with,

.1 sleeves and gloves that are permanently sealed to the body of the bag to allow the worker to access and deal with the insulation and maintain a sealed enclosure throughout the work period,

.2 valves or openings to allow insertion of a vacuum hose and the nozzle of a water

sprayer while maintaining the seal to the pipe, duct or similar structure,

.3 a tool pouch with a drain,

.4 a seamless bottom and a means of sealing off the lower portion of the bag, and

.5 a high strength double throw zipper and removable straps, if the bag is to be moved during the removal operation.

.3 Securing Straps: For some types of Glove Bag, reusable nylon straps at least 25mm wide with metal tightening buckle for sealing ends of bags around pipe and/or insulation.

PART 3 EXECUTION

3.1 Site Preparation - General

.1 Remove to the extent necessary to access piping, stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.

.2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.

.3 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and at diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.4 Install caution tape around work area where existing walls are not present.

.5 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.

.6 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.7 Cover walls, floors, finishes, millwork, equipment and furnishings below the pipe to be worked on in the Abatement Work Area with polyethylene sheets before disturbing ACM. Drop sheets shall extend a minimum of 1,800 mm from pipe.

.8 Use existing lighting or install temporary lighting to a level that will provide for safe and efficient use of work area - minimum 550 LUX.

.9 Provide Amended Water for wetting ACM, in garden sprayers. Provide one garden sprayer for each worker.

.10 Do not used compressed air to clean or remove and dust or debris when completing work of this section.

.11 Place HEPA Vacuum in Abatement Work Area for each worker.

.12 Place required tools to complete the abatement within the Abatement Work Area.

.13 Post Notice of Project, where required by O.Reg. 278/05.

3.2 Maintenance of Abatement Work Area

.1 Maintain Abatement Work Area in tidy condition.

3.3 Glove Bag Removal

.1 Do not use Glove Bags on hot pipes that may damage Glove Bag. Refer to manufacturer's limitations.

.2 Prior to use of Glove Bag on damaged or unjacketed insulation:

.1 Spray any areas of damaged insulation jacketing with mist of Amended Water.

.2 Tape over damaged insulation to provide temporary repair.

.3 Mist areas of insulation with no jacketing and wrap with polyethylene sheeting and seal with tape.

.3 Place any tools necessary to remove insulation in tool pouch built into Glove Bag.

.4 Inspect the Glove Bag for damage and defects immediately before it is attached to the pipe or duct.

.1 If damage or defects are observed, dispose of Glove Bag.

.5 Install Glove Bag as per manufacturer's instructions.

.6 Remove metal jacketing or banding carefully. Do not damage the Glove Bag.

.7 Remove insulation from pipe as per manufacturer's directions.

.1 Volume and weight of insulation must not exceed capacity of the Glove Bag or supports.

.2 Arrange insulation in the Glove Bag to maximize use of the Glove Bag.

.8 Only glove bags designed to be moved may be re-used on other sections of pipe or moved down same section of pipe (e.g. Safe-T-Strip).

.9 At regular intervals during its use, if damage or defects are observed during the use of the Glove Bag, which cannot be readily repaired with tape and not affect the integrity or strength of the glove bag.

.1 Discontinue use of Glove Bag.

.2 Wash inner surface of Glove Bag.

.3 Wet insulation.

.4 Pull an Asbestos Waste Container over Glove Bag before removing from pipe.

.5 Remove Glove Bag and Asbestos Waste Container, seal with tape.

.6 Place in a second Asbestos Waste Container and seal with tape.

.7 Clean immediate area with a HEPA Vacuum prior to resuming work.

.10 If bag is to be moved along pipe for use on adjacent section of insulation:

.1 Wash inner surface of Glove Bag.

.2 Wash tools and place tools in pouch.

.3 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe with Amended Water.

.4 Insert nozzle of HEPA filtered vacuum cleaner into bag through valve and evacuate air from bag.

.5 Seal closure strip.

.6 Loosen securing straps to maintain a loose seal of Glove Bag to insulation or pipe.

.7 Use double throw zipper as necessary to pass hangers.

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.8 Tighten straps once bag is in new position and continue insulation removal until Glove Bag is full, work is completed on the pipe or an obstruction prevents further movement of the bag.

.11 If bag is to be removed from a pipe for use on a new section of pipe, perform the following:

.1 Wash inner surface of Glove Bag.

.2 Wash tools and place tools in pouch.

.3 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe with Amended Water.

.4 Insert nozzle of HEPA filtered vacuum cleaner into bag through valve and evacuate air from bag.

.5 Seal valve cover on valve Glove Bags.

.6 Seal closure strip.

.7 Wash top section of Glove Bag and tool pouch thoroughly.

.8 Undo securing straps, unfasten zipper and carefully move bag to new section of pipe.

.12 To remove bag after completion of insulation removal operation:

.1 Wash inner surface of Glove Bag.

.2 Wash and place all tools in one hand (glove), pull hand out inverted, twist to create a separate pouch, tape inverted hand at two separate locations 25 mm apart so as to seal pouch.

.1 Remove inverted hand and tools by cutting between the two tape seals.

.2 Place inverted hand pouch and tools into the next clean Glove Bag to be used or into a water bucket, open pouch underwater and clean tools.

.3 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe with Amended Water.

.4 Insert nozzle of HEPA filtered vacuum cleaner into bag through valve and evacuate air from bag.

.5 Seal valve cover on valve Glove Bags.

.6 Seal closure strip if equipped with one. Twist bag at tapered point and secure with tape.

.7 Pull an Asbestos Waste Container over Glove Bag before removing from pipe.

.1 Undo straps and unzipper, or cut upper portion of single-use Glove Bag.

.2 Seal Asbestos Waste Container with tape.

.8 Ensure pipe is clean of all residue after removal of Glove Bag. If necessary, after removal of each section of asbestos, vacuum all surfaces of pipe, using HEPA vacuum or wipe with wet cloth.

.13 Seal all surfaces of freshly-exposed pipe with Post Removal Sealer.

.14 Cover exposed ends of any remaining asbestos insulation with canvas and lagging using Type 2 Procedures.

3.4 Clean-Up and Dismantling

.1 Clean and remove from Abatement Work Area:

.1 Equipment and tools.

.2 Temporary lighting if used.

.3 Polyethylene seals from HVAC systems.

.2 Place polyethylene sheeting, drop sheets, seals, tape, clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

.3 Clean Abatement Work Area with HEPA vacuums or wet wiping/mopping.

.4 Seal openings in HEPA vacuums.

.5 Proceed with the dismantlement of all barricades, etc. following receipt of authorization to proceed from the Asbestos Abatement Consultant.

.6 Remove barricades, fencing, caution tape, signs, etc.

3.5 Waste and Material Handling

.1 Refer to Section 02 81 00.

3.6 Re-Establishment of Items

.1 Upon completion of work:

.1 Move all items that were removed from Abatement Work Area prior to work, back into same location within Abatement Work Area.

.2 Remove tags and locks from electrical panels and re-energize equipment and items.

.3 Enable building air handling systems.

.4 Clean and vacuum Abatement Work Area.

END OF SECTION

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PART 1 GENERAL

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of lead-containing materials following Class 1 or Low Risk procedures, and Pinchin and Owner specific requirements.

.3 Comply with requirements of this Section when performing following Work:

.1 Removal of lead-containing surface coatings with a chemical gel, stripper or paste.

.2 Removal of materials coating with lead-containing surface coatings, using non-powered hand tools, where the materials remains primarily intact, and is not crumbled, pulverized or powdered.

1.3 Instruction and Training

.1 Provide instruction and training to all workers including the following:

.1 Hazards of lead.

.2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that would be used and worn during abatement work, including:

.1 Limitations of equipment.

.2 Inspection and maintenance of equipment.

.3 Proper fitting of equipment.

.4 Disinfecting and cleaning of equipment.

.3 Personal hygiene to be observed when performing the work.

.4 The measures and procedures prescribed by this section including decontamination of the worker.

.5 Instruction and training must be provided by a competent person.

1.4 Personal Protection

.1 Provide non-powered half-face respirators with P100 high efficiency cartridge filters when requested by personnel.

.2 Provide protective clothing, when requested by personnel, entering the Abatement Work Area, including:

.1 Disposable protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.

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.3 Provide protective clothing, to all personnel entering the Abatement Work Area, including:

.1 Dust impermeable gloves appropriate for the work being completed.

.4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

.5 Lead-specific soaps and hygiene indicators are recommended to be provided for hand-wash stations.

1.5 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

.4 Milestone Inspection – Clearance Sampling

PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

2.2 Hoarding Walls

.1 Type A Hoarding Wall: One layer of rip-proof polyethylene sheeting installed floor to ceiling, secured with telescopic poles, clips, or other suitable methods.

.2 Windows: Install sufficient transparent windows area in hoarding walls to allow observation of entire work area from outside the enclosure where existing solid walls do not make up the perimeter.

2.3 Curtained Doorways

.1 Construct as follows:

.1 Install two flap doors, full width and height of door opening at all doors to Abatement Work Area and both ends of Transfer Room.

.2 Construct each flap door of two layers of polyethylene sheeting with all edges reinforced with tape. Use wood strapping to securely fasten flap doors to head and alternate jambs.

.3 Install weights attached to bottom edge of each door flap.

.4 Provide direction arrows on flaps to indicate opening.

PART 3 EXECUTION

3.1 Site Preparation - General

.1 Provide washing facilities consisting of a wash basin, clean water, soap and towels.

.1 Workers are to use washing facilities each time leaving the Abatement Work Area.

.2 Stored or non-fixed items, including but not limited to equipment, furniture, waste etc., shall be removed from the Abatement Work Area prior to abatement work.

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.3 Isolate, at panel, and disconnect existing power supply to Abatement Work Area. Power supply to remaining areas of building must not be disrupted during work of this section.

.1 Lock-out/tag-out power at electrical panels.

.2 Mark/tag any items within or passing through the Abatement Work Area that are to remain live including but not limited to cable, conduit, wire, fixtures, equipment panels, etc.

.4 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.5 Remove visible dust from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.6 Provide amended water for wetting materials, and adequate method of wetting (garden sprayers, airless sprayers, etc.).

.7 Provide electrical power and shut off for operation of powered tools and equipment. Provide ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard.

.1 Ensure safe installation of electrical lines and equipment.

.8 Do not use compressed air to clean or remove dust or debris.

.9 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.

.10 Frequently and at regular intervals, place all waste in waste containers.

.11 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.2 Site Preparation – No Enclosure Required

.1 Isolate Abatement Work Area with barrier tape.

.2 Protect floor surfaces covered from wall to wall with polyethylene sheets.

.3 Maintain Abatement Work Area in tidy condition.

.4 Remove waste and debris frequently.

.5 Remove standing water on polyethylene/floor at the end of every shift.

.6 Turn off water supply to hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.3 Lead-Containing Paint Abatement

.1 Removal methods minimizing dust generation should be used wherever possible.

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.1 Wet methods are to be used to reduce dust generation.

.2 Wetting agents should be used where possible.

.3 Wet methods are not to be used if it creates a hazard or cause damage to equipment or to project.

.2 Provide drop sheets below all lead operations that may produce dust, chips or debris containing lead.

.3 Waste water from cleaning or removal operations must be contained, for treatment or disposal.

.4 Remove lead-containing paint in small sections and pack as it is being removed in sealable lead waste containers.

.5 Follow manufacturer's instructions for all use of chemical gels, strippers and pastes.

.1 Ensure agent neutralizers, were required, are applied.

.2 Do not use chemical gels, strippers or pastes on surfaces where they are scheduled to be repainted, and the material affect the new paint application.

.6 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside.

3.4 Waste Management and Disposal

.1 Per Section 02 81 00.

3.5 Final Cleaning

.1 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.

.2 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and sealed labelled waste containers for transport.

.3 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

END OF SECTION

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PART 1 GENERAL

.1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of the General Conditions of the Contract.

.2 Requirements specified elsewhere:

.1 Section 02 81 00 Hazardous Materials – General Provisions

1.2 Outline of Work

.1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.

.2 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of lead-containing materials following Class 2 or Moderate Risk procedures, and Pinchin and Owner specific requirements.

.3 Comply with requirements of this Section when performing following Work:

.1 Removal of lead containing paint using power tools with an effective dust collection system equipped with HEPA filter.

1.3 Instruction and Training

.1 Provide instruction and training to all workers including the following:

.1 Hazards of lead.

.2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that would be used and worn during abatement work, including:

.1 Limitations of equipment.

.2 Inspection and maintenance of equipment.

.3 Proper fitting of equipment.

.4 Disinfecting and cleaning of equipment.

.3 Personal hygiene to be observed when performing the work.

.4 The measures and procedures prescribed by this section including decontamination of the worker.

.5 Instruction and training must be provided by a competent person.

1.4 Personal Protection

.1 Provide the following respiratory protection to all personnel, at minimum:

.1 Non-powered half-face respirators with P100 high efficiency cartridge filters.

.2 Provide protective clothing, to all personnel entering the Abatement Work Area, including:

.1 Dust impermeable gloves appropriate for the work being completed.

.2 Disposable protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.

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.3 Provide protective clothing, to all personnel entering the Abatement Work Area.

.4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

.5 Lead-specific soaps and hygiene indicators are recommended to be provided for hand-wash stations.

1.5 Inspections

.1 Refer to Section 02 81 00 – General Provisions.

.2 The following Milestone Inspections are to be scheduled:

.1 Milestone Inspection - Clean Site Preparation

.2 Milestone Inspection – Bulk Removal Inspection

.3 Milestone Inspection - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

.1 Refer to Section 02 81 00.

2.2 Hoarding Walls

.1 Type A Hoarding Wall: One layer of rip-proof polyethylene sheeting installed floor to ceiling, secured with telescopic poles, clips, or other suitable methods.

.2 Windows: Install sufficient transparent windows area in hoarding walls to allow observation of entire work area from outside the enclosure where existing solid walls do not make up the perimeter.

2.3 Transfer Room

.1 Transfer Room to be generally 2000 mm x 2000 mm x 2200 mm high. Increase size accordingly to accommodate number of workers.

.2 Install walls as follows:

.1 Install 38 x 89 mm wood framing at 610 mm o/c with continuous top and sill plates.

.2 Install one layer rip-proof polyethylene sheeting on interior walls of Transfer Room.

.3 Install one layer of rip-proof polyethylene sheeting over two layers of 6 mil polyethylene sheeting beneath entire Transfer Room.

.4 Install one layer rip-proof polyethylene sheeting over roof.

.5 Turn 600 mm of polyethylene down the sides over polyethylene on the perimeter walls.

.6 Install a fire extinguisher, mount to wall.

2.4 Curtained Doorways

.1 Construct as follows:

.1 Install two flap doors, full width and height of door opening at all doors to Abatement Work Area and both ends of Transfer Room.

.2 Construct each flap door of two layers of polyethylene sheeting with all edges reinforced with tape. Use wood strapping to securely fasten flap doors to head

and alternate jambs.

.3 Install weights attached to bottom edge of each door flap.

.4 Provide direction arrows on flaps to indicate opening.

PART 3 EXECUTION

3.1 Site Preparation - General

.1 Provide washing facilities consisting of a wash basin, clean water, soap and towels.

.1 Workers are to use washing facilities each time leaving the Abatement Work Area.

.2 Stored or non-fixed items, including but not limited to equipment, furniture, waste etc., shall be removed from the Abatement Work Area prior to abatement work.

.3 Isolate, at panel, and disconnect existing power supply to Abatement Work Area. Power supply to remaining areas of building must not be disrupted during work of this section.

.1 Lock-out/tag-out power at electrical panels.

.2 Mark/tag any items within or passing through the Abatement Work Area that are to remain live including but not limited to cable, conduit, wire, fixtures, equipment panels, etc.

.4 Shut down HVAC systems serving the Abatement Work Area.

.1 Install polyethylene sheeting over openings in ducts and diffusers and seal.

.2 HVAC to remaining areas of building must not be disrupted during work of this section.

.3 System shall remain inoperative until completion of work, unless ducts can be effectively capped.

.4 Perform work at scheduled times after shutting down HVAC systems affecting the Abatement Work Area.

.5 Remove visible dust from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.

.6 Provide amended water for wetting materials, and adequate method of wetting (garden sprayers, airless sprayers, etc.).

.7 Provide electrical power and shut off for operation of powered tools and equipment. Provide ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard.

.1 Ensure safe installation of electrical lines and equipment.

.8 Do not use compressed air to clean or remove dust or debris.

.9 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.

.10 Frequently and at regular intervals, place all waste in waste containers.

.11 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.2 Site Preparation – No Enclosure Required

.1 Cover materials to remain in the Abatement Work Area with polyethylene sheeting before disturbing ACM to control the spread of dust.

.2 Install caution tape around work area where existing walls are not present.

.3 Install temporary lighting in enclosure to a level that will provide for safe and efficient use of work area - minimum 550 LUX.

.4 Place HEPA vacuum in Abatement Work Area.

.5 Place required tools to complete the abatement with the Abatement Work Area.

.6 Install Signage in clearly visible locations and in sufficient numbers to adequately warn of a lead dust hazard.

3.3 Maintenance of Abatement Work Area

.1 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.

.2 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.

.3 Inspect HEPA filtered negative pressure machines including discharge ducting at the beginning and end of each working period. Inspection must be performed by competent person.

.4 Maintain Abatement Work Area in tidy condition.

.5 Remove standing water on polyethylene/floor at the end of every shift.

.6 Turn off water supply to any hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.4 Lead Abatement

.1 Use the procedures described above under *Site Preparation – No Enclosure Required*.

.1 Removal of lead containing paint using power tools with an effective dust collection system equipped with HEPA filter.

.2 Provide washing facilities consisting of a wash basin, clean water, soap and towels.

.1 Workers are to use washing facilities each time leaving the Abatement Work Area.

.3 Removal methods minimizing dust generation should be used wherever possible.

.1 Wet methods are to be used to reduce dust generation.

.1 Wetting agents should be used where possible.

.2 Wet method not be used if it creates a hazard or cause damage to equipment or to project.

.4 Provide drop sheets below all lead operations that may produce dust, chips or debris containing lead.

.5 Waste water from cleaning or removal operations must be contained, for treatment or disposal.

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.6 Remove lead containing paint in small sections and pack as it is being removed in sealable waste containers.

.7 Waste generated should be maintained wet until cleaned and packaged.

.8 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.

3.5 Waste Management and Disposal

.1 Per Section 02 82 00.

3.6 Final Cleaning

.1 Following specified cleaning procedures, and when visual clearance is acceptable, proceed with final cleanup.

.2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Clean visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.

.3 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and seal. Dispose of in accordance with waste materials generated.

.4 Clean Work areas and Transfer Room, where present.

.5 Remove sealed waste containers and equipment used in Work and remove from work areas at appropriate time in cleaning sequence.

.6 Conduct final check to ensure no dust or debris remain on surfaces as result of dismantling operations.

END OF SECTION

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PART 1 - GENERAL

.1 Conform to Division 1. General Requirements and all documents referred to therein.

1.1 Related Work

.1 Site Grading: Section 02210

.2 Sodding: Section 02938

1.2 Source Quality Control

.1 Advise Consultant of sources of topsoil to be utilized 7 days in advance of starting work.

.2 Contractor is responsible for soil analysis and requirements for amendments to supply topsoil as specified.

PART 2 - PRODUCTS

2.1 Topsoil

.1 Topsoil for seeded areas: mixture of mineral particulates, micro organisms and organic matter which provides suitable medium for supporting intended plant growth.

.1 Soil texture based on The Canadian System of Soil Classification, to consist of 20 to 70% sand and contain 2 to 10% organic matter by weight.

.2 Fertility: major soil nutrients present in following ratios:

.1 Nitrogen (N): 20 to 40 micrograms of available N per gram of

topsoil.
.2 Phosphorus (P): 10 to 20 micrograms of phosphate per gram of topsoil.
.3 Potassium (K): 80 to 120 micrograms of potash per gram of topsoil.
.4 Calcium, magnesium, sulfur and micro-nutrients present in balanced ratios to support germination and/or establishment of intended vegetation.
.3 Ph value: 6.5 to 8.0
.4 Contain no toxic elements or growth inhibiting materials.
.5 Free from:
.1 Debris and stones over 50 mm diameter.
.2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.
.6 Consistence: friable when moist.

2.2 Soil Amendments

.1 Peatmoss:
.1 Derived from partially decomposed species of Sphagnum Mosses.
.2 Elastic and homogeneous, brown in colour.
.3 Free of wood and deleterious material which could prohibit growth.
.4 Shredded particle minimum size: 5 mm.

.2 Sand: washed course silica sand, medium to course textured.

.3 Limestone:
.1 Ground agricultural limestone containing minimum calcium carbonate equivalent of 85%.
.2 Gradation requirements: percentage passing by weight, 90% passing 1.0 mm sieve, 50% passing 0.125 mm sieve.

.4 Fertilizer:
.1 Complete, commercial, with 35% soluble nitrogen.

PART 3 - EXECUTION

3.1 Stripping of Topsoil

.1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected.

.2 Commence topsoil stripping after area has been cleared of brush, weeds and grasses and removed from site.

.3 Strip topsoil to depths as indicated. Avoid mixing topsoil with subsoil.

.4 Stockpile in locations as directed by Consultant. Stockpile height not to exceed 2 m.

.5 Dispose of unused topsoil off site.

.6 Protect stockpiles from contamination and compaction.

3.2 Preparation of Existing Grade

.1 Verify that grades are correct. If discrepancies occur, notify Consultant and do not commence work until instructed by Consultant.

.2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.

.3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials. Remove soil contaminated with calcium chloride, toxic materials and petroleum products. Remove debris which protrudes more than 75 mm above surface. Dispose of removed material off site.

.4 Course cultivate entire area which is to receive topsoil to depth of 100 mm. Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.3 Placing and Spreading of Topsoil/Planting Soil

.1 Place topsoil after Consultant has accepted subgrade.

.2 Spread topsoil in uniform layers not exceeding 150 mm, over unfrozen subgrade free of standing water.

.3 For sodded areas keep topsoil 15 mm below finished grade.

.4 Spread topsoil to following minimum depths after settlement and 80% compaction:
- .1 150 mm for seeded areas
- .2 150 mm for sodded areas
- .3 300 mm for flower beds
- .4 500 mm for shrub beds

.5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.4 Soil Amendments

.1 For planting beds and turf: apply and thoroughly mix soil amendments and fertilizer into full specified depth of topsoil as recommended by the soil analysis testing report.

3.5 Finish Grading

.1 Grade to eliminate rough spots and low areas and ensure positive drainage. Prepare loose friable bed by means of cultivation and subsequent raking.

.2 Consolidate topsoil to required bulk density using equipment approved by Consultant. Leave surfaces smooth, uniform and firm against deep footprinting.

3.6 Acceptance

.1 Consultant will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading. Approval of topsoil material subject to soil testing and analysis.

.2 Testing of topsoil will be carried out by testing laboratory designated by Consultant. Soil sampling, testing and analysis to be in accordance with Provincial regulations and standards.

3.7 Restoration of Stockpile Sites

.1 Restore stockpile sites acceptable to Consultant.

3.8 Surplus Material

.1 Promptly as the work proceeds and upon completion, remove all surplus material from the building and site resulting from the foregoing work.

1 GENERAL

1.1 SECTION INCLUDES

.1 Materials, design, and execution of concrete formwork and accessories.

1.2 RELATED SECTIONS

.1 Section 03 20 00 - Concrete Reinforcing

.2 Section 03 30 00 - Cast-in-Place Concrete

.3 Section 07 92 10 - Joint Sealing

1.3 REFERENCES

.1 American National Standards Institute
- .1 ASTM D1751-04 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

.2 Canadian Standards Association (CSA International):
- .1 CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of test and Standard Practices for Concrete.
- .2 CAN/CSA-086-01, Engineering Design in Wood and CSA-O86S1-05, Supplement No. 1 to CAN/CSA-086-01, Engineering Design in Wood.
- .3 CSA O121-M1978 (R2003), Douglas Fir Plywood.
- .4 CSA O141-05 Softwood Lumber.
- .5 CSA O151-04, Canadian Softwood Plywood.
- .6 CSA O153-M1980 (R2003), Poplar Plywood.
- .7 CAN/CSA-O325.0-07 Construction Sheathing.
- .8 CSA O437 Series-93 (R2006), Standards on OSB and Waferboard.
- .9 CSA S269.1-1975 (R2003), Falsework for Construction Purposes.
- .10 CAN/CSA-S269.3-M92 (R2003), Concrete Formwork.
- .11 CSA B111 – 1974 (R2003) Wire Nails, Spikes and Staples.

.3 Underwriters' Laboratories of Canada (ULC)
- .1 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.4 Conform to Ontario Building Code 2012 and National Building Code of Canada 2010.

1.4 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 – Submittal Procedures.

.2 Submit shop drawings for formwork and falsework

.1 Each shop drawing submission shall bear stamp and signature of qualified professional engineer registered or licensed in the Province of Ontario, and holder of a BCIN number.

.3 Submit WHMIS MSDS –Material Safety Data Sheets in accordance with Section 01 47 15 – Sustainable Requirements: Construction and Section 02 61 33 Hazardous Materials.

.4 Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts. Comply with CSA S269.1, for falsework drawings. Comply with CAN/CSA-S269.3 for formwork drawings.

.5 Indicate formwork design data, such as permissible rate of concrete placement, and temperature of concrete, in forms.

.6 Indicate sequence of erection and removal of formwork/falsework and proposed strengths of concrete at time of stripping forms.

.7 Submit, for information, final shop drawings for all mechanical and electrical equipment to be installed. Drawings to indicate overall geometry of the equipment, geometry of floor openings, and weight of the unit.

.8 When slip forms or flying forms are used, submit details of equipment and procedures for review by Consultant.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Store and manage hazardous materials in accordance with section 01 47 15 – Sustainable Requirements: Construction.

.2 Waste Management and Disposal:

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 47 19 Construction/Demolition Waste Management and Disposal.
- .2 Place materials defined as hazardous or toxic waste in designated containers.
- .3 Divert wood or plastic materials from landfill to a recycling, reuse, or composting facility as approved by Consultant.
- .4 Divert unused form release material from landfill to an official hazardous material collection site as approved by Architect.

2 PRODUCTS

2.1 MATERIALS

.1 Materials and resources in accordance with Section 01 47 15 – Sustainable Requirements: Construction..

.2 Do verification requirements in accordance with Section 01 47 17 – Sustainable Requirements: Contractor Verification.

.3 Formwork Lumber: Plywood and wood formwork materials to CSA-O121, CAN/CSA-O86.1, CSA O437 Series and/or CSA-O153.
- .1 For concrete not exposed in finished work use square edged, T&G lumber, solid one side or medium density overlaid one side grade plywood or other material, suitable to retain concrete without leakage or distortion.
- .2 For exposed concrete, use new, square edged, flat, smooth surfaced, high density one side overlaid Douglas Fir Plywood panels, free of holes, surface markings or other defects to CAN/CSA-A23.1.
- .3 Lumber to CSA-O141.

.4 Tubular column forms: round, laminated fiber or steel, internally treated with release material.
- .1 Where exposed architecturally, vinyl lined (to eliminate projecting spiral edges), sample to submitted for review.

.5 Form ties:
- .1 For unexposed concrete, use removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes wider or deeper than 25 mm in concrete surfaces. Use no wire ties.
- .2 For exposed concrete, use snap ties complete with plastic cones and light grey concrete plugs

.6 Form Liner:
- .1 Douglas Fir high density overlay medium density overlay to CSA 0121, Canadian Softwood Plywood to CSA O151, Poplar to CSA O153, T and G square edge, grade and thickness to be submitted for review.
- .2 Waferboard: to CAN/CSA – 0325.00, grade and thickness to be submitted for review.

.7 Form release agent: Non-staining, non-toxic, low VOC, biodegradable, chemically active release agent containing compounds that react with free lime present in concrete to provide water insoluble soaps, preventing set of film of concrete in contact with form.

.8 Form stripping agent: colourless mineral oil, non-toxic, biodegradable, low VOC, free of kerosene, with viscosity between 70 and 110s Saybolt Universal, 15 to 24 mm2/s at 40^0C, flashpoint minimum 150^0C, open cup.

.9 Falsework materials: to CSA-S269.1.

.10 Sealant: to Section 07 92 10 – Joint Sealing.

.11 Joint tape: non-staining, impermeable, self-release type.

.12 Nails, spikes, staples: galvanized to CSA B111.

.13 Concrete Accessories:
- .1 Premoulded joint filler: Bituminous impregnated fiber board: to ASTM D1751-04.
- .2 Dovetail anchor channels: minimum 0.6 mm thick (24 ga.) galvanized steel with insulation filled slots.
- .3 Waterstops: Expanding concrete joint Volcray waterstop-Rx.

3 EXECUTION

3.1 FABRICATION AND ERECTION

.1 Verify lines, levels and column centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.

.2 Obtain Consultant's approval for use of earth forms. Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.

.3 Fabricate and erect falsework in accordance with CSA S269.1

.4 Refer to architectural drawings for concrete members requiring exposed finishes. Use new formwork materials for concrete surfaces which will be exposed to view in finished project.

.5 Do not place shores and mud sills on frozen ground.

.6 Provide site drainage to prevent washout of soil supporting mud sills and shores.

.7 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CAN/CSA-A23.1/A23.2.

.8 Align form joints and make watertight. Keep form joints to minimum.

.9 Locate horizontal form joints for exposed columns 2400 mm above finished floor elevation, unless otherwise indicated.

.10 Use 20 mm chamfer strips on exposed corners of beams, columns, walls and curbs, unless otherwise specified.

.11 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.

.12 Obtain Consultant's approval before forming into slabs, beams, walls or columns, openings not indicated on drawings.

.13 Construct forms for exposed concrete with joints and tie patterns as indicated and/or as directed. Joint pattern not necessarily based on using standard size panels or maximum permissible spacing of ties.

.14 Set anchors, ties, bolts, nailers, templates, cast-in hardware and shelf angles, steel connection units or other inserts into forms and secure against displacement during concreting

.15 Build in anchors, sleeves, and other inserts required to accommodate work specified in other sections. Assure that all anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

.16 Line forms for following surfaces:
- .1 Outer faces of outside girders beams and vertical edge of bridge sidewalk slab.
- .2 Soffit of girders and underside of bridge decks if exposed.
- .3 Exposed faces of abutments, wingwalls, piers and pylons.

.17 Form linings:
- .1 Do not stagger joints of form lining material. Align joints to obtain uniform pattern.
- .2 Secure lining taut to formwork to prevent folds.
- .3 Pull down lining over edges of formwork panels.
- .4 Ensure lining is new material.
- .5 Ensure lining is dry and free of oil when concrete is poured.
- .6 Application of form release agents on formwork surface is prohibited where drainage lining is used.
- .7 Cost of textile lining is included in price of concrete for corresponding portion of work.

.18 Joint Fillers:
- .1 Locate and form isolation joints as indicated. Install joint filler.
- .2 Use 6 mm thick joint filler to separate slabs-on-grade from vertical surfaces. Extend joint filler from bottom of slab to within 12 mm of finished slab surface unless indicated otherwise.

.19 Anchor Channels:
- .1 Install dovetail anchor channels to forms where masonry abuts concrete walls or columns.
- .2 Install continuous vertical dovetail anchor channels at 600mm o/c where concrete walls or columns are masonry faced.

.20 Waterstops:
- .1 Install waterstops to provide continuous water seal. Do not displace reinforcement when installing. Tie rigidly in place.

.2 Make straight heat sealed butt joints.

.21 Dampproof Membrane:
- .1 Where indicated, install dampproof membrane under concrete slabs-on-grade inside building.
- .2 Lap dampproof membrane 150mm minimum at joints and seal. Carry up walls to top of slab.
- .3 Seal punctures in dampproof membrane before placing concrete. Use patching material at least 150mm larger than puncture and seal.

.22 Clean formwork in accordance with CAN/CSA-A23.1, before placing concrete.

.23 If slip forms or flying forms are used, submit details of equipment and procedures for Consultant's approval.

.24 For walls and shearwalls, leave one side of forms open for inspection of reinforcing steel. Close form only after Consultant has reviewed and approved bar placement.

.25 Re-use of formwork subject to requirements of CAN/CSA-A23.1.

3.2 REMOVAL AND RESHORING

.1 Leave formwork in place for following minimum periods of time after placing concrete unless otherwise agreed to by Consultant.
- .1 3 days for walls and sides of beams or as required to meet strength requirements.
- .2 3 days for columns or as required to meet strength requirements.
- .3 28 days for beam soffits, slabs, decks and other structural members, or minimum 3 days when replaced immediately with adequate shoring to standards specified for falsework and approved by Consultant and the concrete has reached minimum 75% of its design strength.
- .4 3 days for footings and abutments or as required to meet strength requirements

.2 Provide all necessary reshoring of members where early removal of forms may be required or where members may be subjected to additional loads during construction as required.

.3 Space reshores in each principal direction not more than 3000 mm apart.

.4 If concrete surfaces require cleaning after form removal, use only pressurized water stream so as not to alter smooth concrete finish.

END OF SECTION

1 GENERAL

1.1 SECTION INCLUDES

.1 Materials, design, and execution of concrete reinforcing.

1.2 RELATED SECTIONS

.1 Section 03 30 00 - Cast-In-Place Concrete

.2 Division 04 - Masonry Specifications

1.3 REFERENCES

.1 Ontario Building Code 2012 and National Building Code of Canada 2010

.2 American Concrete Institute (ACI)
- .1 SP-66(04) – ACI Detailing Manual 2004

.3 Reinforcing Steel Institute of Ontario / Canada (RSIO / RSIC):
- .1 Reinforcing Steel Manual of Standard Practice (2004);

.4 American Society for Testing and Materials (ASTM):
- .1 ASTM A82 / A82M-05a, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement;
- .2 ASTM A184 / A184M-06, Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement;
- .3 ASTM A185 / A185M-06e1, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete;
- .4 ASTM A496 / A496M-05, Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement;
- .5 Rod Mats for Concrete Reinforcement;
- .6 ASTM A775 / A775M - 06, Standard Specification for Epoxy-Coated Steel Reinforcing Bars.

.5 Canadian Standards Association (CSA)
- .1 CAN/CSA-A23.1-04, Concrete Materials and Methods of Concrete Construction.
- .2 CAN3-A23.3-04, Design of Concrete Structures.
- .3 CAN/CSA-G30.18-M92 (R2002), Billet-Steel Bars for Concrete Reinforcement.
- .4 CAN/CSA-G40.21-04, Structural Quality Steel.
- .5 CAN/CSA-G164-M92 (2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .6 CSA W186-M1990 (R2002), Welding of Reinforcing Bars in Reinforced Concrete Construction.

1.4 SHOP DRAWINGS

.1 Submit shop drawings and bar lists in accordance with Section 01 33 00 – Submittal Procedures. Allow ten working days for shop drawing review before commencing fabrication.

.2 Indicate on shop drawings, bar bending details, lists, quantities of reinforcement and wire mesh, sizes, spacing, locations of reinforcement and mechanical splices if approved by Consultant, with identifying code marks to permit correct placement without reference to structural drawings. Indicate sizes, spacing and locations of chairs, spacers and hangers. Prepare reinforcement drawings in accordance with Reinforcing Steel Manual of Standard Practice - by Reinforcing Steel Institute of Canada. ANSI/ACI 315 and ACI 315R, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.

.3 Indicate (and detail) all proposed construction joints.

.4 Show reinforced concrete and reinforced masonry walls and beams in full elevation and detail all bars.

.5 When requested, for slab construction, show top and bottom layer slab reinforcing on separate plans. Detail sections to fully illustrate bar placement at dowels, curbs, openings, changes of elevation, beams, stairs, and areas of congested steel, and wherever else required.

.6 Detail placement of reinforcing where special conditions occur.

.7 Design and detail lap lengths and bar development lengths to CAN/CSA-A23.1 and CAN3-A23.3, unless otherwise specified on drawings. Use Class “B” tension splices unless otherwise noted.

.8 Indicate details for placement of dowels.

.9 CAD drawings of the Consultant may be used as a background for the preparation of shop drawings provided that a license agreement, provided by the Consultant, is signed by the reinforcing trade.

1.5 SUBSTITUTIONS

.1 Substitute different size bars only if permitted in writing by Consultant.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 20 - Construction/Demolition Waste Management and Disposal and the Waste Reduction Workplan.

2 PRODUCTS

2.1 MATERIALS

.1 Reinforcing steel: billet steel, grade 400, deformed bars to CAN/CSA-G30.18, unless indicated otherwise.

.2 Reinforcing steel: weldable low alloy steel deformed bars to CAN/CSA-G30.18.

.3 Cold-drawn annealed steel wire ties: to ASTM A82/A82M;

.4 Deformed steel wire for concrete reinforcement: to ASTM A496/A496M;

.5 Welded steel wire fabric: to ASTM A185/A185M. Provide in flat sheets only.

.6 Welded deformed steel wire fabric: to ASTM A497 / A497M. Provide in flat sheets only.

.7 Epoxy coating of non-prestressed reinforcement: to ASTM A775 / A 775M.

.8 Galvanizing of non-prestressed reinforcement: to CSA G164, minimum zinc coating 600g/m².

.9 Chairs, bolsters, bar supports, spacers adequate for strength and support of reinforcing under construction conditions: to CAN/CSA-A23.1. Use chairs with plastic coated feet where slab and beam soffits will be exposed.

.10 Mechanical splices: subject to approval of Consultant.

.11 Plain round bars: to CAN/CSA-G40.21.

2.2 FABRICATIONS

.1 Fabricate reinforcing steel in accordance with CAN/CSA-A23.1, ACI SP-66 – Detailing Manual, and RSIO/RSIC Reinforcing Steel Manual of Standard Practice unless indicated otherwise..

.2 Fabricate to tolerances specified by RSIO/RSIC Reinforcing Steel Manual of Standard Practice unless indicated otherwise.

.3 Obtain Consultant's approval for locations of reinforcement splices other than those shown on placing drawings.

.4 Upon approval of Consultant, weld reinforcement in accordance with CSA W186.

.5 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists. Bundling and transportation of epoxy coated bars shall be in accordance with ASTM A775/A775M.

.6 Discard and re-fabricate bars having extra bends, cracks, splits, kinks or excessive rust.

2.3 SOURCE QUALITY CONTROL

.1 Upon request, provide Consultant with certified copy of mill test report of reinforcing steel to be supplied, showing physical and chemical analysis, corresponding to identification tagging of material at the fabrication plant prior to commencing reinforcing work.

.2 Inform Consultant of proposed source of material to be supplied. Unidentified reinforcement shall not be allowed.

3 EXECUTION

3.1 PLACING REINFORCEMENT

.1 Place reinforcing steel to CAN/CSA-A23.1 and as indicated on reviewed shop drawings.

.2 Set tie wires so that ends are directed into concrete, not toward exposed concrete surfaces. Un-coated metal tie wires shall not project more than 5mm into the concrete cover.

.3 Do not tack weld reinforcing unless shown on the Structural Drawings, or approved by the Consultant.

.4 Do not displace reinforcing to accommodate sleeves, inserts, waterstops, reglets, or other cast-in hardware.

.5 Arrange for reinforcing steel personnel to be present at all times concrete is poured to ensure that reinforcing remains in place as tied, and to take remedial action as required.

.6 Maximum chair spacing unless otherwise required by the Drawings or by "Reinforcing Steel Manual of Standard Practice":

Bar Size	Chair Spacing
10M	600mm
15M	1200mm
20M	1600mm
25M	2000mm

Provide additional chairs and support bars as deemed necessary by the Consultant.

.7 Place welded wire fabric in as long lengths as practical lapping at least one mesh, (200mm minimum) and tie, unless noted on the Drawings.

.8 Ensure welded wire fabric is adequately supported at centre of slab, or where indicated in the drawings, during concrete placing.

.9 Obtain Consultant's approval of reinforcing steel and position before placing concrete. Give 24 hours notice prior to the time at which approval is required. For walls and deep beams, ensure that one side of formwork is left open for inspection of reinforcing steel.

.10 Ensure that all steel is in place, and tied, at the time at which the Consultant's approval has been requested, and prior to the start of concrete placing.

.11 Clean reinforcing and forms before placing concrete, and adjust reinforcing and forms immediately before concrete is poured, as required, to ensure bars and inserts are placed correctly.

.12 Obtain approval from Consultant for all construction joint locations. Ensure additional reinforcement at construction joints is available before commencing pour.

.13 Do not force reinforcing steel inserts or anchor bolts into fresh or semi-hardened concrete.

.14 Ensure cover to reinforcement is maintained during concrete pour.

.15 Placing of the epoxy-coated reinforcing bars, where epoxy coated bars are required on the drawings, shall include:

.1 Support epoxy-coated reinforcing bars from formwork on plastic coated wire bar supports, or on bar supports made of dielectric material for a minimum distance of 50mm from the point of contact with the epoxy-coated bar.

.2 Reinforcing bars used as support bars shall also be epoxy-coated.

.3 In walls having epoxy-coated reinforcing bars, spreader bars shall be epoxy-coated. Proprietary combination bar clips and spreaders used in walls with epoxy-coated reinforcing bars shall be made of corrosion-resistant material.

.4 Fasten epoxy-coated reinforcing bars with nylon-, epoxy-, or plastic-coated tie wire, or other acceptable material.

.5 Splice reinforcing bars only as required or permitted by the Contract Documents, or as authorized by the Consultant.

.6 Do not cut reinforcing bars in the field unless permitted by Consultant. When epoxy-coated reinforcing bars are cut in the field, coat ends of bars with same material used for repair of coating damage.

.7 Protect epoxy and paint coated portions of bars with covering during transportation and handling.

3.2 FIELD BENDING

.1 Do not field bend reinforcing bars partially embedded in concrete, except as indicated in the Contract Documents or permitted by the Consultant.

.2 Do not field bend or field weld reinforcement except where indicated or authorized by Consultant.

.3 When field bending is authorized, bend without heat, applying a slow and steady pressure.

.4 Replace bars which develop cracks or splits during field bends.

.5 Bending of epoxy-coated reinforcing bars:
- .1 Provide adequate ventilation when heat is used to field bend epoxy-coated reinforcing bars.
- .2 When epoxy-coated reinforcing bars are field bent, repair coating damage in accordance with ASTM A775/A775M.

3.3 HANDLING AND STORAGE OF EPOXY-COATED REINFORCING BARS FOR EPOXY COATED BARS INDICATED ON THE DRAWINGS

.1 Protect contact areas of all equipment used for handling epoxy-coated bars. Lift bundles of coated bars at multiple pick-up points to minimize bar-to-bar abrasion from sags in the bundles.

.2 Store coated bars or bundles of coated bars on protective cribbing. Fading of the colour of the coating shall not be cause for rejection of epoxy-coated reinforcing bars.

.3 Repair areas larger than 10mm square damaged during handling, shipping and placing, in accordance with ASTM A775/A775M. Maximum amount of damage including repaired and unrepaired areas not to exceed 2 percent of the surface area of each bar.

3.4 FIELD TOUCH-UP

.1 Touch up damaged and cut ends of epoxy coated reinforcing steel with patching material conforming to ASTM A775/A775M, to provide continuous coating.

END OF SECTION

1 GENERAL

1.1 RELATED SECTIONS

.1 Section 03 10 00 - Concrete Forming and Accessories

.2 Section 03 20 00 - Concrete Reinforcing

.3 Section 03 35 00 - Concrete Finishing

.4 Division 04 - Masonry Specifications

.5 Section 05 12 23 - Structural Steel For Buildings

.6 Section 07 18 16 - Vehicular Traffic Coatings

1.2 REFERENCES

.1 Conform to Ontario Building Code 2012 and National Building Code of Canada 2010.

.2 American Society for Testing and Materials (ASTM)
- .1 ASTM C260-06, Standard Specification for Air-Entraining Admixtures for Concrete.
- .2 ASTM C309-06, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete;
- .3 ASTM C494/C494M-05a, Standard Specification for Chemical Admixtures for Concrete.
- .4 ASTM C679-03, Standard Test Method for Tack-Free Time of Elastomeric Sealants;
- .5 ASTM C979-05, Standard Specification for Pigments for Integrally Colored Concrete.
- .6 ASTM C1017/C1017M-03, Standard Specification for Chemical Admixtures for use in Producing Flowing Concrete.
- .7 ASTM D412-06a, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers Tension;
- .8 ASTM D638-03, Standard Test Method for Tensile Properties of Plastics;
- .9 ASTM D2240-05, Standard Test Method for Rubber Property – Durometer Hardness;

.3 Canadian Standards Association (CSA)
- .1 CAN/CSA-A3000-03, Cementitious Materials Compendium.
- .2 CAN/CSA-A23.1-04, Concrete Materials and Methods of Concrete Construction.
- .3 CAN/CSA-A23.2-04, Methods of Test and Standard Practices for Concrete.

1.3 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 – Submittal Procedures.

.2 Where requested, submit samples of proposed colour of cement and type of proposed aggregate, for all exposed-aggregate and other architecturally-exposed concrete, for approval by Architect. Minimum sample panel size 600x600x75.

1.4 CERTIFICATES

.1 Provide certification that mix proportions selected will produce concrete of specified quality and yield and that strength will comply with CAN/CSA-A23.1, Clause 4.4.6.

.2 Provide certification that plant, equipment, and all materials to be used in concrete comply with the requirements of CAN/CSA-A23.1.

1.5 QUALITY ASSURANCE

.1 Inspection and testing of concrete and concrete materials shall be carried out by a testing laboratory designated by the Owner, in accordance with CAN/CSA-A23.1 and A23.2.

.2 Costs of tests will be paid under a cash allowance. See Section 01 22 00

.3 Ship prepaid, 3 control cylinders of each strength of concrete from each pour, and not less than 3 from each $60m^3$ of concrete or part thereof. Make, handle, store and cure in accordance with CAN/CSA-A23.1. Make strength test of one cylinder from each sampling at 7 days, and of the other two cylinders at 28 days.

.4 Prepare one additional test cylinder when concrete is being placed at temperatures of $10^{o}C$ or less, and cure at site under same conditions as concrete it represents. Additional test cylinders shall be prepared at the discretion of the Engineer or Testing Agency.

.5 Provide equipment and make slump tests with air entrainment tests in accordance with CAN/CSA-A23.2.

.6 Field-cured (pull-out) cylinders shall be prepared to verify in-situ concrete strengths for stripping of formwork, particularly in cold weather. Pull-out cylinders shall be cast and stored on site until time of testing, in accordance with the recommendations of the Testing Agency. Alternate means of establishing in-situ strength shall be to the approval of the Testing Agency and the Engineer.

.7 Report test results in writing to the Owner, Engineer and Contractor on the same day tests are made. Include in reports location of pours in construction, date and time of pour, time in mixer prior to discharge, temperature of concrete, weather, slump, air content, density, and class of concrete. Report non-conformance with the Contract Documents in detail.

.8 Maintain accurate records of poured concrete items to indicate date, quantity, mix identification, admixtures, design slump, design density, aggregate size, design strength, time of batching, time of delivery, location of pour in building, quality, air temperature, and test samples taken. File duplicate copies of concrete delivery slips. Make these records available for inspection at all times.

.9 Testing Agency shall advise Contractor and Engineer, without delay, of concrete in non-conformance with this Specification, and/or where rejection of the concrete is deemed warranted. Concrete shall be rejected by the Contractor if the specified requirements of CAN/CSA-A23.1 and this Specification are not met.

.10 Permit access to the batching plant by the Testing Agency.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 20 - Construction/Demolition Waste Management and Disposal and the Waste Reduction Workplan.

.2 Use trigger operated spray nozzles for water hoses.

.3 Designate a cleaning area for tools to limit water use and runoff

.4 Carefully coordinate the specified concrete work with weather conditions

.5 Ensure emptied containers are sealed and stored safely for disposal away from children.

.6 Prevent plasticizers, water-reducing agents and air-entraining agents from entering drinking water supplies or streams. Using appropriate safety precautions collect liquid or solidify liquid with an inert, noncombustible material and remove for disposal. Dispose of all waste in accordance with applicable local, provincial and national regulations

.7 Choose least harmful, appropriate cleaning method which will perform adequately

2 PRODUCTS

2.1 MATERIALS

.1 Portland Cement shall conform to CAN/CSA-A3000-03, Type 10, or as otherwise indicated on Drawings, or in the Soil Report, from the same source for the entire project.

.2 Where used, supplementary cementing materials, such as cementitious hydraulic slag, blended hydraulic cement and Pozzolanic mineral admixtures shall conform to CAN/CSA-A3000-03.

.3 Water, fine aggregates, and normal density coarse aggregates shall conform to CAN/CSA-A23.1. Coarse aggregate size to meet the requirements of CAN/CSA-A23.1, Clause 4.2.3., and the drawings. Coarse aggregates for slab-on-grade to be 20mm (minimum) crushed stone.

.4 Air-entrainment admixtures shall conform to ASTM C260;

.5 Chemical admixtures shall conform to ASTM C494;

.6 Pozzolanic mineral admixtures shall conform to ASTM C1017;

.7 Superplasticizing admixtures shall conform to ASTM C494;

.8 Non-shrink grout shall be premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents, of pouring consistency, and containing not less than 50% by mass of cement and not more than 0.06% soluble chloride ion by mass of cement, with an expansion of not less than 0.04% at 28 days, capable of developing compressive strength of 50 MPa at 28 days.

.9 Dry pack shall be premixed compound of non-metallic aggregate, cement and sufficient water for the mixture to retain its shape when made into a ball by hand and capable of developing a compressive strength of 50MPa at 28 days.

.10 Membrane-Forming Curing Compound: chlorinated rubber resin formulation to meet specified requirements of CAN/CSA-A23.1 and to ASTM C309, Type I, subject to the approval of the Engineer. Curing compounds are not to be used for slabs to receive a waterproofing membrane, traffic-resistant wearing course, surface sealers, ceramic tile or other bonded finishes.

2.2 CONCRETE MIXES

.1 Prepare concrete mix designs, and be responsible for all mix design costs including related testing.

.2 Base design on CAN/CSA-A23.1, Clause 4 to produce concretes having the 28 day compressive strengths and slumps specified on the structural drawings. Where compressive strengths or slumps are not noted on the drawings, provide the following:

LOCATION	28 DAY STRENGTH	SLUMP *	CLASS OF EXPOSURE
All concrete work in areas exposed to de-icing material	35 MPa	75	C-1
Interior slabs on grade	25 MPa	75	N
Footings unless noted	30 MPa	75	N
Foundation walls	30 MPa	75	F-2

Suspended slabs & beams	30 MPa	75	N
Columns & shear walls (see drawings):	30 , 35 & 40 MPa	80	N
Slab on steel joists or deck	30 MPa	50	N
Retaining walls & exterior curbs	35 MPa	75	C-1
Pavements & Walks	32 MPa	50	C-2
Exterior concrete with rebar either exposed or not	35 MPa	50	C-1
Exterior concrete with no rebar either exposed or not	32 MPa	50	C-2

* Obtain these slumps with aid of specified water reducing agent.

.3 Concrete for slabs to receive resilient sheet flooring shall meet flooring manufacturer's requirements while providing adequate workability and compliance with specified slumps.

.4 Design mix to meet the specified exposure requirements of CAN/CSA-A23.1, with the appropriate water/cement ratio and entrained air content given in Tables 1 to 9 of A23.1. Refer to Drawings for required design exposure classifications.

.5 For all columns, walls, suspended slabs, and ramps in truck docks, and all exterior exposed structural concrete near finished grade, concrete shall be designed to CAN/CSA-S413 and CAN/CSA-A23.1 for Class C1 exposure.

.6 Concrete for all exposed work shall be of uniform colour and aggregate, and shall be to the approval of the Architect.

.7 Only use admixtures which have been tested and accepted in mix designs. Obtain the approval of the Engineer before using chemical admixtures, or supplementary cementing materials.

.8 The use of calcium chloride or chloride-containing admixtures is strictly prohibited, for all concrete mixes.

.9 Design concrete with normal rate of hardening. If advantageous to employ modified rates of hardening to facilitate Work and to improve workmanship, Engineer may give approval for use of admixtures.

.10 Where testing or inspection indicates excessive bleeding, segregation, poor workability of fresh concrete, or insufficient strength of hardened concrete, then mixes shall be redesigned to acceptable standards.

.11 Submit, to the Engineer and Testing Agency, in writing, proposed mix designs for each proposed concrete mix, at least 20 days prior to the start of work. Specify intended use for each mix design. Provide mix designs for both winter and summer concrete. Mix designs may be adjusted when job conditions or other circumstances warrant, provided revised mixes are submitted for review in the above manner. Failure to make the necessary submissions may be cause for the classification of the Work as being defective.

.12 Proceed with concreting operations with the approved mix designs but if, at any time, tests of job concretes indicate failure to meet strength, slumps, density, air content and rate of hardening requirements, or if appearance is unacceptable, adjust the standard proportions to meet requirements. Advise Engineer of changes to approved mix designs during progress of Work.

.13 Use of Slag or fly ash as a partial replacement of cement shall be used as set out herein. The use of slag or fly ash shall be maximized as much as is practical for the project with the following considerations and restrictions:

- .1 Floor finishing must be able to commence 4 hours after the commencement of placing of concrete and must be able to be completed within an 8 hour time period or less.
- .2 The strength of the concrete on site for suspended slabs must be at 75% of the specified strength at 3 days.
- .3 The concrete shall have sufficient strength and stiffness to allow formwork for all vertical surfaces to be removed 24 hours after placing of concrete.
- .4 The specified strength of the concrete on site for columns and shear walls must be reached at 56 days or less, unless otherwise noted.
- .5 The amount of fly ash or slag must be adjusted for site temperature conditions at the time of placing of concrete to ensure that the requirements above can be met.
- .6 The fly ash content for all C-1 concrete shall not exceed 20% replacement of cement.
- .7 Submit for review the amount of fly ash or slag as a percentage of replacement of cement for each mix design.
- .8 At the completion of the project, provide in writing the overall average of the percentage replacement of cement with the use of slag and/or fly ash for all concrete supplied for the project.

.14 Polypropylene fibres: Where specified, add 1 kg/m³, in small quantities at plant, with minimum 7 minutes mixing time.

2.3 ADDITIONAL CONCRETE MIX REQUIREMENTS FOR TRUCK DOCKS OR OTHER AREAS SUPPORTING VEHICLES

.1 All the provisions of Section 2.2 apply, except as provided below.

.2 The provisions for concrete apply to all components of the structure, including footings, retaining walls, columns, suspended slabs, toppings on suspended slabs, and upstand beams.

.3 Concrete mix for all components to include a calcium nitrate corrosion inhibitor applied at the rate of 10 l/m^3.

.4 Submit for review the name of types of calcium nitrate to be used and the proposed supplier.

.5 For information only, the suspended floor slabs will have a membrane topping.

3 EXECUTION

3.1 PREPARATION

.1 Obtain Engineer's approval for planned sequence and form of communications before each concrete pour. See Clause 3.2.5 Placing of Concrete.

.2 Pumping of concrete is permitted only after approval of equipment and mix.

.3 Anchor reinforcement and inserts to ensure they will not be displaced during concrete placement.

.4 Prior to placing of concrete obtain Engineer's approval of proposed method for protection of concrete during placing and curing in adverse weather.

.5 Do not place concrete prior to receiving written acceptance from the Engineer of the weight of the mechanical and electrical equipment to be installed on the slab.

.6 Plan locations of sawn control joints in slabs on grade and arrange to have equipment on site and ready to cut joints as soon as surface has hardened sufficiently to resist raveling. Place joints at 4.5m max spacing each way, unless otherwise noted on drawings. See CSA A23.1 Clause 7.3.2.

.7 Sleeves and inserts.

.1 No sleeves, ducts, pipes or other openings shall pass through joists, beams, column capitals or columns, except where indicated or approved by Engineer.

.2 Where approved by Engineer, set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere. Sleeves and openings greater than 100 x 100 mm not indicated, on the structural drawings must be approved by Engineer.

.3 Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located as specified, obtain approval of modifications from Engineer before placing of concrete. Provide additional reinforcing as directed.

.4 Check locations and sizes of sleeves and openings shown on structural, architectural and mechanical drawings. Report discrepancies to Engineer for direction.

.5 Set special inserts for strength testing as indicated and as required by non-destructive method of testing concrete.

.8 Set anchor bolts to templates under supervision of appropriate trade prior to placing concrete.

.9 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.

.10 In locations where new concrete is dowelled to existing work, drill holes in existing concrete. Place steel dowels of deformed steel reinforcing bars and pack solidly with shrinkage compensating grout epoxy grout to anchor and hold dowels in positions as indicated.

.11 Where required, set anchorage devices for tie-back and life-line (roof) anchors, davit bases, or other window-washing anchor inserts, in accordance with manufacturer's instructions, and with reviewed shop drawings.

.12 Dovetail anchor slots:
- .1 Install continuous vertical anchor slot to forms where masonry abuts concrete wall or columns.
- .2 Install continuous vertical anchor slots at 800 mm c/c where concrete walls are masonry faced.

.13 Dissimilar embedded metals shall be separated by a minimum of 40mm of concrete or shall be protected by electrically insulating coatings or separators, for all concrete in parking garage or concrete otherwise likely to be exposed to moisture. Stainless steel and plain steel shall be considered dissimilar metals.

.14 Openings in concrete walls which are required for the installation of temporary shoring rakers are to be built as construction joints with keys. Remove raker by cutting flush with soldier pile, touch up with epoxy paint, and fill opening with concrete matching remainder of wall.

.15 Obtain Geotechnical Engineer's approval of foundation bearing surfaces for bearing capacity, depths, and dimensions, prior to placing concrete. Assist Geotechnical Engineer as required. Maintain accurate records of as-built founding elevations, and submit record drawings to Owner.

.16 For slabs-on-grade, obtain written approval of Geotechnical Engineer prior to concreting that the underfloor drainage system (if required) has been satisfactorily installed, that compaction tests have been carried out and that any necessary recompaction has been completed.

.17 Obtain Engineers review of conduit routing in slabs prior to placing concrete.

3.2 CONSTRUCTION

.1 Do cast-in-place concrete work in accordance with CAN/CSA-A23.1.

.2 Do not place load upon new concrete until authorized by Engineer.

.3 Slabs to receive resilient sheet flooring shall:

.1 Have sealers and curing compounds compatible with flooring systems and acceptable to flooring manufacturer and installer,

.2 Meet moisture and alkalinity requirements of the flooring manufacturer. Allow for “drying out” time acceptable to flooring manufacturer and installer. Carry out test patches to ensure that moisture content of slabs are compatible with flooring system and acceptable to flooring manufacturer and installer.

.4 Construction Joints

.1 Provide construction joints in horizontal or vertical surfaces in accordance with CAN/CSA-A23.1, and as indicated on the Drawings.

.2 Locate construction joints so as not to reduce the strength and appearance of the structure.

.3 Unless noted, locate construction joints at high points in slabs

.4 Unless noted, run reinforcement through construction joints, and form keys as indicated on the Drawings

.5 Where vertical drainage system for foundation walls is indicated in the Soil Report, align vertical construction joints in foundation walls with drainage courses

.6 Sawcut control joints in slabs-on-grade in accordance with Clause 3.1.5 (above) and the drawings.

.5 Placing of Concrete

.1 Obtain Engineer's approval of reinforcing placement before placing concrete. Provide Engineer minimum 24 hours notice prior to placing concrete. Notify the Testing Agency in sufficient time to allow necessary tests or other preparatory work to be done. In slab construction, ensure all steel is in place and inspected before commencing concrete placement. Do not begin to place concrete until the work of other trades affecting concrete is complete. Failure to meet this requirement may be cause for classification of the Work as being defective.

.2 Immediately before concrete placement, moisten all absorbent material that will be in direct contact with the fresh concrete. Take care to prevent ponding.

.3 For concrete placed on metal deck or precast floor units, co-ordinate placement technique with deck supplier for strength and shoring requirements, so as not to damage the deck.

.4 Place concrete in accordance with CAN/CSA-A23.1, under the supervision of a competent foreman at all times. Do not permit disapproved or rejected materials on the site.

.5 Water, cement, aggregates or admixtures shall not be added to the concrete after the initial introduction of the mixing water to the batch.

.6 Concrete shall not be placed, if in the opinion of the Engineer or Testing Agency, it cannot be placed and properly consolidated without the addition of any other water to the batch.

.7 In no case shall the time between batching and complete discharge of the concrete exceed 90 minutes.

.8 Concrete shall be completely placed within 30 minutes of leaving the transit mixer

.9 Ensure reinforcement and inserts are not disturbed during concrete placement and vibration.

.10 Place concrete in a continuous operation within planned construction joints. Deposit concrete as nearly as practicable to its final position to avoid segregation due to rehandling or flowing. Handle concrete from the point of delivery to the locations of final deposit as rapidly as practicable, using conveying methods which will prevent segregation or loss of concrete mix materials. Do not transport concrete using vibrators.

.11 Consolidate placed concrete using mechanical vibrators supplemented by hand-spacing, rodding or tamping. Vibrate concrete evenly and uniformly but limit the duration of vibration to the minimum time necessary to consolidate the concrete and to embed the reinforcing and inserts, without causing segregation.

.12 Do not allow vibrator to touch formwork. Take particular care to prevent formation of surface defects and honeycombing.

.6 Hot/Cold Weather

.1 Place concrete in cold weather as specified in CAN/CSA-A23.1, Clause 7.4.1.8. Protect concrete from physical damage or reduced strength due to premature drying or weather extremes.

.2 Carry out hot weather concreting in accordance with CAN/CSA-A23.1, Clauses 5.2 and 7.4, including use of approved moisture retention film, if applicable.

.3 De-icing chemicals shall not be used on the concrete formwork, or on the finished concrete.

.4 If rain or snow begins after concrete is placed, and before it is set, protect with waterproof covers until set.

.5 Obtain approval from the Engineer and Testing Agency for proposed method for protection of concrete during placing and curing in adverse weather, prior to placing of concrete.

.6 To ensure that concrete cures without suffering damage, take precautions by protective methods, provision of heat, maintenance of humidity, free circulation of warm moist air at concrete surfaces, and other means made necessary by conditions that arise. Do not use unvented heaters.

.7 Finishing, General

.1 Finish concrete in accordance with CAN/CSA-A23.1.

.2 Rub exposed sharp edges of concrete with carborundum to produce 3mm radius edges unless otherwise detailed.

.3 Refer to Architectural Drawings and Specifications for special finishes.

.8 Finishing Slabs

.1 General:

.1 Finish concrete floor slabs to CSA-A23.1 Clause 7.5.1 and Table 22 for Class A buildings, unless otherwise indicated.

.2 Use procedures acceptable to Engineer and those noted in CAN/CSA-A23.1 to remove excess bleed water. Ensure surface is not damaged

.3 Steel trowel slabs to be left exposed or to receive flooring or carpeting.

.4 Other slabs to be screened off to true lines and levels and left ready to receive specified finish. Depress slabs where required and/or indicated.

.5 Ensure that floor drains are located at low points so that no ponding will occur. Where floor drains occur, floors to be leveled around the walls and have a minimum 5mm per meter (0.5%) uniform pitch to drains, unless indicated otherwise.

.6 Apply non-metallic surface hardener to exposed concrete floors in accordance with Section 03 35 05.

.7 Use curing compounds compatible with applied finish on concrete surfaces.

.2 Plain Floor Finish (Unexposed):

.1 Roll or tamp concrete to force coarse aggregate into concrete mix, then screed.

.2 Float surface with wood or metal float or with power finishing machine and bring surface to true elevation.

.3 Steel trowel to smooth and even surface.

.4 Follow with second steel trowelling to produce smooth burnished surface to within 8mm tolerance when measured in any direction using 3m straight edge, unless noted otherwise. Do not overtrowel.

.5 Sprinkling of dry cement or dry cement and sand mixture over concrete surfaces is not acceptable.

.6 Apply curing compound in accordance with manufacturer's instructions. Do not use curing compound when slab is to receive bonded finish. Wet curing for a minimum of seven days with burlap and polyethylene over shall then be employed.

.7 Sawcut crack-control joints in slabs on grade to CAN/CSA-A23.1 (maximum 24 hours after placement), or as noted on drawings. Fill joints with joint sealant as applicable.

.8 After curing and when concrete is dry, fill control joints and joints at junction with vertical surfaces with weak cementitious grout.

.3 Floor Finish (exposed):

.1 Finish concrete floors as per Paragraph 3.2.8.2, Clauses .1 to .5, and apply floor hardener, non-metallic aggregate at a rate of 3.5 kg/m^2 to manufacturer's instructions.

.2 Apply approved curing/sealing compound to manufacturer's instructions, except for slabs on grade and garage slabs, which shall be wet cured for a minimum of seven days with burlap and polyethylene over.

.3 Sawcut crack-control joints in slabs on grade to CAN/CSA-A23.1-04 (maximum 24 hours after placement), or as noted on drawings. Seal with joint filler.

.4 After curing/sealing and when concrete is dry, seal control joints and joints at junction with vertical surfaces with sealant.

.5 Clean surfaces and apply second coat curing/sealing compound before handing building over to Owner.

.9 Toppings.

.1 Topping mixture to meet following requirements:
Monolithic, mm thick: 50
Bonded overlay, mm thick: 100.

.2 In pouring base course, make allowance for monolithic and bonded overlay topping thickness

.3 Place monolithic topping before base course has completely set in accordance with CAN/CSA-A23.1 and topping manufacturer's recommendations

.4 Place bonded topping over hardened base course in accordance with CAN/CSA-A23.1 and topping manufacturer's recommendations.

.5 Apply cement/sand grout latex bonding agent modified cement/sand grout epoxy bonding agent to base course in accordance with CAN/CSA-A23.1 and manufacturer's recommendations before placing bonded topping. Observe manufacturer's safety recommendations.

.6 Ensure that joints in topping are of the same as those in base course. Also ensure that their locations precisely match those in base course. Provide dividers edge strips reinforcing mesh as indicated

3.3 FORMWORK REMOVAL AND RESHORING

.1 Refer to Section 03 10 00 for specified requirements.

3.4 CURING

.1 Cure concrete as specified in CAN/CSA-A23.1 and in Section 03 35 00.

.2 Do not use curing compounds that would have a detrimental effect on bonding, adhesion, curing, appearance, or similar qualities of materials to be applied to concrete surfaces. Use only moisture curing (wet burlap with polyethylene sheeting) at a temperature of at least 10°C for surfaces where applied coatings or finishes are incompatible with curing compound, and maintain continuously moist for a minimum of 7 days.

3.5 ARCHITECTURAL CONCRETE

.1 Architectural concrete is concrete which will be permanently exposed to view in interior finished areas and on unclad portions of building exterior. Final appearance is as important a factor as the engineering properties of the concrete and failure of the as-cast concrete to meet the required standard of appearance may be a cause for rejection.

.2 Ensure that exposed surfaces are dense, even, uniform in colour, texture and distribution of exposed aggregate. They shall be free from defects such as honeycombing, voids, loss of fines, visible flow lines and cold joints. Defects of this nature shall be cause for rejection of the Work.

.3 Ensure that concrete members have sharp accurate definitions of corners, reglets, etc. and are free from chips and spalls.

.4 Protect finished Work from damage and staining during the construction period. Pay special attention to the protection of projecting reinforcing at construction joints.

3.6 OTHER CONCRETE

.1 Provide electrical and mechanical equipment bases and toppings including floating slabs and toppings, isolation pads, inertia bases and other concrete pads, as required.

.2 Provide mechanical sump pits and electrical manholes, as cast in place concrete.

.3 Provide concrete bases for exterior lighting fixtures and other landscape features, and for buried electrical duct banks.

.4 Unless otherwise detailed, form curbs around duct shafts, electrical shafts, pipe shafts and other floor openings for mechanical and electrical services in sprinklered and parking areas. Curbs shall be minimum 150mm wide, 100mm high, with coved bases and chamfered corners or as otherwise detailed on the Drawings. Finish with steel trowel. Unless otherwise shown on the Drawings, reinforcing shall be one 15M longitudinal bar, with 10M dowels from supporting floor slab at 400mm centres. Where curb height exceeds 400mm, provide 1-10M additional horizontal bar at mid-height.

.5 Provide any additional cast-in-place concrete required under the work of Divisions 22, 23 and 26, but not stated above.

.6 Refer to Mechanical, Electrical and Architectural drawings for miscellaneous concrete not indicated on structural drawings.

.7 Provide concrete fill in landings and stair pans, for metal stairs required under the Work of Division 05.

3.7 CONCRETE FOR LANDSCAPING

.1 For exterior landscaping concrete, either exposed or not, if reinforcing steel is present, provide C-1 concrete with calcium nitrate additive and epoxy coated reinforcing steel.

.2 For exterior landscaping concrete, with no reinforcing steel, concrete shall be C-2. If the concrete is not visually exposed, provide poly-fiber reinforcement.

3.8 GROUTING AND PATCHING

.1 Grout underside of steel column and beam bearing plates with specified non-shrink type grout to Manufacturer's instructions. Provide 100% contact over grouted bearing areas.

.2 Touch up concrete foundation walls following removal of raker/tieback system, ensuring that patching method precludes penetration of water or corrosion products into the finished building, in a manner acceptable to the Engineer.

.3 Where new construction abuts or adjoins existing structure(s), grout joints between new and existing framing, unless shown otherwise on the Drawings.

.4 Take necessary precautions to ensure good bond of grout to substrate and to exclude entrapped air from grouted joints.

3.9 DEFECTIVE CONCRETE

.1 Remove damage, discoloured or defective concrete, blemishes, honeycombing, excessive laitance and embedded debris as directed by Engineer.

.2 Where the results of specified concrete tests indicate non-compliance with the requirements of this Specification, or where such tests have not been carried out, or when conditions exist such as to cause doubt about the safety, serviceability or durability of the structure, or part thereof, the Engineer shall have the right to order non-destructive testing, and/or field coring for supplementary testing. Such additional tests (including patching of core holes) shall be made at no cost to the Contract.

.3 Contractor shall submit in writing, details of proposed method of remedial work, for approval by Engineer.

.4 Where deemed necessary, doweling of reinforcing into hardened concrete shall be by the "Hilti HIT technique" or approved alternate.

.5 Defects shall be repaired at no cost to the Contract.

END OF SECTION

PART 1 - GENERAL

1.1 Reference Standards

.1 Do concrete floor finishing work in accordance with A23.1-94 except where specified otherwise.

PART 2 - PRODUCTS

2.1 Materials

.1 Concrete materials to Section 03300 - Cast-in-Place Concrete and reinforcement to Section 03200 - Concrete Reinforcement.

.2 Metallic floor hardener: premixed, metallic hardener.

.3 Wax: concrete floor buffing compound.

.4 Use compatible additives, admixtures and hardeners.

PART 3 - EXECUTION

3.1 Floor Finish

.1 Finish concrete in accordance with A23.1-94 94 Class A.

.2 Do not sprinkle dry cement or dry cement and sand mixture over concrete surfaces.

.3 Saw cut crack-control joints to A23.1-94 94.

.4 Apply floor hardener to manufacturer's instructions. Cure to manufacturers recommendations.

.5 Apply concrete floor wax in accordance with manufacturer's instructions.

.6 Cure concrete in accordance with A23.1-94 except where specified otherwise.

.7 Depress slab maintaining minimum specified thickness as required to accommodate flush floor finishes.

1 GENERAL

1.1 SECTION INCLUDES

.1 Materials and installation for chemical floor treatment of new and old, cured and set, concrete floor surfaces.

1.2 RELATED SECTIONS

.1 Section 03 30 00 - Cast-In-Place Concrete

.2 Section 02 61 33 - Hazardous Materials

1.3 REFERENCES

.1 Ontario Building Code 2012 and National Building Code of Canada 2010.

.2 Health Canada – Workplace Hazardous Materials Information System (WHMIS).
- .1 Material Safety Data Sheets (MSDS)

.3 American Society for Testing and Materials (ASTM)
- .1 ASTM C309-06, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete;
- .2 ASTM C679-03, Standard Test Method for Tack-Free Time of Elastomeric Sealants;
- .3 ASTM D412-06a, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers Tension;
- .4 ASTM D638-03, Standard Test Method for Tensile Properties of Plastics;
- .5 ASTM D2240-05, Standard Test Method for Rubber Property – Durometer Hardness;

.4 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.5 Canadian Standards Association (CSA)
- .1 CSA-A23.1-94, Concrete Materials and Methods of Concrete Construction.

1.4 PERFORMANCE REQUIREMENTS

.1 Product quality and quality of work in accordance with Section 01 61 00 – Common Product Requirements.

.2 Submit written declaration that components used are compatible and will not adversely affect finished flooring products and their installation adhesives.

1.5 PRODUCT DATA

.1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures.

.2 Submit WHMIS MSDS – Material Safety Data Sheets in accordance with Section 02 61 33 – Hazardous Materials. WHMIS MSDS acceptable to Labour Canada for Concrete floor treatment materials. Indicate VOC content.

.3 Include application instructions for floor treatments.

2 PRODUCTS

2.1 CHEMICAL HARDENERS

.1 Non-metallic floor hardener: dry granular material with selected mineral aggregate preblended with Portland cement and a dispersing agent, with a minimum compressive strength of 200 MPa, minimum hardness 6 on the MOH scale, and maximum 11% loss abrasion resistance based on ASTM Class C test.

.2 Type 1 – Sodium silicate, Type 2 – Magnesium fluosilicate or Type 2 - Zinc fluosilicate blend, as indicated.

.3 Water: potable.

.4 Concrete additives and hardeners to be compatible.

2.2 SEALING COMPOUNDS

.1 Surface Sealer: to CAN/CGSB-25.20, Type 1 – Solvent-based or Type 2 – Water-based, clear or coloured, as indicated.

.2 Surface sealer: acrylic carnauba wax, colour, as indicated.

.3 Surface sealers may not be manufactured or formulated with aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium or hexavelant chromium and their compounds.

.4 Sealing compound: chlorinated rubber-based to ASTM C309-03, Type 1.

.5 Sawcut joint sealant:

.1 Slab on grade to be left exposed: two component, epoxy-urethane, load-bearing, self-leveling control joint filler, with a tack-free time of maximum 12 hours and full cure 4 days (ASTM C679), a minimum tensile strength of 4.8 MPa at 28 days (ASTM D638), a minimum elongation at break of 130% at 28 days (ASTM D412), a minimum Shore A hardness of 80 at 28 days and 20°C (ASTM D2240).

.2 Slab on grade to receive carpet or bonded finish: low strength sand / cement mix.

2.3 CURING COMPOUNDS

.1 Curing compound: chlorinated rubber-based to ASTM C309-03, Type 1.

.2 Select low VOC, water-based and organic-solvent free curing compounds.

2.4 CONCRETE STAINS

.1 Select low VOC, water-based and organic-solvent free concrete stains.

2.5 MIXES

.1 Provide mixes, ratios and application in accordance with manufacturer's instructions.

3 EXECUTION

3.1 EXAMINATION

.1 Verify that slab, substrate and site condition surfaces are ready to receive work and elevations are as indicated.

3.2 PREPARATION OF EXISTING SLAB

.1 Rub exposed sharp edges of concrete with carborundum to produce 3 mm radiused edges unless otherwise indicated.

.2 Saw cut control joints to CSA-A23.1, 24 hours maximum after placing of concrete.

.3 Use strong solvent or mechanical stripping to remove chlorinated rubber or other existing surface coatings.

.4 Use protective clothing, eye protection, and respiratory equipment during stripping of chlorinated or other existing surface coatings.

3.3 APPLICATION

.1 After floor treatment is dry, seal control joints and joints at junction with vertical surfaces with sealant.
  .1 Sealants: conforming to section 07 92 10 – joint sealing.

.2 Apply floor treatment in accordance with Sealer manufacturer's written instructions.

.3 Clean overspray. Clean sealant from adjacent surfaces.

3.4 PROTECTION

.1 Protect finished installation in accordance with manufacturer’s instructions.

END OF SECTION

PART 1 - GENERAL

1.1 References

.1 CSA A179-M76 Mortar and Grout for Unit Masonry.

.2 A371-94 Masonry Construction for Buildings.

1.2 Source Quality Control

.1 Submit laboratory test reports in accordance with Section 01300 - Submittals.

.2 Submit laboratory test reports certifying compliance of masonry units and mortar ingredients with specification requirements.

.3 For clay units, in addition to requirements set out in referenced CSA and ASTM Standards include data indicating initial rate of absorption for units proposed for use.

1.3 Samples

.1 Submit samples in accordance with Section 01300 - Submittals.

.2 Submit samples:
- .1 Two of each type of masonry unit specified.
- .2 One of each type of masonry accessory specified.
- .3 One of each type of masonry reinforcement and tie proposed for use.
- .4 As required for testing purposes.

1.4 Product Delivery, Storage and Handling

.1 Deliver materials to job site in dry condition.

.2 Keep materials dry until use, except where wetting of bricks is specified.

.3 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

1.5 Cold Weather Requirements

.1 Supplement Clause 5.15.2 of A371-94 with following requirements:
.1 Maintain temperature of mortar between 5°C and 50°C until used.

1.6 Hot Weather Requirements

.1 Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.

1.7 Protection

.1 Keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until masonry work is completed and protected by flashings or other permanent construction.

.2 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.

.3 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.

PART 2 - PRODUCTS

2.1 Materials

.1 Masonry materials are specified in other sections.

PART 3 - EXECUTION

3.1 Workmanship

.1 Do masonry work in accordance with A371-94 except where specified otherwise.

.2 Build masonry plumb, level, and true to line, with vertical joints in alignment.

.3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

3.2 Tolerances

.1 Tolerances in notes to Clause 5.3 of A371-94 apply.

3.3 Exposed Masonry

.1 Remove chipped, cracked, and otherwise damaged units in exposed masonry and replace with undamaged units.

3.4 Jointing

.1 Allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, compressed, uniformly concave joints where concave joints are indicated.

.2 Allow joints to set just enough to remove excess water, then rake joints uniformly to 6 mm depth and compress with square tool to provide smooth, compressed, raked joints of uniform depth where raked joints are indicated.

.3 At all exposed horizontal masonry, strike mortar across exposed masonry to drain water and prevent accumulation of snow. Apply clear waterproof sealer.

.4 Strike flush all joints concealed in walls and joints in walls to receive plaster, tile, insulation, or other applied material except paint or similar thin finish coating.

3.5 Cutting

.1 Cut out neatly for electrical switches, outlet boxes, and other recessed or built-in objects.

.2 Make cuts straight, clean, and free from uneven edges.

3.6 Building-In

.1 Build in items required to be built into masonry.

.2 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently, as work progresses.

.3 Brace door jambs to maintain plumb. Fill spaces between jambs and masonry with mortar.

3.7 Wetting of Bricks

.1 Except in cold weather, wet clay bricks having an initial rate of absorption exceeding 1 g/minute/1000 mm^2: wet to uniform degree of saturation, 3 to 24 hours before laying, and do not lay until surface

dry.

.2 Wet tops of walls built of bricks qualifying for wetting, when recommencing work on such walls.

3.8 Parging

.1 Use parging mortar specified in Section 04100 - Mortar and Grout for Masonry.

.2 Apply parging in uniform coating not less than 10 mm thick, where indicated.

3.9 Support of Loads

.1 Use 25 MPa concrete to Section 03300 - Cast-in-Place Concrete, where concrete fill is used in lieu of solid units.

.2 Use grout to CSA A179-94(R1999) where grout is used in lieu of solid units.

.3 Install building paper below voids to be filled with concrete grout; keep paper 25 mm back from faces of units.

3.10 Provision for Movement

.1 Leave 3 mm space below shelf angles.

.2 Leave 6 mm space or space as required to accommodate anticipated deflection between top of non-load bearing walls and partitions and structural elements. Do not use wedges. Pack joint with mineral wool batts, and caulk with fire stop material. Provide lateral support at 1200 o.c. as required, unless otherwise specified.

.3 Build masonry to tie in with stabilizers, with provision for vertical movement.

3.11 Loose Steel Lintels

.1 Install loose steel lintels. Centre over opening width.

3.12 Control Joints

.1 Provide continuous control joints at 6.0 m o.c. maximum or as indicated.

3.13 Existing Work

.1 Make good existing work. Use materials to match existing.

3.14 Recessed Devices

.1 Recess wall mounted electrical devices in Gymnasium and any other wall mounted equipment which may be prone to damage. Recess concrete block face panel minimum 50mm, size to suit but not smaller than 200mm x 200mm. Provide bullnose blocks at exposed vertical corners. Submit summary of equipment to be recessed and review with Consultant prior to commencement of work.

3.15 Testing

.1 Inspection and testing will be carried out by Testing Laboratory designated by Consultant.

.2 Cost of testing will be paid from cash allowance specified in Section 01021 - Allowances.

PART 1 - GENERAL

1.1 Related Work

.1 Masonry procedures: Section 04050 Masonry Procedures

1.2 References

.2 CSA A179-94(R1999) Mortar and Grout for Unit Masonry.

1.3 Samples

.1 Submit samples in accordance with Section 01300 - Submittals.

.2 Submit two samples of coloured mortar.

PART 2 - PRODUCTS

2.1 Materials

.1 Mortar and grout: CSA A179-94(R1999).

.2 Lime Mortars:
- .1 Portland cement type 10, in accordance with CAN/CSA-A5-93.
- .2 Hydrated lime type 'S', in accordance with C207-91 (1992).
- .3 Colouring pigments: pigments constituted of ground coloured natural aggregates or mettalic oxide pigments, colour as selected

by consultant from manufacturer's available range. The ratio of colouring agent/density of cementitious material shall not exceed 10%.

.4 Do not use admixtures.

.3 Water: potable, clean exempt from ice, oils, acids, alkalis, organic matter, sediments or any other harmful matter.

.4 Sand: fine grain aggregates, grading in accordance with A179-94.

.5 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.

.6 Colour: ground coloured natural aggregates or metallic oxide pigments to Consultants selection from manufacturer's standard range, one colour for each masonry type.

.7 Provide materials in strict accordance with mortar and masonry manufacturers' specifications.

2.2 Material Source

.1 Use same brands of materials and source of aggregate for entire project.

2.3 Mortar Types

.1 Mortar for exterior masonry above grade:
- .1 Loadbearing: Type S based on Property specifications.
- .2 Non-loadbearing: Type S based on Property specifications.
- .3 Parapet walls, chimneys, unprotected walls: Type S based on Proportion specifications.

.2 Mortar for foundation walls, manholes, sewers, pavements, walks, patios and other exterior masonry at or below grade: Type M based on Property specifications.

.3 Mortar for interior masonry:
- .1 Loadbearing: Type S based on Property specifications.
- .2 Non-loadbearing: Type N based on Property specifications.

.4 Following applies regardless of mortar types and uses specified above:

.1 Mortar for calcium silicate brick and concrete brick: Type O based on Proportion specifications.
.2 Mortar for grouted reinforced masonry: Type S based on Proportion specifications.
.3 Mortar for pointing: Type O based on Proportion specifications.
.4 Mortar for glass block: 1 part white portland cement, 1 part hydrated lime, 6 parts white sand aggregate by volume.

2.4 Coloured Mortar

.1 Coloured mortar: use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, or portland/lime to produce coloured mortar to match approved sample.

.2 Use coloured mortar for brick, one colour for each brick type..

2.5 Grout

.1 Grout: to CSA A179-94(R1999) Table 3.

2.6 Parging

.1 Parging mortar: Type N to CSA A179-94(R1999).

PART 3 - EXECUTION

3.1 Mixing

.1 Do masonry mortar and grout work in accordance with CSA A179-94(R1999) except where specified otherwise.

.2 Mix grout to semi-fluid consistency.

.3 Incorporate colour and admixtures into mixes in accordance with manufacturer's instructions.

.4 Use clean mixer for coloured mortar.

.5 Prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour nor more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.

3.2 Parging

.1 Apply parging in uniform coating not less than 10mm thick, where indicated.

PART 1 - GENERAL

1.1 References

.1 ASTM D 2240-02b Test Method for Rubber Property - Durometer Hardness.

.2 A371-94 Masonry Construction for Buildings.

1.2 Samples

.1 Submit samples in accordance with Section 01300.

PART 2 - PRODUCTS

2.1 Materials

.1 Control joint filler: purpose-made elastomer 90 durometer hardness to ASTM D 2240-02b of size and shape indicated.

.2 Nailing inserts: 0.6 mm thick purpose-made galvanized steel inserts for setting in mortar joints.

.3 Masonry flashing:
- .1 Membrane masonry flashing and through-wall dampproof course: Blue Skin TWF as manufactured by Bakor Inc. or Colphene 3000 as manufactured by Soprema Inc.
- .2 Lap adhesive: recommended by manufacturer of flashing material.

.4 Weep hole vents: purpose-made PVC designed to drain cavities to exterior, complete with insect screens and mortar guards.

.5 Cavity spacers: purpose made to prevent accumulation of mortar droppings from obstructing cavity. Submit samples and technical information for review.

PART 3 - EXECUTION

3.1 Control Joints

.1 Install continuous control joint fillers in control joints at locations indicated.

3.2 Weep Hole Vents

.1 Install weep hole vents in vertical joints immediately over flashings, sills and at top of cavities, in exterior wythes of cavity wall and masonry veneer wall construction, at maximum horizontal spacing of 600 mm oc.

3.3 Nailing Inserts

.1 Install nailing inserts in mortar joints at 400 mm oc each way, for attachment of wall strapping.

3.4 Masonry Flashing

.1 Install flashings in masonry in accordance with A371-M94 as follows:
  .1 Install flashings under exterior masonry bearing on foundation walls, slabs, shelf angles, and steel angles over openings. Install flashings under weep hole courses and as indicated.

.2 In double wythe walls and veneered walls, carry flashings from front edge of masonry, under outer wythe, then up backing not less than 150 mm, and as follows:
  .1 For masonry backing embed flashing 25 mm in joint.
  .2 For concrete backing, insert flashing into reglets.

.3 For wood frame backing, staple flashing to walls behind sheathing paper.

.4 For gypsum board backing, bond to wall using manufacturer's recommended adhesive.

.3 Lap joints 150 mm and seal with adhesive.

.4 Lap and seal through-wall dampproof course flashings to air and vapour barrier membranes.

.5 Lap and seal minimum 150 through-wall dampproof course flashings to adjacent roof flashing membranes. Extend with backing film intact surplus dampproof course membrane for this purpose.

.6 Provide masonry flashing membrane where continuity of trowelled air/vapour barriers may be compromised.

3.5 Cavity Spacers

.1 Provide in accordance with manufacturer's specifications cavity spacers minimum 150mm at bottom of cavities above throughwall dampproof courses/masonry flashings.

PART 1 - GENERAL

1.1 References

.1 CAN/CSA-A23.1-00, Concrete Materials and Methods of Concrete Construction.

.2 A370-94, Connectors for Masonry.

.3 A371-94, Masonry Construction for Buildings.

.4 CSA G30.3-M1983 (R1998) (R1998), Cold-Drawn Steel Wire for Concrete Reinforcement.

.5 CSA G30.12-M1977, Billet-Steel Bars for Concrete Reinforcement.

.6 CAN3-S304-M84 (R1997) (R1997), Masonry Design for Buildings.

.7 CSA W186-M1990 (R1998) (R1998), Welding of Reinforcing Bars in Reinforced Concrete Construction.

1.2 Source Quality Control

.1 Upon request, provide Consultant with certified copy of mill test report of reinforcement steel and connectors, showing physical and chemical analysis, minimum 5 weeks prior to commencing reinforcement work.

.2 Upon request inform Consultant of proposed source of material to be supplied.

1.3 Shop Drawings

.1 Submit shop drawings in accordance with Section 01300.

.2 Shop drawings consist of bar bending details, lists and placing

drawings.

.3 On placing drawings, indicate sizes, spacing, location and quantities of reinforcement and connectors.

PART 2 - PRODUCTS

2.1 Materials

.1 Bar reinforcement: to A371-M94 and CSA G30.12.

.2 Wire reinforcement: to A371-M94 and CSA G30.3-M1983 (R1998) (R1998), truss type.

.3 Connectors: to A370-M94 and CAN3-S304-M84 (R1997) (R1997).
- .1 Interior walls: corrosion resistant or non corroding connectors.
- .2 Exterior walls: Adjustable hot-dipped galvanized DW130 as manufactured by Dur-O-Wall Limited or approved equal as recommended by manufacturer for intended use.

.4 Corrosion protection: to CAN3-S304-M84 (R1997) (R1997), galvanized.

2.2 Fabrication

.1 Fabricate reinforcing in accordance with CAN/CSA-A23.1-00 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Ontario.

.2 Fabricate connectors in accordance with A370-M94.

.3 Obtain Consultant's approval for locations of reinforcement splices other than shown on placing drawings.

.4 Upon approval of Consultant, weld reinforcement in accordance with CSA W186-M1990 (R1998) (R1998).

.5 Ship reinforcement and connectors, clearly identified in accordance with drawings.

PART 3 - EXECUTION

3.1 Installation

.1 Install masonry connectors and reinforcement in accordance with A370-M94, A371-M94 and CAN3-S304-M84 (R1997) (R1997), unless indicated otherwise.

.2 Prior to placing concrete mortar grout, obtain Consultant's approval of placement of reinforcement and connectors.

.3 Do additional reinforcement of masonry as indicated.

3.2 Bonding and Tying

.1 Bond walls of two or more wythes using metal connectors in accordance with NBC, CAN3-S304-M84 (R1997) (R1997), A371-94 and as indicated.

.2 Tie masonry veneer to backing in accordance with NBC, CAN3-S304-M84 (R1997) (R1997), A371-94 and as indicated.

3.3 Reinforced Lintels and Bond Beams

.1 Reinforce masonry lintels and bond beams as indicated.

.2 Place and grout reinforcement in accordance with CAN3-S304-M84 (R1997) (R1997).

3.4 Grouting

.1 Grout masonry in accordance with CAN3-S304-M84 (R1997) (R1997) and as indicated.

3.5 Metal Anchors

.1 Do metal anchors as indicated.

3.6 Lateral Support and Anchorage

.1 Do lateral support and anchorage in accordance with CAN3-S304-M84 (R1997) (R1997) and as indicated.

3.7 Control Joints

.1 Terminate reinforcement 25 mm short of each side of control joints unless otherwise indicated.

3.8 Field Bending

.1 Do not field bend reinforcement and connectors except where indicated or authorized by Consultant.

.2 When field bending is authorized, bend without heat, applying a slow and steady pressure.

.3 Replace bars and connectors which develop cracks or splits.

3.9 Field Touch-up

.1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcement steel and connectors with compatible finish to provide continuous coating.

PART 1 - GENERAL

1.1 Related Work

.1 Masonry procedures: Section 04050 Masonry Procedures

.2 Masonry mortar and grout Section 04100 for masonry: Mortar and Masonry Grout.

.3 Masonry reinforcing and tying Section 04160: Masonry Anchorage and Reinforcing.

1.2 References

.1 ASTM C 126-99 Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units.

.2 CAN/CSA-A82.1-M87 (R1999) Burned Clay Brick (Solid Masonry Units Made From Clay or Shale).

.3 CSA A82.3-M1978 (R1998) Calcium Silicate (Sand-Lime) Building Brick.

.4 CSA CAN3-A82.8-M78 Hollow Clay Brick.

.5 A165 Series-94 Series-M85 CSA Standards on Concrete Masonry Units.

PART 2 - PRODUCTS

2.1 Face Brick

.1 Burned clay brick: to CAN/CSA-A82.1-M87 (R1999) all to match approved samples.
  .1 Brick Type 1: Brampton Brick Wheatland Velour or equal as approved by Consultant. Metric Jumbo 90 x 290 x 90 mm. Submit samples.
  .2 Brick Type 2: Brampton Brick Brown Velour or equal as approved by Consultant. Velour or equal as approved by Consultant. Metric Jumbo 90 x 290 x 90 mm. Submit samples.

2.2 Acceptable Manufacturers:

.1 Products in accordance with this specification by only the following manufacturers will be accepted to achieve best match with existing as determined by the Consultant.
  .1 Brampton
  .2 Hanson

PART 3 - EXECUTION

3.1 Laying

.1 Bond: stretcher, stack and soldier as indicated on drawings. Mitre soldier course at corners.

.2 Coursing height: 200 mm for three bricks and three joints as indicated.

.3 Jointing: concave and raked where exposed or where paint or similar thin finish coating is specified. Sloped to drain at projections revealling exposed horizontal surfaces.

.4 Mixing and blending: mix units within each pallet and with other pallets to ensure uniform blend of colour and texture.

.5 Sawcut and mitre soldier courses at corners.

.6 Sawcut and mitre brick at corner angles exceeding 90 degrees.

3.2 Cleaning Unglazed Clay Masonry

.1 Clean 10 m² area of wall designated by Consultant as directed below and leave for one week. If no harmful effects appear and after mortar has set and cured, protect windows, sills, doors, trim and other work, and clean brick masonry as follows:

- .1 Remove large particles with wood paddles without damaging surface. Saturate masonry with clean water and flush off loose mortar and dirt.
- .2 Scrub with solution of 25 mL trisodium phosphate and 25 mL household detergent dissolved in 1 L of clean water using stiff fibre brushes, then clean off immediately with clean water using hose. Alternatively, use proprietary compound recommended by brick masonry manufacturer in accordance with manufacturer's directions.
- .3 Repeat cleaning process as often as necessary to remove mortar and other stains.
- .4 Use acid solution treatment for difficult to clean masonry as described in Technical Note No. 20 published by Brick Institute of America dated Sept./Oct. 1977.
- .5 Test acid cleaning method on designated area of wall, followed by waiting period of at least one week, before proceeding with cleaning.
- .6 Clean in strict accordance with manufacturer's specifications.

PART 1 - GENERAL

1.1 References

.1 A165 Series-94 Series (CAN3-A165.1)-M85 CSA Standards on Concrete Masonry Units.

PART 2 - PRODUCTS

2.1 Materials

.1 Standard concrete masonry units: to A165 Series-94 Series (CAN3-A165.1).
- .1 Classification: H/15/A /M.
- .2 Size: modular.
- .3 Special shapes: provide bull- nosed units for exposed corners. Provide purpose-made shapes for lintels and bond beams. At window openings, provide solid bull-nose sill blocks laid on side. Provide additional special shapes as indicated. Provide solid blocks at first course above foundation and as indicated on structural drawings.
- .4 Colour: standard grey.

PART 3 - EXECUTION

3.1 Laying Concrete Masonry Units

.1 Bond: running bond for interior units.

.2 Coursing height: 200 mm for one block and one joint.

.3 Jointing: concave where exposed or where paint or other finish coating is specified.

3.2 Laying Pre-faced Concrete Masonry Units

.1 Bond: running.
- .1 Coursing height: 200 mm for one block and one joint.
- .2 Jointing: provide concave joints.
- .3 Clean block faces using soft cloths before mortar hardens rake to 10 mm depth. After completion of block laying fill joints with pointing mortar then point to provide concave joints. Repeat cleaning of faces.

3.3 Concrete Masonry Lintels

.1 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.

.2 End bearing: not less than 200 mm as indicated on drawings.

3.4 Corridor Bullnose Blocks With Ceramic Tile Base

.1 At exterior concrete block corners with ceramic tile base, at first course provide square block with upper corner ground to single facet at 45 degree chamfer at corner.

3.5 Cleaning

.1 Allow mortar droppings on unglazed concrete masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block and finally by brushing.

PART 1 - GENERAL

1.1 Related Work

.1 Installation of Section 03300 anchors: Cast-in-Place Concrete

.2 Installation of steel Section 04050 angle lintels: Masonry Procedures

.3 Structural steel: Section 05120 Structural Steel

.4 Metal joists: Section 05210 Steel Joists

.5 Finish painting: Section 09900 Painting

1.2 Reference Standards

.1 ASTM A 53/A 53M-02 53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Steamless.

.2 ASTM A 269-02a, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

.3 ASTM A 307-02, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.

.4 CAN/CGSB-1.40-M89, Primer, Structural Steel, Oil Alkyd Type.

.5 CAN/CGSB-1.108-M89, Bituminous Solvent Type Paint.

.6 CAN/CGSB-1.181-99, Ready-Mixed, Organic Zinc-Rich Coating.

.7 CSA G40.21-98, Structural Quality Steels.

.8 CAN/CSA-G164-M92 (R1998) (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.

.9 CSA S16.01, Limit States Design of Steel Structures.

.10 CSA W59-1989 (R2001) (R2001), Welded Steel Construction (Metal Arc Welding).

1.3 Shop Drawings

.1 Submit shop drawings in accordance with Section 01300 - Submittals.

.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

PART 2 - PRODUCTS

2.1 Materials

.1 Steel sections and plates: to CSA G40.21-98, Grade 300W 350W.

.2 Steel pipe: to ASTM A 53/A 53M-02 53M-02 extra strong, black finish.

.3 Welding materials: to CSA W59-1989 (R2001) (R2001).

.4 Welding electrodes: to CSA W48-01 Series.

.5 Bolts and anchorbolts: to ASTM A 307-02.

.6 Grout: non-shrink, non-metallic, flowable, 24h, MPa 15, pull-out strength 7.9 MPa.

2.2 Fabrication

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Use self-tapping shake-proof oval headed screws on items requiring assembly by screws or as indicated.

.3 Where possible, fit and shop assemble work, ready for erection.

.4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 Finishes

.1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164-M92 (R1998)(R1998).

.2 Chromium plating: chrome on steel with plating sequence of 0.009 mm thickness of copper 0.010 mm thickness of nickel and 0.0025 mm thickness of chromium.

.3 Shop coat primer: to CAN/CGSB-1.40-M89.

.4 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181-99.

.5 Bituminous paint: to CAN/CGSB-1.108-M89.

2.4 Isolation Coating

.1 Isolate aluminum from following components, by means of bituminous paint:

.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.

.2 Concrete, mortar and masonry.

.3 Wood.

2.5 Shop Painting

.1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.

.2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7°C.

.3 Clean surfaces to be field welded; do not paint.

2.6 Angle Lintels

.1 Steel angles: galvanized at exterior locations, prime painted at interior locations, sizes indicated for openings. Provide 150 mm minimum bearing at ends.

.2 Weld or bolt back-to-back angles to profiles as indicated.

.3 Finish: shop painted.

2.7 Pipe Balustrades

.1 Construct balusters and handrails from steel pipe.

.2 Cap and weld exposed ends of balusters and handrails.

.3 Terminate at abutting wall with end flange.

2.8 Bar Balustrades

.1 Construct bar balustrades as follows except as indicated otherwise on drawings:
- .1 Balusters: 25 x 25 mm bar.
- .2 Top rail: 2" dia. pipe.
- .3 Bottom rail: 25 x 10 mm bar.
- .4 Pickets: 1/2" dia. bar at 100 mm oc.

.2 Fabricate supports for wood balustrade from 38 x 38 mm steel tubing with both ends capped and welded.

.3 Weld balustrades to stringers as indicated.

2.9 Guards

.1 Construct guards in accordance with drawings. Provide plates, anchors, brackets as required. Weld components.

2.10 Access Ladders

.1 Stringers: 90 x 8mm thick, steel.

.2 Steel Rungs: 25 mm diameter, welded to stringers at both sides each rung.

.3 Brackets: sizes and shapes as indicated and as required, weld to stringers at 800 mm c.c., complete with fixing anchors.

.4 Hot dipped galvanized finish.

PART 3 - EXECUTION

3.1 Erection

.1 Do welding work in accordance with CSA W59-1989 (R2001) (R2001) unless specified otherwise.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Provide suitable means of anchorage acceptable to Consultant such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Provide components for building by other sections in accordance with shop drawings and schedule.

.6 Make field connections with bolts to CSA S16.01, or weld.

.7 Hand items over for casting into concrete or building into masonry to

appropriate trades together with setting templates.

.8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.

.9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

PART 1 - GENERAL

1.1 References

.1 Canadian Standards Association (CSA)
- .1 CSA B111-1974 (R1998) (R1998), Wire Nails, Spikes and Staples.
- .2 CAN/CSA-G164-M92 (R1998) (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CSA O121-M1978 (R1998) (R1998), Douglas Fir Plywood.
- .4 CAN/CSA-O141-91 (R1999) (R1999), Softwood Lumber.
- .5 CSA O151-M1978 (R1998) (R1998), Canadian Softwood Plywood.
- .6 CAN/CSA-O325.0-92 (R1998) (R1998), Construction Sheathing.

.2 National Lumber Grades Authority (NLGA)
- .1 Standard Grading Rules for Canadian Lumber 1991.

1.2 Quality Assurance

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood identification: by grade mark in accordance with applicable CSA standards.

.3 Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.

1.3 Waste Management and Disposal

.1 Do not burn scrap at the project site.

.2 Fold up metal banding, flatten, and place in designated area for recycling.

1.4 Source Quality

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood identification: by grade mark in accordance with applicable CSA standards.

PART 2 - PRODUCTS

2.1 Lumber Material

.1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:
- .1 CAN/CSA-O141-91 (R1999) (R1999).
- .2 NLGA Standard Grading Rules for Canadian Lumber, latest edition.

.2 Machine stress-rated lumber is acceptable for all purposes.

.3 Glued end-jointed (finger-jointed) lumber is not acceptable.

.4 Framing and board lumber: in accordance with NBC 1985 Subsection 9.3.2.

.5 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
- .1 Board sizes: "Standard" or better grade.
- .2 Dimension sizes: "Standard" light framing or better grade.
- .3 Post and timbers sizes: "Standard" or better grade.

2.2 Panel Standards

.1 Panel standards: type, grade and thickness as indicated, in accordance with following standards:

.1 Douglas fir plywood (DFP): to CSA O121-M1978 (R1998) (R1998), standard construction.
.2 Canadian softwood plywood (CSP): to CSA O151-M1978 (R1998) (R1998), standard construction.
.3 Poplar plywood (PP): to CAN/CSA-O15-90 (R1999) (R1999), standard construction.
.4 Interior mat-formed wood particleboard: to CAN3-0188.1.
.5 Waferboard: to CAN3-0188.2.
.6 Hardboard: to CAN/CGSB-11.3-M87.
.7 Insulating fiberboard sheathing: to CAN/CSA-A247-M86 (R1996) (R1996).
.8 Glass fibre board sheathing: non- structural, rigid, faced, fiberglass, insulating exterior sheathing board.
.9 Poly-isocyanurate sheathing: to CGSB 51- GP-21M.
.10 Expanded polystyrene sheathing: to CAN/CGSB-51.20-M87.
.11 Gypsum sheathing: to CAN/CSA-A82.27-M91.

2.3 Panel Materials End Uses

.1 Roof sheathing:
  .1 Plywood, DFP or CSP sheathing grade or PP standard sheathing grade, T&G square edge, 16 mm thick.

.2 Exterior wall sheathing:
  .1 Plywood, DFP or CSP sheathing grade or PP standard sheathing grade, square edge, 16 mm thick.

2.4 Sheathing Paper

.1 Exterior wall sheathing paper: to CAN/CGSB-51.32-M77 laminated type impregnated .

2.5 Dampproof Membrane

.1 Polyethylene film: to CAN/CGSB-51.33-M89, Type 1, 0.15 mm thick.

.2 Roll roofing: to CSA A123.2-M1979 (R2001) (R2001), Type S.

2.6 Adhesives

.1 Subflooring adhesive: to CAN/CGSB-71.26-M88, cartridge loaded.

2.7 Fasteners

.1 Nails, spikes and staples: to CSA B111-1974 (R1998) (R1998).

.2 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

.3 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

.4 Galvanizing: to CAN/CSA-G164-M92 (R1998) (R1998), use galvanized fasteners for exterior work, interior highly humid areas, pressure-preservative, fire-retardant treated lumber.

.5 Joist hangers: minimum 1 mm thick sheet steel, galvanized ZF001 coating designation.

.6 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, fibre, formed to prevent dishing. Bell or cup shapes not acceptable.

2.8 Wood Preservative

.1 Surface-applied wood preservative: clear, copper napthenate or 5% pentachlorophenol solution, water repellant preservative. All lumber utilized at roof and exterior applications to be treated with wood preservative.

.2 Pentachlorophenol use is restricted to building components that are in ground contact and subject to decay or insect attack only. Where used, pentachlorophenol-treated wood must be covered with two coats of an appropriate sealer.

.3 Structures built with wood treated with pentachlorophenol and inorganic

arsenicals must not be used for storing food nor should the wood come in contact with drinking water.

PART 3 - EXECUTION

3.1 Construction

.1 Comply with requirements of the Ontario Building Code NBC 1985 Part 9 supplemented by following paragraphs.

3.2 Erection of Framing Members

.1 Install members true to line, levels and elevations.

.2 Construct continuous members from pieces of longest practical length.

.3 Install spanning members with "crown-edge" up.

.4 Use caution when working with particle board. Use dust collectors and high quality respirator masks.

3.3 Erection

.1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

3.4 Defacement Marks

.1 Install lumber and panel materials so that grade-marks and other defacing marks are not visible or are removed by sanding.

3.5 Wall Sheathing

.1 Install wall sheathing in accordance with manufacturer's printed instructions.

3.6 Furring and Blocking

.1 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding and other work as required.

.2 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.

.3 Align and plumb faces of furring and blocking to tolerance of 1:600.

3.7 Nailing Strips, Grounds and Rough Bucks

.1 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

3.8 Cants, Curbs, Fascia Backing

.1 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized steel fasteners.

.2 Install wood backing, dressed, tapered and recessed slightly below top surface of roof insulation for roof hopper.

3.9 Sleepers

.1 Install sleepers as indicated.

3.10 Fasteners

.1 Countersink bolts where necessary to provide clearance for other work.

.2 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

3.11 Surface- Applied Wood Preservative

.1 Treat surfaces of material with wood preservative, before installation.

.2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.

.3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

.4 Treat all material as follows:
- .1 Wood cants, fascia backing, curbs, nailers, sleepers on roof deck.
- .2 Wood furring for outside surface of exterior masonry concrete walls.
- .3 Wood sleepers supporting wood subflooring over concrete slabs in contact with ground or fill.

3.12 Electrical Equipment Backboard

.1 Provide backboards for mounting electrical equipment as indicated. Use 19 mm thick plywood on 19 x 38 mm furring around perimeter and at maximum 300 mm intermediate spacing.

PART 1 - GENERAL

1.1 Samples

.1 Submit samples in accordance with Section 01300 - Submittals.

.2 Submit duplicate samples: sample size 600 x 600 mm or 600 mm long unless specified otherwise.

.3 Submit duplicate colour samples of laminated plastic for colour selection.

.4 Submit duplicate samples of laminated plastic joints, edging, cutouts and postformed profiles.

.5 Submit samples of all casework hardware for approval.

1.2 Reference Standards

.1 American National Standards Institute (ANSI)
- .1 ANSI A208.2-1994 1986 , Medium Density Fiberboard for Interior Use.

.2 American Society for Testing and Materials (ASTM)
- .1 ASTM E 1333-96(2002) 90 , Standard Test Method for Determining Formaldehyde Levels From Wood Products Under Defined Test Conditions Using a Large Chamber.

.3 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
- .1 AWMAC Architectural Woodwork Standards, latest edition and updates.

.4 Canadian Standards Association (CSA)
- .1 CAN3-A172-M79 (R1999) (R1999) M79 , High Pressure Paper Base, Decorative Laminates.
- .2 CSA B111-1974 (R1998) (R1998) 1974 , Wire Nails, Spikes and

Staples.

.3 CSA O115-M1982(R2001) M1982 , Hardwood and Decorative Plywood.

.4 CSA O121-M1978 (R1998) (R1998) M1978 , Douglas Fir Plywood.

.5 CAN/CSA-O141-91 (R1999) (R1999) 91 , Softwood Lumber.

.6 CSA O151-M1978 (R1998) (R1998) M1978 , Canadian Softwood Plywood.

.7 CSA O153-M1980 (R1998) (R1998) M1980 , Poplar Plywood.

.8 CAN3-O188.1-M78 M78 , Interior Mat-Formed Wood Particleboard.

.9 CAN/CGSB-11.3-M87 M87 , Hardboard.

.5 National Hardwood Lumber Association (NHLA)

.1 Rules for the Measurement and Inspection of Hardwood and Cypress January 1996 .

.6 National Lumber Grades Authority (NLGA)

.1 Standard Grading Rules for Canadian Lumber 1991 .

1.3 Shop Drawings

.1 Submit shop drawings in accordance with Section 01300 - Submittals.

.2 Indicate details of construction, profiles, jointing, fastening and other related details.

.1 Scale: profiles full size, details 1/2 full size.

.3 Indicate all materials, thicknesses, finishes and hardware.

.4 Indicate locations of all service outlets in casework, typical and special installation conditions, and all connections, attachments, anchorage and location of exposed fastenings.

1.4 Product Delivery, Storage and Handling

.1 Protect millwork against dampness during and after delivery.

.2 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.

1.5 Guarantee

.1 This architectural woodworker shall furnish the owner with a two (2) year AWMAC Guarantee Certificate, or an equivalent maintenance bond, to the full value of the architectural woodwork sub-contract, certifying that the architectural woodwork has been manufactured and/or installed in accordance with the standards incorporated in the AWMAC Quality Standards manual (edition in effect at time of tender). Those providing the maintenance bond, instead of the Guarantee Certificate, to submit a letter from their insurer stating that they will provide the bond. A copy of this letter to be attached to their tenders. The Guarantee shall cover replacing and/or refinishing to make good any defects in architectural woodwork due to faulty workmanship or defective materials supplied by this architectural woodworker, which appear during a two (2) year period following the date of substantial completion of the project.

.2 Recognized qualifications and/or Membership in AWMAC may be a requirement of the Guarantee and Inspection service. These costs, if any, shall be borne by the contractor or carried in his tender price.

PART 2 - PRODUCTS

2.1 Lumber Material

.1 Softwood lumber: unless specified otherwise, S4S, moisture content 15% or less in accordance with following standards:
- .1 CAN/CSA-O141-91 (R1999) (R1999).
- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .3 AWMAC premium grade, moisture content as specified.

.2 Machine stress-rated lumber is acceptable for all purposes.

.3 Hardwood lumber: moisture content 7% or less in accordance with following standards:
- .1 National Hardwood Lumber Association (NHLA).
- .2 AWMAC premium grade, moisture content as specified.

2.2 Panel Materials

.1 Douglas fir plywood (DFP): to CSA O121-M1978 (R1998) (R1998), standard construction.

.2 Canadian softwood plywood (CSP): to CSA O151-M1978 (R1998) (R1998), standard construction.

.3 Hardwood plywood: to CSA O115-M1982(R2001).

.4 Poplar plywood (PP): to CSA O153-M1980 (R1998) (R1998), standard construction.

.5 Interior mat-formed wood particleboard: to CAN3-0188.1.

.6 Birch plywood: to AWMAC Natural.

.7 Fibreboard must contain less than 10 % roundwood by weight, using a weighted average over a three month period at each manufacturing location. (Roundwood refers to logs, with bark, delivered to a pulp mill, cut in lengths up to 3 m).

.8 Hardboard
- .1 to CAN/CGSB-11.3-M87.
- .2 manufactured such that formaldehyde emissions do not exceed 0.15 ppm (180 µg/m ^{3}) when tested in accordance with ASTM E 1333-96(2002).
- .3 if manufactured using a wet process:
- .4 be made by a process that does not release matter in the undiluted product plant effluent generating a BOD ¥ in excess of 50 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment;
- .5 be made by a process that does not release TSS in excess of 60 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment;
- .6 contain at least 50 % recycled materials.

.9 Medium density fibreboard (MDF): to ANSI A208.2-1994, density 769 kg/m ^{3} .

.10 Medium density fibreboard must:
- .1 meet the performance requirements of ANSI A208.2-1994.
- .2 be manufactured such that formaldehyde emissions do not exceed 0.15 ppm (180 µg/m ^{3}) when tested in accordance with ASTM E 1333-96(2002).
- .3 contain at least 15 % recycled materials by weight.

.11 Melamine Panels: Pre-fabricated melamine faced particle board panels to ANSI A208.1-1999 Standards and ALA 1992, "Panval" by Uniboard Canada Inc., "Panolam" by Panolam Industries or "Flakeboard" by Flakeboard

Company Ltd. as distributed by Wandarosa or McFaddens. Hardrock maple melamine finish. At exposed edges provide 3mm polyvinylchloride in colour to match melamine face. Colours as selected by Consultant from manufacturer's complete range.

2.3 Fasteners

.1 Nails and staples: to CSA B111-1974 (R1998) (R1998).

.2 Wood screws: steel, type and size to suit application to CSA B35.4-72.

2.4 Sealants

.1 Sealant: to Section 07900.

2.5 Casework

.1 Fabricate caseworks to AWMAC premium quality grade.

.2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.
- .1 S2S is acceptable for non-visible locations.
- .2 Board sizes: "Standard" or better grade.
- .3 Dimension sizes: "Standard" light framing or better grade.

.3 Framing spruce species, NLGA Clear select grade.

.4 Case bodies (ends, divisions and bottoms).
- .1 19mm melamine panels with continuous 3mm PVC strip at exposed edges.

.5 Backs.
- .1 6mm white hardboard except where visible ie. without doors or with glass panels in doors, 6mm melamine parnels.

.6 Shelving.
- .1 19mm melamine panels with continuous 3mm PVC strip at exposed edges.

2.6 Drawers

.1 Fabricate drawers to AWMAC premium grade supplemented as follows:

.2 Sides and Backs.
  .1 Softwood and poplar plywood DFP or CSP or PP G2S grade, square edge, 13 mm thick.

.3 Bottoms.
  .1 Softwood and poplar plywood DFP or CSP or PP G2S grade, square edge, 6 mm thick.

.4 Fronts.
  .1 19mm melamine panels with continuous 3mm PVC strips at exposed edges. Softwood plywood:

2.7 Casework Doors and Cupboard and Closet Gables

.1 Fabricate doors to AWMAC premium grade supplemented as follows:

.2 19mm melamine panels with continuous 3mm PVC strips at exposed edges.

.3 At teacher's closets, 38mm melamine panels solid core: to CAN/CSA-O132.2.1 with continuous 3mm PVC strips at exposed edges.

2.8 Laminated Plastic Counter Tops and Splashbacks

.1 Countertops and splashbacks and visible counter gables: one piece, factory laminated, self-edge type.
  .1 Laminated plastic: General Purpose, Colour as selected by Consultant.
  .2 Core: 19 Particle Board.
  .3 Adhesive: waterproof as recommended by manufacturer.
  .4 Draw bolts: nickel plated.

2.9 Hardware

.1 Hinges: 91.275 x 195.710, 2 per door leaf minimum, spaced at 800mm maximum.

.2 Door and drawer pulls: Stainless Steel "D" pulls, 220 x 3 1/2 - 32D. One per door and drawer.

.3 Catches: Magnetic, 323A, one per door leaf.

.4 Drawer slide: two-piece pre-painted steel with neoprene bearing rollers, each side, 230 x length to suit.

.5 Drawer or door lock: Stainless steel, cylinder type with latch and receiving plate, key operated, 8138-26D-MK, one per drawer and door. Locks to be keyed alike per room and master keyed.

.6 Adjustable shelving standards: recessed pilaster KV255 2 per side adjustable clips Richelieu Hardware Cat. No. 2432G, 4 per shelf. www.richelieu.com, tel#1-800-361-6000. Provide screws for each clip.

.7 Closet rod: KV770 x 1 5/16" complete with flange KV764, one set per closet.

.8 Coat Hooks: Canadian Builders Hardware CBH 61 brushed aluminum screwed to min. 2mm x 130mm steel plate with ground corners anchored to wall assembly.

.9 Automatic door bolt: Richelieu LOCDL200 or LOCDL300 to suit.

2.10 Edge Banding

.1 3mm solid PVC to match melamine panels. Strips same width as finished panel.

2.11 Fabrication

.1 Set nails and countersink screws, apply stained wood filler to indentations, sand smooth and leave ready to receive finish.

.2 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.

.3 Shelving to cabinetwork to be adjustable unless otherwise noted.

.4 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.

.5 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.

2.12 Finishing

.1 Factory stain finish according to AWMAC Part 5 Article 8.5.3.

2.13 Hardwood Stair

.1 Hardwood stair to match existing and to AWMAC Premium Grade.

PART 3 - EXECUTION

3.1 Installation

.1 Install prefinished millwork at locations shown on drawings. Position accurately, level, plumb straight.

.2 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.

.3 Use draw bolts in countertop joints.

.4 Scribe and cut as required to fit abuting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.

.5 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant.

.6 Apply water resistant building paper or bituminous coating over wood

framing members in contact with masonry or cementitious construction.

.7 Fit hardware accurately and securely in accordance with manufacturer's directions.

.8 Seal cut-outs at all penetrations through countertops.

3.2 Cleaning

.1 Clean millwork and cabinet work inside cupboards and drawers andoutside surfaces.

3.3 Protection

.1 Protect millwork and cabinet work from damage until final inspection .

3.4 Hardwood Stair

.1 Provide hardwood stair to AWMAC Premium Grade.

PART 1 - GENERAL

1.1 References

.1 CAN/CGSB-51.33-M89 Vapour Barrier, Sheet, for Use in Building Construction.

PART 2 - PRODUCTS

2.1 Sheet Vapour Barrier

.1 Polyethylene film: to CAN/CGSB-51.34-M86, 0.15 mm thick.

2.2 Accessories

.1 Joint sealing tape: air resistant pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere.

.2 Sealants: according to Section 07900.

.3 Staples: minimum 6 mm leg.

.4 Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.

2.3 Acceptable Manufacturers

.1 Products in accordance with this specification by only the following manufacturers will be accepted.
.1 Stego
.2 W R meadows
.3 Duchesne

2.4 Concrete Slab Vapour Barrier

.1 Clear 15 mm thick Perminator 15 or equivalent.

PART 3 - EXECUTION

3.1 Installation

.1 Examine surfaces to receive membrane. Notify Consultant if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

.2 Ensure services are installed and inspected prior to installation of retarder.

.3 Install sheet vapour barrier on warm side of exterior wall ceiling and floor assemblies prior to installation of gypsum board to form continuous barrier.

.4 Use sheets of largest practical size to minimize joints.

.5 Inspect sheets for continuity. Repair punctures and tears with sealing tape before work is concealed.

.6 Prepare surfaces in accordance with manufacturer's instructions.

.7 Install vapour retarder membrane in accordance with manufacturer's instructions and ASTM E 1643-98.

3.2 Exterior Surface Openings

.1 Cut sheet vapour barrier to form openings and ensure material is lapped

and sealed to frame.

.2 Seal all penetrations (including pipes) with manufacturer's pipe boot.

3.3 Lap Joint Seals

.1 Seal lap joints of sheet vapour barrier as follows:
- .1 Unroll vapour retarder with longest dimension parallel with direction of pour.
- .2 Attach first sheet to substrate.
- .3 Overlap joints 152 mm (6") and seal with manufacturer's tape.
- .4 Lap vapour retarder over footings and seal to foundation walls.

3.4 Electrical Boxes

.1 Seal electrical switch and outlet device boxes that penetrate vapour barrier as follows:
- .1 For panel-type vapour barriers, install moulded box vapour barrier.
- .2 For sheet-type vapour barriers, install moulded box vapour barrier or wrap boxes with polyethylene film sheet providing minimum 300 mm perimeter lap flange.

3.5 Repairs

.1 Repair damaged areas by cutting patches of vapour barrier, overlapping damaged area 152 mm (6") and taping all four sides.

3.6 Concrete Slab Vapour Barrier

.1 Where indicated on the Drawings or called for in the Soils Report, place Perminator 15 or equivalent sheeting below concrete slab-on-grade.

.2 Ensure minimum 200 mm (or as otherwise stated in Soils Report) or specified granular fill below vapour barrier and underside of slab.

.3 Perminator 15 or equivalent sheets should be adequately lapped and

continuously taped.

.4 Take precautions that construction traffic and operations do not pierce the sheets.

PART 1 - GENERAL

1.1 References

.1 Canadian Standards Association (CSA)
  .1 CSA A101-M1983 Thermal Insulation, Mineral Fibre, for Buildings.

.2 Canadian General Standards Board (CGSB)
  .1 CAN/CGSB-51.20-M87 Thermal Insulation, Polystyrene, Boards and Pipe Covering.
  .2 CGSB 51-GP-21M Thermal Insulation, Urethane and Isocyanurate, Unfaced.
  .3 CAN/CGSB-51.25-M87 Thermal Insulation, Phenolic, Faced.
  .4 CAN/CGSB-51.26-M86 Thermal Insulation, Urethane and Isocyanurate, Boards, Faced.
  .5 CAN/CGSB-51.38-92, Cellular Glass Thermal Insulation.
  .6 CGSB 71-GP-24M Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.

.3 Canadian Gas Association (CGA)
  .1 CAN/CGA-B149.1-M95 Gas Installation Code.
  .2 CAN/CGA-B149.2-M95 Propane Installation Code.

.4 American Society for Testing and Materials (ASTM)
  .1 ASTM E 96-00e1 Test Methods for Water Vapor Transmission of Materials.

1.2 Shop Drawings

.1 Submit shop drawings in accordance with Section 01300 for tapered insulation.

PART 2 - PRODUCTS

2.1 Insulation

.1 Polyisocyanurate at masonry cavity walls: to CAN/ULC S704 Type 2 Class

3, shiplapped edges,thickness as indicated, SOPREMA SOPRA-ISO V PLUS or equal by IKO.

.2 Expanded polystyrene for below grade applications: to CAN/CGSB-51.20-M87.

.3 Ployisocyanurate for roof applications: to CAN/ULC S704-11, SOPREMA SOPRA-ISO or equal by IKO.

.4 Rigid Glass Fibre.

2.2 Adhesive

.1 Use only adhesives as recommended by manufacturer of each type of rigid insulation board for use intended, applied in strict accordance with manufacturer's specifications. Co-ordinate with and ensure compatibility to air barrier and vapour retardent.

.2 Foundation Perimeter: synthetic rubber base, solvent type, suitable for continuous application by trowel, fungi resistant, application temperature 12°C to 50°C, compatible with insulation.

.3 Masonry Cavity Wall: air/vapour barrier type, suitable for continuous application by trowel, fungi resistant, application temperature 5°C minimum, permeance (3 mm wet film, to ASTM E 96-00e1 method E) 2.2 ng/(Pa.s.m²åv), compatible with insulation. Provide sheet membrane as required to adjacent dissimilar materials.

2.3 Accessories

.1 Insulation clips: impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.

2.4 Acceptable Manufacturers

.1 Products in accordance with this specification by only the following manufacturers will be accepted.

.1 Dow

.2 Owens-Corning
.3 Soprema
.4 IKO

PART 3 - EXECUTION

3.1 Workmanship

.1 Install insulation after building substrate materials are dry.

.2 Install insulation to maintain continuity of thermal protection to building elements and spaces.

.3 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.

.4 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC-S604-M91 type A chimneys and CAN/CGA-B149.1-M95 and CAN/CGA-B149.2-M95 type B and L vents.

.5 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.

.6 Offset both vertical and horizontal joints in multiple layer applications.

.7 Do not enclose insulation until it has been inspected and approved by Consultant.

3.2 Examination

.1 Examine substrates and immediately inform Consultant in writing of defects.

.2 Prior to commencement of work ensure:
.1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

3.3 Vapour Barrier Type Adhesive

.1 Ensure substrate is sound, smooth and clean.

.2 Apply vapour barrier type adhesive, to concrete exterior surfaces to provide continuous vapour barrier film.

3.4 Rigid Insulation Installation

.1 Apply adhesive to polystyrene insulation board by notched trowel at rate in accordance with manufacturer's recommendations.

.2 Apply type D adhesive to polyisocyanurate insulation board by push box method, to thickness of 5 mm.

.3 Imbed insulation boards into vapour barrier type adhesive, applied as specified, prior to skinning of adhesive.

.4 Leave insulation board joints unbonded over line of expansion and control joints. Bond a continuous 150 mm wide 0.15 mm polyethylene strip over expansion and control joints using compatible adhesive before application of insulation.

3.5 Perimeter Foundation Insulation

.1 Interior application: extend boards 1200mm horizontally beneath concrete slab and 1200 mm vertically below bottom of finish floor slab, installed on inside face of perimeter foundation walls.

3.6 Cavity Wall Installation

.1 Install polyisocyanurate insulation boards on outer surface of inner wythe of wall cavity on bed of adhesive.

.2 Provide continuous air/vapour barrier sheet membrane fully adhered to return surface of all openings. Lap membrane minimum 150mm to outside face of inner wythe of cavity wall.

.3 Provide air/vapour barrier sheet membrane at top of all parapet walls, lapped to roof membrane flashing.

.4 Provide insulation adhesive (air/vapour barrier) in strict accordance with manufacturer's specifications, lapped and sealed to sheet membrane.

.5 Seal all penetrations through air barrier. Ensure integrity and continuity of air barrier. Utilize sheet membrane air/vapour barrier and sealants as required to ensure that air barrier is not interrupted.

.6 Review air barrier installation on site with Consultant prior to commencing Work.

PART 1 - GENERAL

1.1 References

.1 Canadian Standards Association (CSA)
- .1 CSA A101-M1983, Thermal Insulation, Mineral Fibre, for Buildings.
- .2 CSA B111-1974 (R1998) (R1998) (R1998), Wire Nails, Spikes and Staples.

.2 Canadian Gas Association (CGA)
- .1 CAN/CGA-B149.1-M95 Gas Installation Code.
- .2 CAN/CGA-B149.2-M95, Propane Installation Code.

PART 2 - PRODUCTS

2.1 Insulation

.1 Batt and blanket mineral fibre: to CSA A101-M1983, Type 1, thickness as indicated.
- .1 Acceptable material: fibreglas batt insulation, unfaced.

2.2 Accessories

.1 Insulation clips:
- .1 Impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.

.2 Nails: galvanized steel, length to suit insulation plus 25 mm, to CSA B111-1974 (R1998).

.3 Staples: 12 mm minimum leg.

.4 Tape: as recommended by manufacturer.

2.3 Acceptable Manufacturers

.1 Products in accordance with this specification by only the following manufacturers will be accepted.
- .1 Owens-Corning
- .2 Roxul
- .3 Knauf
- .4 Ottawa Fibre

PART 3 - EXECUTION

3.1 Insulation Installation

.1 Install insulation to maintain continuity of thermal protection to building elements and spaces.

.2 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.

.3 Do not compress insulation to fit into spaces.

.4 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC-S604-M91 type A chimneys and CAN/CGA-B149.1-M95 and CAN/CGA-B149.2-M95 type B and L vents.

.5 Do not enclose insulation until it has been inspected and approved by Consultant.

PART 1 - GENERAL

1.1 Related Work

.1 Fire stopping and smoke seals within mechanical assemblies (i.e inside ducts, dampers) and electrical assemblies (i.e. inside cable trays) are specified in Divisions 15 and 16 respectively.

1.2 References

.1 ULC-S115-M95, Standard Method of Fire Tests of Firestop Systems.

1.3 Samples

.1 Submit samples in accordance with Section 01300 Submittals.

1.4 Shop Drawings

.1 Submit shop drawings and product data in accordance with Section 01300 - Submittals.

.2 Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.

.3 Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job site. Include manufacturer's printed instructions for installation.

PART 2 - PRODUCTS

1.5 Materials

.1 Fire stopping and smoke seal systems: in accordance with ULC-S115-M95.
  .1 Asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of ULC-S115-M95 and not to exceed opening sizes for which they are intended.
  .2 Firestop system rating: to suit rating of penetrated assembly, minimum 1 hr.

.2 Service penetration assemblies: certified by ULC in accordance with ULC-S115-M95 and listed in ULC Guide No. 40 U19.

.3 Service penetration firestop components: certified by ULC in accordance with ULC-S115-M95 and listed in ULC Guide No. 40 U19.13 and ULC Guide No. 40 U19.15 under the Label Service of ULC.

.4 Fire-resistance rating of installed fire stopping assembly not less than the fire- resistance rating of surrounding floor and wall assembly.

.5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.

.6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.

.7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

.8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

.9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

.10 Sealants for vertical joints: non-sagging.

1.6 Acceptable Manufacturers

.1 Products in accordance with this specification by only the following manufacturers will be accepted.
  .1 3M

.2 AD Fire Protection
.3 Hilti
.4 Nuco
.5 Tremco
.6 Rectorseal

PART 3 - EXECUTION

1.7 Preparation

.1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.

.2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

.3 Maintain insulation around pipes and ducts penetrating fire separation without interuption to vapour barrier.

.4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

1.8 Installation

.1 Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturer's instructions.

.2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.

.3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.

.4 Tool or trowel exposed surfaces to a neat finish.

.5 Remove excess compound promptly as work progresses and upon completion.

1.9 Inspection

.1 Notify Consultant when ready for inspection and prior to concealing or enclosing firestopping materials and service penetration assemblies.

1.10 Schedule

.1 Firestop and smoke seal at:
- .1 Penetrations through fire separations and fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
- .2 Top of fire separations and fire-resistance rated masonry and gypsum board partitions.
- .3 Intersection of fire separations and fire-resistance rated masonry and gypsum board partitions.
- .4 Control and sway joints in fire separations and fire-resistance rated masonry and gypsum board partitions and walls.
- .5 Penetrations through fire separations and fire-resistance rated floor slabs, ceilings and roofs.
- .6 Openings and sleeves installed for future use through fire separations.
- .7 Around mechanical and electrical assemblies penetrating fire separations.
- .8 Rigid ducts: greater than 129 cm^2: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.

1.11 Clean Up

.1 Remove excess materials and debris and clean adjacent surfaces immediately after application.

.2 Remove temporary dams after initial set of fire stopping and smoke seal materials.

PART 1 - GENERAL

1.1 Section Includes

.1 Materials and installation methods supplementing primary air seal materials and assemblies.

.2 Air seal materials to bridge and seal openings and penetrations of window frames, door frames, eifs and curtain wall system.

1.2 References

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-19.13-M87 M87 , Sealing Compound, One Component, Elastomeric Chemical Curing.
- .2 CAN/CGSB-19.18-M87 M87 , Sealing Compound, One Component, Silicone Base Solvent Curing.
- .3 CAN/CGSB-19.24-M90 M90 , Multi-Component, Chemical Curing Sealing Compound.
- .4 CGSB 19-GP-14M 76 , Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.

.2 NBCC 1995; Part 5 - Environmental Separation

.3 Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification.

1.3 Submittals

.1 Submit product data to requirements of Section 01300.

.2 Product Data: Provide data on material characteristics, performance criteria, and limitations.

.3 Manufacturer's Installation Instructions: Indicate preparation,

installation requirements and techniques, product storage and handling criteria.

1.4 Quality Assurance

.1 Perform Work in accordance with Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification requirements for materials and installation .

.2 Maintain one copy of documents on site.

1.5 Qualifications

.1 Applicator: Company specializing in performing work of this section with minimum 5 years documentedexperience approved by materials' manufacturers .

1.6 Environmental Requirements

.1 Do not install solvent curing sealants or vapour release adhesive materials in enclosed spaces without ventilation.

.2 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.

1.7 Coordination

.1 Coordinate work of this section with all sections referencing this section.

PART 2 - PRODUCTS

2.1 Sheet Materials

.1 Membrane laps to other components, soffits and fascia, and air/vapour barrier membrane at masonry cavity walls: Bakor BlueSkin SA or Sopraseal Stick 1100 as manufactured by Soprema Inc. or W.R. Grace Perm-A-Barrier.

2.2 Adhesives

.1 Mastic Adhesive Type 1 : Compatible with sheet seal and substrate, thick mastic of uniform knife grade consistency.

.2 Primer: Compatible with sheet seal and substrate, permanently non-curing as recommended by manufacturer.

2.3 Accessories

.1 Adhesives, tapes and fasteners as recommended by manufacturers.

.2 Ensure compatibility with all contacted components.

2.4 Acceptable Manufacturers

.1 Products in accordance with this specification by only the following manufacturers will be accepted.

1. Bakor
2. IKO
3. Soprema
4. Tremco
5. W.R. Meadows

PART 2 - EXECUTION

3.1 Examination

.1 Verify that surfaces and conditions are ready to accept the Work of this section.

.2 Ensure all surfaces are clean, dry, sound, smooth, continuous and comply with air barrier manufacturer's requirements.

.3 Report any unsatisfactory conditions to the Consultant in writing.

.4 Do not start work until deficiencies have been corrected. Commencement of Work implies acceptance of conditions.

3.2 Preparation

.1 Remove loose or foreign matter which might impair adhesion of materials.

.2 Ensure all substrates are clean of oil or excess dust; all masonry joints struck flush, and open joints filled; and all concrete surfaces free of large voids, spalled areas or sharp protrusions.

.3 Ensure all substrates are free of surface moisture prior to application of self-adhesive membrane and primer.

.4 Ensure metal closures are free of sharp edges and burrs.

.5 Prime substrate surfaces to receive adhesive and sealants in accordance with manufacturer's instructions.

3.3 Installation

.1 Install materials in accordance with manufacturer's instructions.

.2 Apply sheet materials and sealant within recommended application temperature ranges. Consult manufacturer when sheet materials and/or sealant cannot be applied within these temperature ranges.

3.4 Protection of Work

.1 Protect finished Work under provisions of Division 1.

.2 Do not permit adjacent work to damage work of this section.

3.5 Schedules

.1 Wall Air Seal Over Exterior Surface of Gypsum Sheathing: Place sheet seal over sheathing surfaces with adhesive. Seal with sealant.

.2 Window Frame Perimeter: Lap sheet seal from wall air seal surface with 75 mm of full contact over firm bearing to window frame with 25 mm of full contact. Edge seal with sealant.

.3 Wall and Roof Junction: Lap sheet seal from wall seal material with 150 mm of contact over firm bearing to roof air seal membrane with 100 mm of full contact. Seal with sealant.

.4 Roof System Air Seal Over Steel Deck: Gypsum sheathing, taped joints, apply membrane air seal over sheathing surfaces with adhesive; edge seal membrane with sealant.

.5 Masonry cavity wall: Lap sheet seal on firm substrate to ensure integrity of air/vapour barrier membrane at entire building envelope. Seal with mastic at all penetrations. Lap to through-wall flashing. Provide double membrane laps over through-wall membrane flashings over roof membrane flashings.

PART 1- GENERAL

1.1 Related Work

.1 Prefabricated roof expansion joints: Section 07712 Prefabricated Roof Expansion Joints

.2 Caulking: Section 07900 Joint Sealers

.3 Roof drains: Section 15401 Plumbing Specialties and Accessories

1.2 References

.1 American Society for Testing and Materials (ASTM)
- .1 ASTM C 36- 95b , Specification for Gypsum Wallboard.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-37.5- M89 , Cutback Asphalt Plastic Cement.
- .2 CGSB 37-GP-9Ma- 83 , Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.
- .3 CGSB 37-GP-15M- 76 , Application of Asphalt Primer for Asphalt Roofing, Dampproofing and Waterproofing.
- .4 CGSB 37-GP-19M- 76 , Cement, Plastic, Cutback Tar.
- .5 CAN/CGSB-37.29- M89 , Rubber-Asphalt Sealing Compound.
- .6 CGSB 37-GP-56M- 80 , Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
- .7 CAN/CGSB-51.20- M87 , Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .8 CAN/CGSB-51.26- M86 , Thermal Insulation, Urethane and Isocyanurate, Boards, Faced.
- .9 CAN/CGSB-51.31- M84 , Thermal Insulation, Mineral Fibre Board for Above Roof Decks.
- .10 CAN/CGSB-51.33- M89 , Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.
- .11 CAN/CGSB-51.34- M86 , Vapour Barrier, Polyethylene Sheet for Use

in Building Construction.

.12 CAN/CGSB 51.38- 92 , Cellular Glass Thermal Insulation.

.3 Canadian Standards Association (CSA)

.1 CSA A123.3- M19 92 , Asphalt or Tar Saturated Roofing Felt.

.2 CSA A123.4- M19 92 , Bitumen for Use in Construction of Built-Up Roof Coverings and Dampproofing and Waterproofing Systems.

.3 CSA A123.21, Standard Test Method for the Dynamic Wind Uplift Resistance of Membrane Roofing Systems.

.4 CSA A231.1- 1972 , Precast Concrete Paving Slabs.

.5 CAN/CSA-A247- M86 , Insulating Fibreboard.

.6 CSA A284- 1976 Mineral Aggregate Thermal Roof Insulation.

.7 CSA O121- M1978 , Douglas Fir Plywood.

.8 CSA O151- M1978 , Canadian Softwood Plywood.

1.3 Shop Drawings

.1 Submit shop drawings in accordance with Section 01300.

.2 Indicate flashing, control joints, tapered insulation details.

.3 Provide layout for tapered insulation.

1.4 Storage and Handling

.1 Provide and maintain dry, off-ground weatherproof storage.

.2 Store rolls of felt and membrane in upright position. Store membrane rolls with selvage edge up.

.3 Remove only in quantities required for same day use.

.4 Place plywood runways over work to enable movement of material and other traffic.

.5 Store sealants at +5°C minimum.

.6 Store insulation protected from daylight and weather and deleterious

materials.

1.5 Environmental Requirements

.1 Do not install roofing when temperature remains below -18°C for torch application, or -10°C to manufacturers' recommendations for mop application.

.2 Minimum temperature for solvent-based adhesive is -5°C.

.3 Install roofing on dry deck, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into roofing system.

1.6 Protection

.1 Fire Extinguishers: maintain one cartridge operated type with hose and shut-off nozzle, ULC labeled for A, B and C class protection. Size s 1.14 2.25 4.5 9 and 14 kg or as indicated on roof per torch applicator, within 10 m of torch applicator.

.2 Maintain fire watch for 1 hour after each day's roofing operations cease.

1.7 Warranty

.1 Supply a written document in the owner's name, valid for a twenty [20], year period, stating that manufacturer will repair any leaks in the roofing membrane to restore the roofing system to a dry and watertight condition, to the extent that membrane manufacturing or installation defects caused water infiltration. The warranty must cover for the entire cost of the repair(s) during the entire warranty period. Ensure warranty is transferable, at no extra cost, to subsequent building owners starting from the date of acceptance

.2 Provide contractor's warranty, valid for a period of two (2) years covering workmanship for entire area of roofing project.

1.8 Reference Standards

.1 Do roofing work in accordance with applicable, standard in Canadian Roofing Contractors Association (CRCA) Roofing Specifications Manual except where specified otherwise.

.2 Do priming for asphalt roofing in accordance with CGSB 37-GP-15M-76(R84).

1.9 Identification and Delivery

.1 Indicate on containers or wrappings of materials:
- .1 Manufacturer's name and brand.
- .2 Compliance with applicable standard.
- .3 Mass where applicable.

.2 Deliver materials in original containers, sealed, with labels intact.

.3 Deliver fasteners in boxes or kegs and keep in protective storage until used. Do not oil or grease fasteners.

1.10 Compatibility

.1 Compatibility between components of roofing system is essential. Bituminous adhesives, insulation, felts, and surface coatings which are to be by same manufacturer wherever possible.

.2 Provide written declaration that components of roofing system are compatible.

PART 2- PRODUCTS

2.1 Materials

.1 Sheathing Adhesive: Instafoam Products Inc. Insta-Stik or Duotack by Soprema.

.2 Sheathing board: Georgia Pacific Dens-Deck to CSA A82.27-M1977, 12.7 mm thick thickness as indicated.

.3 Saturated glass fibre roofing felts: to ASTM D2178-85a, Type IV.

.4 Asphalt primer: to CGSB 37-GP-9Ma-83.

.5 Asphalt : to CSA A123.4-M1979, Type 3.

.6 Plastic cement: asphalt

.7 Sealing compound: to CGSB 37-GP-29M-77, rubber asphalt type.

.8 Insulation: Urethane (Isocyanurate) or Sopra-ISO by Soprema.

.1 Faced: to CAN/CGSB-51.26-M86`, Facing in accordance with manufacturer's specifications, flame spread classification: less than 500 unrated, thickness 2 1/2" unless otherwise noted on drawings. Maximum board size 4'x4'.

.1 Acceptable material: Sopra-ISO by Soprema or NRG Barriers E'nerg'y 2 Plus including tapered pre-cut crickets and mitres.

.9 Protection Board: 12.7mm asphalt impregnated fibreboard conforming to CAN/CSA-A247-M86 with shiplapped edges.

.10 Base Sheet and Base Sheet Flashing membrane: Modified Bitumen with sanded lower surface for mopping asphalt and a thermofusible ply upper surface to receive torched on granul ar cap sheet. Sopraply Base 510.

.11 Cap Sheet and Cap Sheet Flashing membrane: Granular top surface, thermo fusible poly bottom surface for torched application. Sopraply Traffic Cap.

.12 Cant strips: cut from 38 mm thick fibreboard material, 100 mm x 100 mm x 45° slope, to measure 140 mm on slope.

.13 Accessories:

.1 Adhesive: listed by ULC under Roof Deck Construction Materials, Guide No. 360 R13 and as recommended by manufacturer of material being adhered and for use under climatic conditions to be encountered.

.2 Insulation joint tape: asphalt treated kraft paper, fiber reinforced, 100 to 150 mm wide, self adhering.

.3 Sealing compound: as req'd. by asphalt and felt manufacturer.

.4 Polyethylene back-up rope: extruded closed cell foam, Shore A hardness 20, tensile strength 140 to 200 kPa, compatible with primers and sealants, oversized 30 to 50%.

.14 Manufacturer

.1 This section is based on Soprema's high performance membranes. Products from following manufacturers with equal or better performance are accepted provided they meet the specification requirements.

.1 Siplast

.2 Henry Company

.3 Or wherever specific products are listed, also list the equivalents by chosen manufacturers.

PART 3- EXECUTION

3.1 Plant and Equipment

.1 Use only kettles equipped with thermometers or gauges in good working order.

.2 Locate kettles in safe place outside of building or, if approved by Consultant, on noncombustible roof at location to avoid danger of igniting combustible material below. When locating kettles, give consideration to direction of prevailing winds, building fans and air handling units to minimize possibility of smoke and fumes entering surrounding occupied buildings. If wind direction causes smoke and fume problems, relocate kettles on daily basis when directed by Consultant.

.3 Maintain continuous supervision while kettles are in operation and provide metal covers for kettles to smother flames in case of fire. Provide suitable fire extinguishers.

.4 Maintain efficiency of kettles and equipment by frequent cleaning. Remove all carbonized bitumen.

.5 Prior to start of work, demonstrate container capacities and spread rate of machines to Consultant.

.6 Use only fibreglass roofing mops.

.7 Do not leave used roofing mops unattended on roof; store away from building and combustible materials.

3.2 Protection

.1 Cover walls and adjacent work where materials hoisted or used.

.2 Use warning signs and barriers. Maintain in good order until completion of work.

.3 Clean off drips and smears of bituminous material.

.4 Dispose of rain water off roof and away from face of building until roof drains or hoppers installed and connected.

.5 Prevent traffic over completed roofing except where required by work above roof level. Comply with precautions deemed necessary by Consultant. Repair damage caused by non-compliance with Consultant's requirements.

.6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed work and materials out of storage.

3.3 Examination of Roof Decks

.1 Examine roof decks and immediately inform Consultant in writing of defects.

.2 Prior to commencement of work ensure:
- .1 Decks are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris.
- .2 Curbs have been built.
- .3 Roof drains have been installed at proper elevations relative to finished roof surface.
- .4 Plywood and lumber nailer plates have been installed to walls and parapets as indicated.

3.4 Preparation of Steel Deck (Channel Type)

.1 Adhesive fasten sheathing board to steel deck in accordance with manufacturers' recommendations.

.2 Place sheathing board with long axis of each sheet transverse to ribs, with end joints staggered and fully supported on ribs.

.3 Do not use mechanical fasteners.

3.5 Roofing Asphalt

.1 Apply roofing asphalt at plus or minus 15°C of EVT indicated on Bill of Lading.

.2 Maintain asphalt in tanker at or below its FBT indicated.

3.6 Vapour Retarder Membrane

.1 Adhere 2 plies of glassfibre felts to sheathing board and to each other by means of hot bitumen applied at coverage rate of 1.2 kg/m² per ply. Lap each sheet 480 mm.

.2 Return vapour retarder membrane up side and over top of insulation at terminations and penetrations.

3.7 Insulation

.1 Lay in regular pattern to facilitate taping of joints and to provide uniform insulation value over entire roof. Install pre-manufactured

sloped insulation to pattern as required.

.2 Mop insulation to felt vapour barrier with hot bitumen applied at coverage rate of 1 kg/m².

.3 Butt boards together without gaps. Keep joints free of asphalt.

.4 Apply tape over joints of top insulation layer and over joints between insulation and insulation stops. Ensure full and positive adhesion.

.5 At end of each work period, mop felt membrane over exposed surfaces and edges of insulation and onto vapor barrier to render watertight. Remove this seal on resumption of work.

3.8 Protection Board

.1 Mop protection board into top of insulation at rate of 1.2 kg/m2 Type 3 asphalt.

3.9 Modified Bitumen Membrane: Application Method

.1 Mop in base sheet to protection board by means of Type 3 hot asphalt applied at coverage rate of 1.2 kg/m²/per ply and in accordance with CRCA Specification SGI-1.

.2 Torch cap sheet to base sheet in accordance with manufacturer's specifications.

3.10 Modified Bitumen Membrane Flashings: General

.1 Apply membrane flashings at valleys, ridges, eaves, junctions of horizontal and vertical surfaces, roof drains, vents, and other roof mounted appurtenances.

.2 Ensure surfaces are smooth, clean, dry.

.3 Clean with solvent all metal in contact with bitumens such as flashings, caulking retainers and vents. Dry with clean rags, prime with asphalt

primer and allow to dry before incorporating into roof system.

.4 Prior to flashing, prime surfaces to receive bitumens, except felts, with asphalt primer at maximum rate of 0.37 L/m².

3.11 Flashing at Roof Edge

.1 Cut roof membrane flush with top edge of cant strip.

.2 Install 2 ply modified bituminous membrane similar to roofing membrane.

.3 Extend up and over parapets, turn down outside face, securely nail to wood fascia at approximately 100 mm staggered centres and coat on face of cant.

3.12 Flashing at Vertical Surfaces

.1 Cut roof membrane 100mm extended from top edge of cant strip.

.2 Install 2 ply modified bitumen membrane flashing over cant and up vertical surface and lap under air barrier or through-wall flashing of wall assembly.

3.13 Other Flashings

.1 Provide flashing in accordance with manufacturer's specifications and details and related details in accordance with latest edition of CRCA manual.

3.14 Tapered Insulation: Application

.1 MOP insulation to felt vapour retarder and top layer of insulation to bottom layer with hot asphalt at rate of 1kg/m2.

.2 Install tapered insulation as third insulation layer, in accordance with shop drawings. Stagger joints between layers 150mm base insulation minimum.

.3 Install 12.7mm asphalt impregnated fibreboard over tapered roof insulation as an insulation overlay.

PART 1 - GENERAL

1.1 References

.1 Aluminum Association
- .1 Aluminum Sheet Metal Work in Building Construction- 1980.
- .2 Designation System for Aluminum Finishes- 1980.

.2 American Society for Testing and Materials (ASTM)
- .1 ASTM A 167-99 94a , Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- .2 ASTM A 591/A 591M-98 591M-98 591M-98 591M-96 591M-96 591M-96 591M-96 591 M- 89(1994) , Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Mass Applications.
- .3 ASTM A 606-01 91a(1993) , Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
- .4 ASTM A 653/A 653M-02a 653M-02a 653M-02a 653 M- 95 , Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .5 ASTM A 792/A 792M-02 792M-02 792M-02 792M- 95 , Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- .6 ASTM B 32-00e1 95b , Specification for Solder Metal.
- .7 ASTM B 370-98 92 , Specification for Copper Sheet and Strip for Building Construction.
- .8 ASTM D 523-89(1999) 89(1994) , Test Method for Specular Gloss.
- .9 ASTM D 822-01 89 , Practice for Conducting Tests on Paint and Related Coatings and Materials Using Filtered Open-Flame Carbon Arc Light and Water Exposure Apparatus.

.3 Canadian Roofing Contractors Association (CRCA).
- .1 Roofing Specifications Manual.

.4 Canadian Standards Association (CSA)
- .1 CSA A123.3-98 M1979 , Asphalt or Tar Saturated Roofing Felt.
- .2 CSA PKG.A440-00 Series-98 Series-98 Series-98 Series-98 M90 , Windows.
- .3 CSA B111-1974 (R1998) (R1998) (R1998) 1974 , Wire Nails, Spikes and Staples.

.5 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-37.5-M89 M89 , Cutback Asphalt Plastic Cement.
- .2 CAN/CGSB-51.32-M77 M77 , Sheathing, Membrane, Breather Type.
- .3 CAN/CGSB-93.1-M85 M85 , Sheet, Aluminum Alloy, Prefinished, Residential.

1.2 Samples

.1 Submit shop drawings in accordance with Section 01 30 00.

.2 Submit duplicate 50 x 50 mm samples of each type of sheet metal material, colour and finish.

1.3 Warranty

.1 Provide extended warranty 5 years for material and labour, refer to Section 01 61 00.

PART 2 - PRODUCTS

2.1 Prefinished Steel Sheet

.1 Prefinished steel with factory applied silicone modified polyester.
- .1 Class F2S.
- .2 Premium colour selected by Consultant to match existing.
- .3 Specular gloss: 30 units +/- 5 in accordance with ASTM D 523-89(1999).
- .4 Coating thickness: not less than 25 micrometres.
- .5 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20% to ASTM D 822-01 as follows:
  - .1 Outdoor exposure period 1000 hours.
  - .2 Humidity resistance exposure period 1000 hours.

2.2 Accessories

.1 Isolation coating: alkali resistant bituminous paint.

.2 Plastic cement: to CAN/CGSB-37.5-M89.

.3 Underlay for metal flashing: No. 15 perforated asphalt felt to CSA A123.3-98.

.4 Sealants: according to Section 07 92 00. Ensure compatibility of materials.

.5 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.

.6 Fasteners: of same material as sheet metal, to CSA B111-1974 (R1998) (R1998) (R1998), ring thread flat head roofing nails of length and thickness suitable for metal flashing application.

.7 Washers: of same material as sheet metal, 1 mm thick with rubber packings.

.8 Touch-up paint: as recommended by prefinished material manufacturer.

2.3 Fabrication

.1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details and as indicated.

.2 Fabricate aluminum flashings and other sheet aluminum work in accordance with Aluminum Association Aluminum Sheet Metal Work in Building Construction.

.3 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.

.4 Hem exposed edges on underside 12 mm. Miter and seal corners with sealant.

.5 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

.6 Apply isolation coating to metal surfaces to be embedded in concrete

or mortar.

2.4 Metal Flashings

.1 Form flashings, copings and fascias to profiles indicated of 22ga prefinished steel .

2.5 Pans

.1 Form pans to receive roofing plastic from 24ga thick prefinished steel sheet metal with minimum 75 mm upstand above finished roof and 100 mm continuous flanges with no open corners. Rivet joints. Make pans minimum 50 mm wider than member passing through roof membrane.

2.6 Reglets and Cap Flashings

.1 Form recessed reglets and metal cap flashing of 1 mm thick sheet metal to be built-in masonry work for base flashings as detailed and in accordance with CRCA FL series details. Provide slotted fixing holes and steel/plastic washer fasteners. Cover face and ends with plastic tape.

PART 3 - EXECUTION

3.1 Installation

.1 Install sheet metal work in accordance with CRCA FL series details and as detailed.

.2 Use concealed fastenings except where approved before installation.

.3 Provide underlay under sheet metal. Secure in place and lap joints 100 mm.

.4 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs. Flash joints using S-lock forming tight fit over hook strips, as detailed.

.5 Lock end joints and caulk with sealant.

.6 Install surface mounted reglets true and level, and caulk top of reglet with sealant.

.7 Insert metal flashing into reglets and under cap flashing to form weathertight junction.

.8 Turn top edge of flashing into recessed reglet or mortar joint minimum of 25 mm. Lead wedge flashing securely into joint.

.9 Caulk flashing at reglet and cap flashing with sealant.

.10 Install pans, where shown and as required around items projecting through roof membrane.

PART 1 - GENERAL

1.1 REFERENCES

.1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  .1 Material Safety Data Sheets (MSDS).

.2 Underwriter's Laboratories of Canada (ULC)
  .1 CAN-ULC-S101-04, Standard Methods of fire Endurance Tests of Building Construction and Materials.
  .2 CAN-ULC-S102-03, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.2 SUBMITTALS

.1 Provide submittals in accordance with Section 01300.

.2 Product Data:

  .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
  .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01300.

.3 Samples: submit duplicate 300 x 300 mm size sample of exposed fireproofing for approval of texture and colour.

.4 Quality assurance submittals: submit following in accordance with Section 01400 - Quality Control.

  .1 Test Reports:

.1 Submit product data including certified copies of test reports verifying fireproofing applied to substrate as constructed on project will meet or exceed requirements of Specification.
.2 Submit test results in accordance with CAN- ULC-S101 for fire endurance and CAN-ULC-S102 for surface burning characteristics.
.3 For assemblies not tested and rated, submit proposals based on related designs using accepted fireproofing design criteria.

.2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures and.

.4 Manufacturer's Field Reports: submit to manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.3 QUALITY ASSURANCE

.1 Qualifications:
.1 Installer: company specializing in sprayed-on fireproofing with 5 years documented experience and approved by manufacturer.

.2 Mock-ups:
.1 Construct mock-up in accordance with Section 01400 - Quality Control.
.2 Apply fireproofing to approximately 10 m ² area of surfaces of mock-up-matching surface to be treated.
.3 Mock-up will be used:
.1 To judge workmanship, substrate preparation, operation of equipment and material application.

.4 Locate where directed.
.5 Allow 24 hours for inspection of mock-up by Consultant before proceeding with fireproofing work.
.6 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may not remain

as part of finished work.

.3 Site Meetings:
.1 Convene pre-installation meeting one week prior to beginning work of this Section and on-site installations, with contractor's representative and Consultant in accordance with Section 01300 to:
.1 Verify Project requirements.
.2 Review installation and substrate conditions.
.3 Co-ordination with other building subtrades.
.4 Review manufacturer's installation instructions and warranty requirements.
.2 Prior to start of Work arrange for site visit with Consultant to examine existing site conditions adjacent to demolition work.
.3 Hold project meetings every week.
.4 Ensure key personnel, site supervisor, project manager, and subcontractor representatives attend.
.5 Consultant will provide written verbal notification of change to meeting schedule established upon contract award 24 hours prior to scheduled meeting.

.4 Site Meetings: as part of Manufacturer's Services described in PART 3 - FIELD QUALITY CONTROL, schedule site visits, to review Work, at stages listed.
.1 After delivery and storage of products, and when preparatory Work is complete but before installation begins.
.2 Twice during progress of Work at 25% and 60% complete.
.3 Upon completion of Work, after cleaning is carried out.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:
.1 Deliver, store and handle materials in accordance with Section 01601.
.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
.3 Deliver packaged materials in original unopened containers, marked to indicate brand name, manufacturer, ULC markings.

.2 Storage and Protection:
.1 Store materials indoors in dry location.

.2 Store and protect materials from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.

.3 Damaged or opened containers will be rejected.

.4 Packaging to indicate shelf-life and materials to be applied prior to expiration of shelf-life.

.5 Provide temporary enclosures to prevent spray from contaminating air beyond application area.

.6 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of fireproofing materials.

1.5 AMBIENT CONDITIONS

.1 At temperatures less than 5 degrees C, ensure that 5 degrees C air and substrate temperature is maintained during and for 24 hours after application. Ensure that natural ventilation to properly dry the fireproofing during and subsequent to its application is provided. In enclosed areas lacking openings for natural ventilation, ensure that interior air is circulated and exhausted to the outside.

.2 Maintain relative humidity within limits recommended fireproofing manufacturer.

.3 Ensure that natural ventilation to properly dry fireproofing during and subsequent to its application is provided.

.4 In enclosed areas lacking openings for natural ventilation, provide minimum of 4 air exchanges per hour by forced air circulation.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Sprayed fireproofing: ULC certified asbestos-free mineral fibre fireproofing qualified for use in ULC Designs or equal to match existing, specified and fungus resistant for 28 days. ULC Design No. F816.

.2 Curing compound: type recommended by fireproofing manufacturer, qualified for use in ULC Designs specified.

.3 Sealer: type recommended by fireproofing manufacturer, qualified for use in ULC Design specified.
.1 Colour: green.

.4 Fireproofing: minimum dry density and cohesion/adhesion properties as follows:
.1 Fireproofing for structural components concealed above ceiling, or within wall, chase, or furred space: minimum average applied dry density of 240 kg per cubic meter and cohesion/adhesion strength of 9.57 kPa.
.2 Fireproofing for exposed structural components, except where otherwise specified or indicated: minimum applied dry density of 350 kg per cubic meter and cohesion/adhesion strength of 20.83 kPa.
.3 Fireproofing for structural components located in mechanical rooms and storage areas: minimum applied dry density of 640 kg per cubic meter and cohesion/adhesion strength of 350 kPa.
.4 Ensure spray-applied fireproofing: does not crack, spall or delaminate under downward deflection conditions over 3 m clear span.
.5 Minimum compressive strength: 48 kPa.
.6 Spray-Applied fireproofing material: not contribute to corrosion of test panels.
.7 Dust removal: not exceed 0.25 gram per square meter.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 PREPARATION

.1 Substrate: free of material, which would impair bond.

.2 Verify that painted substrates are compatible and have suitable bonding characteristics to receive fireproofing.

.3 Remove incompatible materials.

.4 Ensure that items required to penetrate fireproofing are placed before installation of fireproofing.

.5 Ensure that ducts, piping, equipment, or other items which would interfere with application of fireproofing are not positioned until fireproofing work is completed.

3.3 APPLICATION

.1 Apply bonding adhesive or primer to substrate if recommended by manufacturer.

.2 Apply fireproofing to correspond with tested assemblies.

.3 Apply fireproofing over substrate, building up to required thickness to cover substrate with monolithic blanket of uniform density and texture.

.4 Apply fireproofing directly to open web joists without use of expanded lath.

.5 Tamp smooth, surfaces visible in finished work as indicated.

.6 Apply curing compound to surface of cementitious fireproofing as required by manufacturer.

.7 Apply sealer to surface of mineral fibre fireproofing as required by manufacturer in ventilation plenums where fireproofing is to be painted and as indicated.

3.4 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:
- .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
- .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- .3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

.2 Inspection and Site Tests:
- .1 Inspection and testing of fireproofing will be carried out in accordance with Section 1400 by Testing Laboratory designated by Consultant.
- .2 Costs for testing to be disbursed under Allowances in accordance with Section 01005.

3.5 PATCHING

.1 Patch damage to fireproofing caused by testing or by other trades before fireproofing is concealed, or if exposed, before final inspection.

3.6 CLEANING

.1 Proceed in accordance with Section 01711 - Cleaning.

.2 Clean surfaces not indicated to receive fireproofing of sprayed material within 24 hours period after application.

.3 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

PART 1 - GENERAL

1.1 Summary

.1 This Section specifies caulking and sealants not specified in other Sections.

.2 Refer to other sections for other caulking and sealants.

1.2 References

.1 CAN/CGSB-19.1-M87, Putty, Linseed Oil Type.

.2 CAN/CGSB-19.2-M87, Glazing Compound, Nonhardening, Modified Oil Type.

.3 CGSB 19-GP-5M, Sealing Compound, One Component, Acrylic Base, Solvent Curing.

.4 CAN/CGSB-19.6-M87, Caulking Compound, Oil Base.

.5 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.

.6 CGSB 19-GP-14M, Sealing Compound, One Component, Butyl-polyisobutylene Polymer Base, Solvent Curing.

.7 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.

.8 CAN/CGSB-19.18-M87, Sealing Compound, One Component, Silicone Base, Solvent Curing.

.9 CAN/CGSB-19.20-M87, Cold-applied Sealing Compound, Aviation Fuel-resistant.

.10 CAN/CGSB-19.21-M87, Sealing and Bedding Compound Acoustical.

.11 CAN/CGSB-19.22-M89, Mildew Resistant, Sealing Compound for Tubs and Tiles.

.12 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

1.3 Samples

.1 Submit samples in accordance with Section 01 57 19 - Temporary Environmental Controls.

.2 Submit duplicate samples of each type of material and colour. Colours to be as selected by Consultant from manufacturer's standard and premium colour range.

.3 Submit manufacturer's data sheets for each type of sealant used.

1.4 Delivery, Storage, and Handling

.1 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture and water.

1.5 Environmental and Safety Requirements

.1 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

.2 For interior caulking work, ventilate areas as directed by Consultant.

1.6 Compatibility

.1 Contractor together with manufacturer to recommend materials most appropriate for use intended and to assure compatibility of caulking materials with adjacent materials. Commencement of Work shall be deemed comformance with this Article.

.2 Examine sustrates prior to commencing work and report to Consultant deficiencies which may impede the work of this Section. Commencement

of Work shall be deemed acceptance of substrate.

1.7 Warranty

.1 Provide extended warranty 5 years for material and labour, refer to Section 01 60 00.

PART 2 - PRODUCTS

2.1 Sealant Materials

.1 Sealants and caulking compounds must:
- .1 meet or exceed all applicable governmental and industrial safety and performance standards; and
- .2 be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the fisheries Act and the Canadian Environmental Protection Act (CEPA).

.2 Sealant and caulking compounds must not be formulated or manufactured with: aromatic solvents, fibrous talc or asbestos, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium, barium or their compounds, except barium sulfate.

.3 Sealant and caulking compounds must not contain a total of volatile organic compounds (VOCs) in excess of 5% by weight as calculated from records of the amounts of constituents used to make the product;

.4 Sealant and caulking compounds must be accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance, and information describing proper disposal methods.

.5 Caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant shall not be used in air handling units.

.6 When low toxicity caulks are not possible, confine usage to areas which

offgas to the exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.

.7 In the selection of the products and materials of this section preference will be given to those with the following characteristics: Water based, water soluble, water clean-up, non-flammable, Biodegradable , low Volatile Organic Compound (VOC) content, manufactured without compounds which contribute to ozone depletion in the upper atmosphere, manufactured without compounds which contribute to smog in the lower atmosphere, does not contain methylene chloride, does not contain chlorinated hydrocarbons.

.8 The manufacturing process must adhere to Lifecycle Assessment Standards as per CSA Z760-94 LCA Standards .

.9 Sealants acceptable for use on this project except CAN/CGSB-19.1-M87 and CAN/CGSB-19.18-M87 must be listed on CGSB Qualified Products List issued by CGSB Qualification Board for Joint Sealants. Where sealants are qualified with primers use only these primers.

2.2 Sealant Material Designations

.1 Sealants for vertical and horizontal non-traffic bearing joints, to Table 1, CGSB 19-GP-23:

.1 Normal temperature range, dry conditions, movement range to 25%: CGSB 19-GP-9Ma+Amd- Oct-80, CAN/CGSB-19.13-M87, CAN/CGSB-19.18-M87, Can2-19.24-M80.

.2 Normal temperature range, wet conditions, movement range to 25%: CAN/CGSB-19.13-M87, Can2-19.24-M80.

.3 Low temperature range, dry conditions, movement range to 25%: CGSB 19-GP-9Ma+Amd- Oct-80, CAN/CGSB-19.13-M87, CAN/CGSB-19.18-M87, Can2-19.24-M80.

.4 Low temperature range, wet conditions, movement range to 25%: CAN/CGSB-19.13-M87, Can2-19.24-M80.

.2 Sealants in interior applications subject to high humidity and dampness to be silicone type with integral fungiside.

2.3 Back-up Materials

.1 Polyethylene, Urethane, Neoprene or Vinyl Foam

.1 Extruded closed cell foam backer rod.

.2 Size: oversize 30 to 50%.

.2 Neoprene or Butyl Rubber
.1 Round solid rod, Shore A hardness 70.

.3 High Density Foam.
.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m³ density, or neoprene foam backer, size as recommended by manufacturer.
.2 Bond Breaker Tape.
.1 Polyethylene bond breaker tape which will not bond to sealant.
.3 Ensure compatibility with sealants.

2.4 Sealant Selection

.1 Use sealant as recommended by manufacturer for use intended. Submit sealant schedule to Consultant for review prior to commencement of work.

2.5 Joint Cleaner

.1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

.2 Primer: as recommended by manufacturer.

2.6 Joint Cleaner

.1 Products in accordance with this specification by only the following manufacturers will be accepted.

1. Dow Corning
2. General Electric
3. Sonneborn
4. Tremco

PART 3 - EXECUTION

3.1 Protection

.1 Protect installed work of other trades from staining or contamination.

3.2 Preparation of Joint Surfaces

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair work.

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.3 Priming

.1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 Backup Material

.1 Apply bond breaker tape where required to manufacturer's instructions.

.2 Install joint filler to achieve correct joint depth and shape.

3.5 Mixing

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 Application

.1 Sealant.
- .1 Apply sealant in accordance with manufacturer's instructions at all joints between dissimilar materials.
- .2 Apply sealant in continuous beads.
- .3 Apply sealant using gun with proper size nozzle.
- .4 Use sufficient pressure to fill voids and joints solid.
- .5 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
- .6 Tool exposed surfaces to give slightly concave shape.
- .7 Remove excess compound promptly as work progresses and upon completion.

.2 Curing.
- .1 Cure sealants in accordance with sealant manufacturer's instructions.
- .2 Do not cover up sealants until proper curing has taken place.

.3 Cleanup.
- .1 Clean adjacent surfaces immediately and leave work neat and clean.
- .2 Remove excess and droppings, using recommended cleaners as work progresses.
- .3 Remove masking tape after initial set of sealant.

PART 1 - GENERAL

1.1 Related Work

.1 Building-in and Section 04050 grouting frames Masonry Procedures in masonry:

.2 Building-in frames Section 06100 into wood stud 06101 walls: Rough Carpentry.

.3 Caulking of joints Section 07900 between frames and sealants other building components:

.4 Supply of finish Section 08710 hardware, including Finish Hardware weatherstripping and mounting heights:

.5 Glazing: Section 08800 Glazing

.6 Building-in frames Section 09111 into steel stud Metal Stud System walls:

.7 Painting: Section 09900

1.2 References

.1 American Society for Testing and Materials (ASTM).
- .1 ASTM A 653/A 653M-02a 653M-02a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 ASTM B 29-92(1997), Specification for Pig Lead.
- .3 ASTM B 749-97, Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.

.2 Canadian General Standards Board (CGSB).
- .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .2 CGSB 41-GP-19Ma, Rigid Vinyl Extrusions for Windows and Doors.
- .3 CAN/CGSB-51.20-M87, Thermal Insulation, Polystyrene, Boards and

Pipe Covering.

.4 CGSB 51-GP-21M, Thermal Insulation, Urethane and Isocyanurate, Unfaced.

.3 Canadian Standards Association (CSA).

.1 CSA A101-M1983, Thermal Insulation, Mineral Fibre, for Buildings.

.2 CSA G40.21-98, Structural Quality Steels.

.3 CSA W59-M1989 (R2001) (R2001), Welded Steel Construction (Metal Arc Welding).

.4 Canadian Steel Door and Frame Manufacturers' Association, (CSDFMA).

.1 CSDFMA, Specifications for Commercial Steel Doors and Frames, 1990.

.2 CSDFMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 1990.

.5 National Fire Protection Association (NFPA).

.1 ANSI/NFPA 80-1998, Fire Doors and Windows.

.2 ANSI/NFPA 252-1999, Door Assemblies, Fire Tests of.

.6 Underwriters' Laboratories of Canada (ULC).

.1 CAN4-S104-M80(R1985) M80(R1985), Fire Tests of Door Assemblies.

.2 CAN4-S105-M85(R1992), Fire Door Frames.

1.3 Design Requirements

.1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35°C to 35°C.

.2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

1.4 Requirements of Regulatory Agencies

.1 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104-M80(R1985) revised 1985 and CAN4-S105-M85(R1992) for ratings specified or indicated.

.2 Install labelled steel fire rated doors and frames to ANSI/NFPA 80-1998

except where specified otherwise.

1.5 Shop Drawings

.1 Submit shop drawings in accordance with Section 01300 - Submittals.

.2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed louvred, arrangement of hardware and fire rating.

.3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and finishes.

PART 2 - PRODUCTS

2.1 Materials

.1 Hot dipped galvanized steel sheet: to ASTM A 653/A 653M-02a 653M-02a, ZF75, minimum base steel thickness in accordance with CSDFMA Table 1 - Thickness for Component Parts.

.2 Reinforcement channel: to CSA G40.21-98, Type 44W, coating designation to ASTM A 653/A 653M-02a 653M-02a, ZF75.

.3 Composites: balance of core materials used in conjuction with lead: in accordance with manufacturers' proprietary design.

2.2 Door Core Materials

.1 Stiffened: face sheets welded, vertically stiffened, uninsulated core.

.1 Polyurethane: to CGSB 51-GP-21M rigid, modified poly/isocyanurate, closed cell board. Density 32 kg/m^3.

.2 Temperature rise rated (TRR): core composition to limit temperature rise on unexposed side of door to 250°C at 30 60minutes. Core to be tested as part of a complete door assembly, in accordance with

CAN4-S104-M80(R1985), ASTM E 152-81a or ANSI/NFPA 252-1999, covering Standard Method of Tests of Door Assemblies and listed by nationally recognized testing agency having factory inspection service.

.3 Thermal insulation material must:
- .1 not require being labelled as poisonous, corrosive, flammable or explosive under the Consumer Chemical and Container Regulations of the Hazardous Products Act;
- .2 be manufactured using a process that uses chemical compounds with the minimum ozone depletion potential (ODP) available.

.4 Board-type thermal insulation materials must:
- .1 contain, when calculated on a 12-month rolling basis:
  - .1 over 35 % recycled material by weight of the finished product if made from glass fibre,
  - .2 over 45 % recycled material by weight of the finished product if made from mineral composition,
  - .3 over 10 % recycled material by weight of the finished product, if made from plastic.

2.3 Adhesives

.1 Select Adhesives which:
- .1 do not contain volatile organic compounds in excess of 5 % by weight as measured by EPA Method 24-24A, 40 C.F.R., Part 60, Appendix A (1991), Method 18,48 Federal Register 48, no. 202, October 18, 1983 Method 1400 NIOSH Manual of Analytical Methods, Volume 1, February 1984, Environmental Protection Agency Method 8240 GC/MS Method for Volatile Organics, September 1986, as demonstrated through calculation from records of the amounts of constituents used to make the product;
- .2 are accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance;
- .3 are accompanied by information describing proper disposal methods for containers.

.2 Steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.

.3 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.

.4 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

2.4 Primers

.1 Touch-up prime CAN/CGSB-1.181-99.

2.5 Accessories

.1 Door silencers: single stud rubber/neoprene type GJ-64.

.2 Exterior and interior top and bottom caps: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma steel.

.3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.4 Door bottom seal.

.5 Metallic paste filler: to manufacturer's standard.

.6 Fire labels: metal riveted.

.7 Sealant: in accordance with Section 07900.

.8 Glazing: in accordance with Section 08800.

.9 Make provisions for glazing as indicated and provide necessary glazing stops.

.1 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws or dry glazing of snap-on type.

.2 Design exterior glazing stops to be tamperproof. Provide non-removeable stainless steel screws.

2.6 Frames Fabrication General

.1 Fabricate frames in accordance with CSDFMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated and to suit wall conditions. Frame depths to cover masonry cavities where

applicable. All exposed corner blocks are bullnosed. Generally, for 150 concrete block walls, throat size to cap block. For cavity walls, frame depth to be minimum 178mm with fasteners to suit anchorage into masonry veneer and back-up block.

.3 Exterior frames: 1.6 mm welded thermally broken type construction.

.4 Interior frames: 1.6 mm welded knocked-down type construction.

.5 Blank, reinforce, drill and tap frames for mortised, templated hardware, andelectronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.

.6 Protect mortised cutouts with steel guard boxes except for gypsum board installations.

.7 Prepare frame for door silencers, 3 for single door, 2 at head for double door.

.8 Manufacturer's nameplates on frames and screens are not permitted.

.9 Conceal fastenings except where exposed fastenings are indicated.

.10 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

.11 Insulate exterior frame components with polyurethane insulation.

.12 Steel frames to exterior and interior openings 1200 mm or less in unsupported width 1.52 mm base thickness.

.1 Steel frames exterior and interior openings over 1200 mm in unsupported width 1.52 mm base thickness. Reinforce head with framed steel reinforcing channel for full width. Reinforce for all hardware.

2.7 Frame Anchorage

.1 Provide appropriate anchorage to floor and wall construction.

.2 Locate each wall anchor immediately above or below each hinge reinforecement on hinge jamb and directly opposite on strike jamb.

.3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.

.4 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm o.c. maximum.

.5 At masonry cavity walls, use galvanized offset T-anchors set into concrete block wythe.

2.8 Frames: Welded Type

.1 Welding in accordance with CSA W59-1989 (R2001) (R2001).

.2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

.3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.

.4 Grind welded joints and corners to a flat plane, fill with metalic paste and sane to uniform smooth finish.

.5 Securely attach floor anchors to inside of each jamb profile.

.6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

.7 Securely attach lead to inside of frame profile from return to jamb soffit (inclusive) on door side of frame only.

2.9 Door Fabrication General

.1 Doors: swing type, vertically stiffened, flush, with provision for glass and/or louvre openings as indicated.

.2 Exterior doors: hollow steel construction. Interior doors: hollow steel construction.

.3 Fabricate doors with longitudinal edges fully welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

.4 Doors: manufacturers' proprietary construction, tested and/or engineered as part of a fully operable assembly, including door, frame, gasketing and hardware in accordance with ASTM E 330-02.

.5 Blank, reinforce, drill doors and tap for mortised, templated hardware andelectronic hardware.

.6 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.

.7 Reinforce doors where required, for surface mounted hardware.

.8 Provide flush steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.

.9 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

.10 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in strict conformance with CAN4-S104-M80(R1985), ASTM E 152-81a or ANSI/NFPA 252-1999 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

.11 Manufacturer's nameplates on doors are not permitted.

.12 Bevel lock and hinge edges 3mm in 50mm unless builder's hardware or door swing dictates otherwise.

.13 Fabricate door faces without visible seams, free of scale, pitting, coil brakes, buckles and waves. Formed edges shall be true and straight with a minimum radius for the thickness of steel used.

.14 Top and bottom of doors shall be provided with inverted, recessed, 16 ga. steel end channels, welded to each face sheet at 150mm o.c. minimum.

.15 Hollow metal doors to be Fleming H series or equal.

2.10 Hollow Steel Construction

.1 Form each face sheet for exterior doors from 1.6 mm sheet steel.

.2 Form each face sheet for interior doors from 1.2 sheet steel.

.3 Reinforce doors with vertical stiffeners, securely welded to each face sheet at 150 mm on centre maximum.

.4 Fill voids between stiffeners of exterior doors with polyurethane core.

.5 Fill voids between stiffeners of interior doors with temperature rise rated core.

2.11 Thermally Broken Doors and Frames

.1 Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.

.2 Thermal break: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.

.3 Fabricate thermally broken frames separating exterior parts form interior parts with continuous interlocking thermal break.

.4 Apply insulation.

PART 3 - EXECUTION

3.1 Installation General

.1 Install in accordance with National Fire Codes, Volume 4, produced by National Fire Protection Association (ANSI/NFPA 80-1998.

.2 Install doors and frames to CSDFMA Installation Guide.

3.2 Door Installation

.1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08710 - Finish Hardware.

.2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
.1 Hinge side: 1.0 mm.

.2 Latchside and head: 1.5 mm.

.3 Finished floor, top of carpet noncombustible sill and thresholds: 13 mm.

.3 Adjust operable parts for correct function.

.4 Install louvres.

3.3 Frame Installation

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

.5 Caulk perimeter of frames between frame and adjacent material.

.6 Maintain continunity of air barrier and vapour retarder.

3.4 Finish Repairs

.1 Touch up with primer galvanized finish damaged during installation.

.2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

3.5 Glazing

.1 Install glazing for doors and frames in accordance with Section 08800 - Glazing.

PART 1 - GENERAL

1.1 Related Work

.1 Caulking of joints between Section 07900 frames and other building Sealants components:

.2 Supply of finish Section 08710 hardware: Door Hardware

.3 Wiring and conduit Division 16 for electronic hardware.

1.2 References

.1 Aluminum Association Designation System for Aluminum Finishes-1980.

.2 ASTM E 330-02 Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

.3 CSA G40.21-98 Structural Quality Steels.

.4 CAN/CSA-G164-M92 (R1998) Hot Dip Galvanizing of Irregularly Shaped Articles.

.5 CAN/CGSB-1.40-M89 Primer, Structural Steel, Oil Alkyd Type.

.6 CAN/CGSB-12.1-M90 Tempered or Laminated Safety Glass.

1.3 Design Criteria

.1 Design frames and doors in exterior walls to:
  .1 Accommodate expansion and contraction within service temperature range of -35 to 35°C.
  .2 Limit deflection of mullions to maximum 1/175th of clear span

when tested to ASTM E 330-02 under wind load of 1.2 kpa. Submit certificate of tests performed.

1.4 Samples

.1 Submit samples in accordance with Section 01300.

.2 Submit one 300 x 300 mm corner sample of each type door and frame.

.3 Submit sample showing glazing detail, reinforcement, finish and location of manufacturer's nameplates.

.4 Frame sample to show glazing stop, door stop, jointing detail, finish, wall trim, and removable mullion.

1.5 Shop Drawings

.1 Submit shop drawings in accordance with Section 01305.

.2 Indicate each type of door and frame, extrusion profiles, method of assembly, section and hardware reinforcement, locations of exposed fasteners, finishes and location of manufacturer's nameplates.

.3 Submit detail drawings indicating connections, lateral bracing of system and anchorage to base building.

.4 Submit catalogue details for each type of door and frame illustrating profiles, dimensions and methods of assembly.

.5 Shop drawings to be signed and sealed by member of the Professional Engineers of Ontario (P.E.O.).

1.6 Maintenance Data

.1 Provide operation and maintenance data for cleaning and maintenance of aluminum finishes for incorporation into manual specified in Section 01730.

1.7 Protection

.1 Apply temporary protective coating to finished surfaces. Remove coating after erection. Do not use coatings that will become hard to remove or leave residue.

.2 Leave protective covering in place until final cleaning of building.

1.8 Warranty

.1 Provide extended warranty 10 years for material and labour, refer to Section 01 61 00.

PART 2 - PRODUCTS

2.1 Materials

.1 Aluminum extrusions: Aluminum Association alloy AA6063-T5 or T6 anodizing quality.

.2 Sheet aluminum: Aluminum Association alloy AA1100-H14 or AA5005-H32 or H34 anodizing quality.

.3 Steel reinforcement: to CSA G40.21-98, grade 300W.

.4 Fasteners:stainless steel.

.5 Door bumpers: black neoprene.

.6 Isolation coating: bituminous paint.

.7 Glass: laminated security glass to CAN/CGSB-12.1-M90, Type 1, Class A.

.8 Glazing materials: in accordance with Section 08800.

.9 Sealants: in accordance with Section 07900 colour selected by

Consultant.

2.2 Aluminum Doors

.1 Aluminum doors to be wide stile type constructed of porthole extrusions minimum 50mm thick with minimum wall thickness of 3 mm. Alumicor Series 800A, Kawneer 500, Sherwood Windows Limited W-2000 wide-style or other approved equal. Provide doors to dimensions and configurations as shown on drawings.

.2 Door stiles minimum nominal 89 mm wide or as shown on drawings.

.3 Top rail minimum nominal 89 mm wide or as shown on drawings.

.4 Bottom rail minimum nominal 300 mm wide or as shown on drawings and to match glazing sill extrusion.

.5 Mid rail minimum nominal 200mm or as shown on drawings.

.6 Reinforce mechanically-joined corners of doors to produce sturdy door unit.

.7 Glazing stops: interlocking snap-in type for single dry glazing. Exterior stops: tamperproof type.

.8 Hardware: Prepare doors for hardware specified in Section 08710.

.9 Supply and install aluminum doors in thermally broken aluminum frames and screens.

.10 Corner construction shall be butt joined with two hidden welds. At each corner, welds shall be of the inert gas process with maximum penetration and without heat discolouration on exposed surfaces.

.11 Prepare for and install finishing hardware on aluminum doors. Provide cutouts, recesses, mortising required for finish and operating hardware. Coordinate with Section 08710.

.12 Provide rails and transoms to sizes and profiles shown in these Specifications or as shown on drawings.

.13 Make provision for concealed magnetic door switches as specified.

2.3 Aluminum Frames

.1 Construct heavy duty frames of aluminum extrusions with minimum wall thickness of 3 mm.

.2 Framing System: complete framing system including dry glazing splines, removable horizontal member stops, connecting brackets, sloped framing and single glazing, door stops, fasteners, extruded aluminum adapters for single glazing, removable centre mullions, etc. for complete installation.

.3 Prepare exterior frames for door jamb contacts and security wiring to Owner's requirements.

.4 Supply and install aluminum doors in thermally broken aluminum frames and screens.

.5 Prepare for and install finishing hardware on aluminum frames. Provide cutouts, recesses, mortising required for finish and operating hardware. Coordinate with supply by Section 08710.

.6 Provide sidelights, rails and transoms to sizes and profiles shown in these Specifications or as shown on drawings.

.7 Make provision for concealed magnetic door switches as specified.

2.4 Finishes

.1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.

.1 Clear anodized to match existing. Verify on site.

.2 Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative.

2.5 Steel Finishes

.1 Finish steel clips and reinforcing steel with steel primer to CAN/CGSB-1.40-M89 zinc coating to CAN/CSA-G164-M92 (R1998) (R1998) (R1998) (R1998).

2.6 Fabrication

.1 Doors and framing to be by same manufacturer.

.2 Fabricate doors and frames to profiles and maximum face sizes as shown.

.3 Provide structural steel reinforcement as required.

.4 Fit joints tightly and secure mechanically.

.5 Conceal fastenings.

.6 Mortise, reinforce, drill and tap doors, frames and reinforcements to receive hardware using templates provided under Section 08710 - Finish Hardware.

.7 Isolate aluminum from direct contact with dissimilar metals, concrete and masonry.

2.7 Acceptable Manufacturers

.1 Products in accordance with this specification by only the following manufactuers will be accepted.
- .1 Aerloc
- .2 Sherwood
- .3 Windspec

PART 3 - EXECUTION

3.1 Installation

.1 Set frames plumb, square, level at correct elevation in alignment with adjacent work.

.2 Anchor securely.

.3 Install hardware for doors provided under this Section 08120, as supplied by Section 08710. Install doors and hardware in accordance with hardware templates and manufacturer's instructions.

.4 Adjust operable parts for correct function.

.5 Make allowances for deflection of structure to ensure that structural loads are not transmitted to frames.

3.2 Glazing

.1 Glaze aluminum doors and frames in accordance with Section 08800 - Glazing. All glazing in doors, sidelights and transoms to be insulated units, tempered glass exterior and laminated security glass at interior.

3.3 Caulking

.1 Seal joints to provide weathertight seal at outside and air, vapour seal at inside.

.2 Apply sealant in accordance with Section 07900 - Sealant. Conceal sealant within the aluminum work except where exposed use is permitted by Consultant.

PART 1 - GENERAL

1.1 Reference

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.40-M89, Primer, Structural Steel, Oil Alkyd Type.
- .2 CAN/CGSB-79.1-M91, Insect Screens.

.2 Canadian Standards Association (CSA)
- .1 CSA PKG.A440-00, Windows.
- .2 CAN/CSA-G164-M92 (R1998) (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CAN/CSA-Z91-M90, Safety Code for Window Cleaning Operations.
- .4 CSA Z760-94, Life Cycle Assessment.
- .5 CAN/CSA IS0 14040- 97, Environmental Management - Life Cycle Cost Assessment - Principle and Framework.

1.2 Samples

.1 Submit samples in accordance with Section 01300 - Submittals.

.2 Submit one representative model of each window type.

.3 Include frame, sash, sill, glazing and weatherproofing method, insect screens, surface finish and hardware. Show location of manufacturer's nameplates.

.4 Include 150 mm long samples of head, jamb, sill, meeting rail mullions to indicate profile.

1.3 Shop Drawings

.1 Submit shop drawings in accordance with Section 01305.

.2 Indicate materials and details in scale full size for head, jamb and

sill, profiles of components, interior and exterior trim junction between combination units elevations of unit, anchorage details, location of isolation coating, blocking, glazing, description of related components and exposed finishes fasteners, and caulking. Indicate location of manufacturer's nameplates.

1.4 Test Reports

.1 Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:
- .1 Windows
- .2 Enamelled finish, weathering characteristics.
- .3 Insect screens.
- .4 Air tightness.
- .5 Water tightness.
- .6 Wind load resistance.
- .7 Condensation resistance.
- .8 Safety drop - vertical sliding windows only.
- .9 Block operation - sliding windows only.
- .10 Sash strength and stiffness - Hinged.
- .11 Ease of operation - windows with operable lights.
- .12 Sash pull-off - vinyl windows.
- .13 Forced entry resistance.
- .14 Mullion deflection - combination and composite windows.

1.5 Maintenance Data

.1 Provide operation and maintenance data for windows.

1.6 Affidavits

.1 Submit manufacturer's name, catalogue and proof that the windows to be supplied meet all the standards specified herein.

1.7 Quality Assurance

.1 Aluminum manufacturer shall be responsible for design and fabrication of all system components to ensure they meet loads imposed and allow for expansion/contraction of materials without failure of joint seals, visible distortion in glazing panels, or undue stress on fastening mechanisms.

.2 Doors and windows shall be designed to meet or exceed air and water infiltration performance criteria of applicable standards and shall safely withstand local wind and snow loadings acting on plane of unit per latest codes.

.3 Contractors Qualifications: Work of this trade shall be executed by a company with a minimum of ten years proven first class experience in this type of work having adequate equipment and skilled personnel to expedite completion of the work in an efficient and very best workmanlike manner.

.4 Source Quality Control: Windows supplied under this specification shall have been tested by an independent testing agency indicating compliance with the performance requirements of A440 Series-98. This qualification shall be prerequisite for tendering.

.5 Field Testing: Provide frames on site for inspection prior to their installation. Upon receiving approval of the frame install one in the presence of the Owner complete with glass, panels, operating units and all sealants.

.6 Two windows will be selected by the Consultant at random and be tested as complete and installed assemblies after all windows have been installed including air barrier and perimeter sealants, according to ASTM 283.73 and ASTM E 547-00. Assemblies that do not conform to specified standards and tests under test conditions shall be resealed, and other units shall be installed in a manner that will avoid the leakage. Cost of this test will be borne by the Owner.

.7 Should the installed windows fail this test, costs of subsequent tests of corrected installations will be borne by the Contractor.

.8 Caulking work of this section shall be performed by skilled experienced personnel in strict accordance with methods and procedures outlined in Section 07900. Submit proof of such experience if requested by Consultant.

1.8 Performance Criteria

.1 Operating vents must meet CSA PKG.A440-00, Air Tightness - A3 (leakage-0.00 cfm/ft), Water Tightness - B5, Wind Load Resistance - C5, and Condensation Resistance Index (I) of 50.

.2 Fixed framing must meet CSA PKG.A440-00, Air Tightness - Fixed (leakage - 0.004 cfm/ft), Water Tightness - B7, Wind Resistance - C4, and Condensation Resistance Index (I) of 58.

.3 Wind Load Resistance: Windows must resist deflection greater than L/125 for sash and greater than L/175 for mullions when tested to CSA PKG.A440-00 Level C3.

.4 Thermal Resistance: Window must have an "I" value of 50 as determined in accordance with CSA PKG.A440-00 in order to resist condensation at -18 deg. C (Toronto 2.5% January mean) at 35% Relative Humidity.

.5 At the conclusion of these tests there shall be no glass breakage, permanent damage of fasteners, hardware parts, or any other damage causing the window to be inoperable. There shall be no permanent deformation of any frame or sash member in excess of 0.4% of its span.

.6 No escape of moisture into the wall cavity due to the failure of the window installation will be tolerated.

.7 Test results determined by the testing agent will be prima facie evidence relied upon by the Owner to determine compliance to these requirements. The bidder agrees to accept said determination and will not contest same.

1.9 Warranty

.1 All work of this section shall be warranted against leaks, irregularities, faulty material, faulty workmanship or poor installation of same. Corrective work performed under warranty shall be to Consultant's approval and at no additional cost to Owner. Warranty shall be effective for period of two (2) years from date of Substantial Performance of entire project. Also submit following extended warranties:

.1 Ten (10) year warranty on all windows

.2 Ten (10) year warranty on all caulking

.3 Ten (10) year warranty on hermetically sealed units

PART 2 - PRODUCTS

2.1 Manufacturers

.1 Frames, sidelights, transoms, screens and windows shall be as manufactured and assembled in plant and must be installed by the selected manufacturer. No exceptions will be permitted.

.2 Manufacturers of aluminum windows having Product considered acceptable for use are:
- .1 Aerloc
- .2 Windspec
- .3 Alwind Industries Ltd.

.3 Unless noted otherwise, aluminum window profiles as described in this section are based on the products of Aerloc Industries Ltd. Similar profiles by Windspec or Sherwood will be acceptable but it is the responsibility of the Bidder to ensure that they meet the intent of the design noted on the tender drawings.

2.2 Materials

.1 Aluminum frames, sash, frames for flyscreens, etc. shall be extruded from 6063-T5 alloy, shall be mechanically straightened and free from hammer marks, etc. Extrusions shall adhere closely to profile and dimension as detailed on manufacturer's drawings and shall be 2.6 mm thick, minimum.

.2 Materials: to CSA PKG.A440-00.

.3 All windows by same manufacturer.

.4 All windows shall be fabricated to sizes shown and be Aerloc Industries 4200/2200-5" series finished and glazed as stated below, and which, when erected, shall provide completely watertight enclosures. All windows to be provided with fiberglass pressure plate.

.5 All operable windows shown on elevations shall open out. Operable windows shall be Aerloc Industries 2200 Series projecting ventilators. As inserts to the fixed window framing Aerloc 4200 series frame complete with top-hung open-out vents at locations shown on drawings. Operable windows are to have roto-operator and claw handles, and fly screens fitted with tamperproof fasteners. Sash openings to be restricted to

maximum 100 mm. Submit sample.

.6 Glass:
- .1 Float glass: to CAN/CGSB-12.3-M91, glazing quality.
- .2 Tempered safety glass to CAN/CGSB-12.1-M90, Type 2, Class A of thickness indicated minimum 6mm.
- .3 Laminated safety glass to CAN/CGSB-12.1-M90, Type 1, Class A minimum 6mm or thickness as indicated.
- .4 Insulating glass units: to CAN/CGSB-12.8-M97, with outer pane of 6mm glass and inner pane of 6mm glass with 25 mm total thickness.

.7 Thermal Break: Extruded virgin polyvinylchloride Thermo-Barrier. Conform to CSA PKG.A440-00.

.8 Screens: at each operating unit to CAN/CGSB-79.1-M91 and CSA PKG.A440-00.
- .1 Class: Heavy Duty with rigidly joined corners.
- .2 Insect screening mesh: count 18 x 14 black fibreglass secured by continuous spline.
- .3 Fasteners: tamper proof.
- .4 Screen frames: colour to match window frames.
- .5 Mount screen frames for interior replacement. Insect screens installed on the exterior shall be mechanically fastened to the window frame in a vandal-proof manner.

.9 Weatherstipping: E.P.D.M. gaskets as shown on drawings.

.10 Aluminum Sills/Expansion Covers: To be extruded aluminum shapes 2.6 mm minimum thick, reinforced, as shown on the drawings with cover plates and drip deflectors. Finish to match framing.

.11 Aluminum Interior Stools and Trim: Column covers, trim and aluminum flashing, etc. to be 1.5 mm (.062") finish to match framing.

.12 Aluminum Exterior Trim/Panning: Extruded aluminum allow 6063-T5 be 2.0 mm (.078") thick minimum, to match frame finish and colour.

.13 Anchor Brackets: Extruded aluminum angles, 90mm x 140mm x 100mm long x 3mm thick, bitumastic painted.

.14 Anchors: Non-magnetic, stain and corrosion resistant stainless steel to ASTM E-149. Exposed fasteners are not acceptable.

.15 Exterior metal sills and aluminum facings: extruded aluminum of type and size to suit job conditions; minimum 3 mm thick, complete with joint covers, jamb drip deflectors, chairs, anchors and anchoring devices.

.16 Isolation coating: alkali resistant bituminous paint.

.17 Insulated Aluminum Panels: Panel Construction:

Exterior Composite Panel:
Duranar Finish
1.5 mm Aluminum fully adhesive bonded
19 mm Plywood
50 mm Rigid Polyisocyranurate Insulation Board
6 mm Pressed Board
1.5 mm Aluminum fully adhesive bonded

Interior Composite Panel:
Duracron Finish
1.2mm Aluminum
3m Hardboard
32mm Rigid Polyisocyranurate Insulation

All of the above components to be under heat and pressure with top quality permanently elastic neoprene contact adhesive. Submit sample of panel to Consultant for approval before fabrication.

2.3 Window Type and Classification

.1 Types:
- .1 Hopper Sash: Bottom Hinged Projecting In with insulating glass.
- .2 Awning Sash: Top Hinged Projecting out with insulating glass.
- .3 Fixed: with insulating glass.
- .4 Screens: on ventilating portion of windows.

.2 Classification rating: to CSA PKG.A440-00.
- .1 Air leakage: A3
- .2 Water leakage: B3
- .3 Wind load resistance: C3
- .4 Condensation resistance: Temperature Index, I D2
- .5 Forced Entry: F2
- .6 Insect Screens: S2
- .7 Glazing: G2

.3 Ventilator frames shall consist of inner and outer aluminum frame sections joined by means of an interlocking thermal barrier. Thermal barrier shall completely prevent metal to metal contact in any form. Vent corner shall be cut at 45 degrees, swaged with 3 heavy duty reinforcing angles per corner. Screwed corners on vents will not be permitted.

2.4 Fabrication

.1 Fabricate in accordance with CSA PKG.A440-00 supplemented as follows:

.2 Cope and butt join all joints in main frame and sash, neatly, in weathertight manner and secure by means of screws anchored into integral screw ports with stainless steel screws 8-#8 screws per corner.

.3 Internally seal all sash corners at time of assembly with polyurethane caulking.

.4 Deburr and make smooth all sharp milled edges and corners of sash and screen frames.

.5 Framing shall consist of closed tubular aluminum sections reinforced as required and thermally broken. Open channel profiles are not acceptable.

.6 Design coupling mullions to eliminate "seam joint" on weathered side while providing functional split to permit unit module construction and to provide for thermal expansion.

.7 Make allowances for deflection of structure to ensure that structural loads are not transmitted to aluminium framing.

.8 Provide mullion wall thicknesses, internal reinforcement and mullion extensions necessary to provide adequate strength, stiffness and connections that suit overall loads imposed on configurations indicated on drawings.

.9 Provide all vertical and horizontal mullions, corner and column covers, trim, insulated bases and panels, accessories, fasteners, integral wood blocking, etc. necessary for total aluminium assemblies indicated on drawings. Unless otherwise shown, aluminium to be minimum 2 mm thick.

.10 Provide sill members with minimum 5 deg. slope away from the frame. Fabricate extruded aluminium sills with profiles indicated and to suit wall condition. Provide drip deflectors at sill ends and at abutting vertical surfaces. Open ends of sills shall be fitted with neatly applied closure plates. Anchors shall be designed not to work loose after installation. Unless otherwise detailed, provide flush slip joint at intermediate sill joints.

.11 Provide sill weep system which will facilitate drainage of water

accumulating in sill area while preventing passage of air, dirt and insects to interior.

.12 Fabricate and anchor both inner and outer frames using specified screw fasteners without violating the Thermo-Barrier. Exposed fasteners or the use of pop revets is not acceptable.

.13 Fabricate entire window in a manner that will allow easy replacement of any defective, damaged or worn components, hardware or weatherstripping.

.14 Thermo-Barrier: Provide completely metal to metal separation between the two main frame members. Do not use connecting screws, clips or other members or restrict in any manner the expansion and contraction of the individual separate frame member. Factory seal between Thermo-Barrier and frame around entire perimeter to ensure weathertight assembly.

.15 Glazing: Provide sash frames which will permit glass replacement without the use of special tools.

.16 Weatherstripping: Double weatherstrip window units at all sash perimeters. Conceal weatherstripping to prevent accumulation of foreign matter or matting due to cleaning, operation or handling which would reduce effectiveness or life of seal. Install all weatherstripping in specially extruded ports and secure to prevent shrinkage, movement or loss when removing sash for cleaning or glass replacement.

.17 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.

.18 Face dimensions detailed are maximum permissible sizes.

.19 Brace frames to maintain squareness and rigidity during shipment and installation.

.20 Finish steel clips and reinforcement with shop coat primer to CAN/CGSB-1.40-M89.

2.5 Aluminum Finishes

.1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes - 1980.

.1 Clear anodized to match existing: AA-M10C21A41.

2.6 Isolation Coating

.1 Isolate aluminum from following components, by means of isolation coating:
  .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
  .2 Concrete, mortar and masonry.
  .3 Wood.

2.7 Glazing

.1 Glaze windows in accordance with CSA PKG.A440-00.

.2 Refer to Section 08800 for products supplied and installed under this Section.

2.8 Hardware

.1 Operable Venting Hardware: Each hinged vent to have extruded aluminum hinges with stainless steel pins, and two solid white bronze cam handles and two stainless steel friction side arms and two solid white metal allen key locks.

.2 Provide special keyed opening device for windows normally locked.

.3 Window latching devices:
  .1 Submit samples to Consultant for approval.
  .2 Where sash is located 1900mm or more above finished floor, provide roto operator to permit opening and closing from remote location 1200mm above finished floor. Teleflex or equal. Submit sample and shop drawings.

2.9 Air Barrier and Vapour Retarder

.1 Equip window frames with site installed air barrier and vapour retarder

material for sealing to building air barrier and vapour retarder as follows:

.1 Material: identical to, or compatible with, building air barrier and vapour retarder materials to provide required air tightness and vapour diffusion control throughout exterior envelope assembly.

.2 Material width: adequate to provide required air tightness and vapour diffusion control to building air barrier and vapour retarder from interior.

2.10 Acceptable Manufacturers

.1 Products in accordance with this specification by only the following manufacturers will be accepted.

.1 Aerloc

.2 Windspec

.3 Alwind Industries Ltd.

PART 3 - EXECUTION

3.1 Window Installation

.1 Install in accordance with CSA PKG.A440-00 and manufacturer's instructions.

.2 Prior to installation of face masonry, install anchor brackets in masonry cavity as required to back-up concrete block. Ensure continuity of air/vapour barrier and insulation.

.3 Install windows and doors plumb, level and true relative to building structure. Do not exceed 3mm in 3050mm (1/8" in 10'-0") variation from plumb and level.

.4 Fill void between exterior aluminum frame and window opening with single component polyurethane foam as detailed to form a complete air seal to wall vapour retarder.

.5 Arrange components to prevent abrupt variation in colour.

3.2 Sill Installation

.1 Install metal sills with uniform wash to exterior, level in length, straight in alignment with plumb upstands and faces. Use one piece lengths at each location.

.2 Cut sills to fit window opening.

.3 Secure sills in place with anchoring devices located at ends joints of continuous sills and evenly spaced 600 mm oc in between.

.4 Fasten expansion joint cover plates and drip deflectors with self tapping stainless steel screws.

.5 Maintain 6 to 9 mm space between butt ends of continuous sills. For sills over 1200 mm in length, maintain 3 to 6 mm space at each end.

3.3 Caulking

.1 Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.

.2 Foam Sealant: All voids between aluminium frames and masonry openings shall be completely filled with Polycel sealant.

.3 Apply sealant in accordance with Section 07900 - Sealants. Conceal sealant within window units except where exposed use is permitted by Consultant.

3.4 Protection

.1 Protect pre-finished surfaces of metal work with protective coatings or wrappings to remain in place until construction completion. Use materials recommended by finishers or manufacturers of metals to ensure that method is sufficiently protective, easily removed and harmless to finish.

.2 Remove protection from metal glazing surfaces before installation of glass.

.3 Maintain protection from time of installation to final cleanup in accordance with Section 01700.

PART 1 - GENERAL

1.1 General Requirements

.1 Comply with requirements listed in Division 1

1.2 Work Included

.1 Supply finishing hardware as listed in the hardware schedule. Refer to Door Hardware list prepared by Commercial Doors and Hardware Ltd.

1.3 Quality Assurance

.1 Meet all requirements of the local building code and all other applicable regulations.

.2 Products listed in Part 2 of this specification establish the minimum requirements for this project. Alternate products must be applied for and approved in writing prior to tender closing. Deviation from specified products will require the supply and installation of correct products, any/all associated costs.

.3 Qualified suppliers must have in their employ a Certified A.H.C. (Architectural Hardware Consultant), licensed by the Door and Hardware Institute. The supplier must have a minimum of five (5) years experience furnishing hardware for similar projects. It is the responsibility of the successful bidder to review the hardware schedule, the door and frame schedule and details, both to familiarize themselves with the scope of work and ensure product compatibility. Failure to report discrepancies, prior to tender closing, assures the owners/architect and consultant that these documents have been reviewed and are satisfactory to the bidder.

.4 Inspection of supplied Finishing Hardware will be done by a Certified A.H.C. A complete Site Inspection Report will be issued to the Architect.

.5 Acceptable bidders
Commercial doors and Hardware Ltd.
Upper Canada Hardware
Trillium Architectural Hardware.
Great lakes Door and Hardware.

1.4 Submittals

.1 Upon request provide mounted samples of hardware items to be supplied.
.2 Prepare and submit two (3) copies of a detailed hardware schedule listing product
Numbers, size and finishes. Include two (2) sets of catalog cuts.
.3 Furnish other sections with two (2) complete sets of hardware templates for
Related fabricating and installation.
.4 Submit for owner review and comments two (2) key schedules listing the door number, hardware heading or item, and the key group.
.5 Where electrical hardware is supplied, provide wiring diagrams showing all wire termination points. Where electrical hardware is supplied and installed provide the contractor with riser diagrams listing the correct wire runs and back box sizes as well as 115 VAC requirements.

.6 Where required in Division 1, provide two (2) operating manuals for the owners use. Include copies of the hardware schedule, templates, installation instructions and all maintenance data.

1.5 Product Delivery, Handling, and Storage

.1 Deliver each hardware item in its original package complete with all fasteners, keys, templates, and installation instructions required for installation.
.2 Clearly mark each container with the door opening number and the hardware schedule item or heading number.
.3 The contractor must store hardware delivered in a secure area. The storage area must contain adequate shelf space to hold all the hardware off the floor. Ensure the area is kept dry and clean.
.4 When requested, package items of hardware separately for delivery to other Fabricators for their installation.

1.6 Warranty

.1 Provide a written warranty for a period as follows:
Five (5) years on Cylindrical Lever sets.
Five (5) years on Exit Devices.
Twenty (20) years on Door Closers.
One (2) year on Electronic Products.
One (1) year on balance of products.

.2 When requested provide extended warranties listed in Division 1.

PART 2 – PRODUCTS

2.1 Butt Hinges

.1 All butt type hinges will be Ball bearing type.
.2 Exterior out swing door hinges must be non-ferrous and have non-removable pins (NRP).
.3 Where the door width exceeds 3'0" (950mm) supply 5" (127) high hinges.
.4 Supply two (2) hinges for doors up to 5'0" (1525 mm) high and an additional hinge for each 2'5" (760 mm) or fraction thereof in door height.
.5 Approved products:

ACCEPTABLE MANUFACTURERS	ITEM	ITEM	ITEM
MCKINNEY	T4A 3786	T4A 3386	TA 2714
STANLEY	FBB168	FBB199	FBB179

2.1.1.8 Continuous Hinges:

ACCEPTABLE MANUFACTURERS	ITEM	ITEM
MARKAR	FM100 SERIES	
MCKINNEY	MCK12-HD	
IVES	112HD	

.1 Interior: 628 finish.2 Exterior: 628 finish

2.2 Lock and Latchsets

.1 Locks and latch sets are to be cylindrical, full feature, freewheeling, and ANSI Grade 1 lever sets.
.2 Lever trim must have concealed through bolt mounting. The lever is to be solid cast with a return to the door face. The back plates (rosettes) are to be cold forged brass or bronze in the finish listed.
.3 Provide ¾" latch throw for pairs of labeled doors.

.4 Approved products:

ACCEPTABLE MANUFACTURERS	ITEM	ITEM	ITEM	ITEM	ITEM
SARGENT	8204 LNL	8237 LNL	8238 LNL	8215 LNL	8265 LNL

2.3 Cylinders and Keying

.1 Exterior locks and cylinders shall be keyed to a new LFIC Sargent GMK system , to the owners requirements.
.2 All Interior locks and cylinders shall be GMK to a new factory registered system.
.3 Cylinders supplied to site must have a construction core cylinder. Permanent Master keyed cores keyed to owners requirements are to be shipped to site as directed by the owner.
.4 All locks and cylinders shall be keyed to the owners requirements. Provide a Keying schedule for approval.
.5 Include the following with the key system:
-All keys should be stamped with key code

2.4 Exit Devices

.1 All exit devices will be low profile push pad style devices. Outside trim will have the same trim design as the locksets. Exit hardware must have the correct life safety or fire rated labels attached to the active case. Ensure that the actuating push pad covers 1/2 of the door opening.
.2 Interior doors requiring exit devices are to be equipped with standard Pullman deadlatching latchbolts, accident hazard or fire labeled as necessary.
.3 Provide alarm exit devices where noted at exterior doors. Alarm exit devices are to be supplied with a cylinder operated on/off switch and decal warning of alarmed door.
.4 Equip exterior aluminum door exit devices with necessary fasteners and features included where thermally broken doors are specified.
.5 Approve products:

ACCEPTABLE MANUFACTURERS	ITEM	ITEM	ITEM
SARGENT	8800 SERIES 630	8843 ETL 630	8515 ETL 630
VON DUPRIN	98 SERIES 630	98L 630	98L-BE 630

2.5 Electric Strikes

.1 Furnish Electric Strikes to exceed ANSI/BHMA A156.5, and listed by Underwriters Laboratories where required. Electric Strikes are to be manufactured from investment casting and stainless steel for durability and corrosion resistance. Furnish strikes with

appropriate latch bolt keepers, monitors as listed in the schedule.
.2 It is the responsibility of the finishing hardware supplier to provide Riser Diagrams, Point-to-Point Diagrams and method of operation notes for each of the openings utilizing these products.
.3 Approved products:

ACCEPTABLE MANUFACTURERS	ITEM	ITEM	ITEM
HES	9500 SERIES LBM 630	9600 SEIES 630	1006 SERIES 630
VON DUPRIN	6300 SERIES LBM 630	6300 SERIES 630	6200 SERIES 630

2.6 Door Closer

.1 Door closers will all have full adjustment features including back check, general speed, and latch speed control.
.2 All interior door closers will have reduced opening force spring power to meet the barrier free codes of 22N (5 lbs.)
.3 Surface mounted door closers are to be located on the room side of the door whenever possible or as directed by the architect.
.4 Where listed, door closers are to have full body covers to match the project finishes. Installation instructions must be inside all door closer covers.
.5 Template closers to permit full shock absorber action.
.6 Approved products.

ACCEPTABLE MANUFACTURER	ITEM	ITEM	ITEM
NORTON	R8501 689	7500 SERIES	CLP 7500
SARGENT	1430 SERIES 689	350 SERIES 689	350 PS

.1 Where required, out swinging doors and interior doors shall have closers with parallel arms.
.2 Back-checking feature shall be of a proper size to operate the door efficiently.
.3 All closers shall be complete with full cover of same design and manufacturer.
.4 All interior closers shall be reduced-force type.
.5 All interior doors for barrier-free use shall be delayed action and reduced-force type, meeting OBC requirements.
.6 Mount closers on interior room side of doors.
.7 All door closers shall be mounted with through-bolts.

2.7 Door Operators

.1 Electro-mechanical operator, powered by 1/4 hp motor. Completely assembled and sealed unit which includes helical gear drive transmission and interconnected rack and gear system for compression of exterior replaceable heavy duty spiral spring, all contained within a die cast aluminum housing and filled with special lubricant for extreme temperature conditions.

.2 Drive shaft is minimum 15/16" (24mm) thick containing 14 tooth splines to maximize bearing surface contact with drive arm assembly to eliminate slippage.

.3 Interfaced with the transmission system is a DC shunt-wound permanent magnet motor with sealed ball bearings. System operates from 120 VAC-60 cycle-1 phase power supply. Operator is mounted in the header case housing using vibration isolators to maintain quiet operation.

.4 Approved product.

ACCEPTABLE MANUFACTURERS	ITEM	ITEM
GYRO-TECH or approved equal	8700 CLEAR ALUM	HD GT 8500

-All Actuators/ visual indicators supplied in French Language.
-Operators Supplied and installed by this section Finishing Hardware 08710.

2.8 Pulls and Plates

.1 Supply door trim as listed in the hardware schedule. Pulls are supplied with back to back (BTB) or through bolt mounting as required. When push plates are listed with door pulls, install the push plate to conceal the through bolt. Verify all heights of full length door pulls prior to ordering. Co-ordinate heights with related door hardware products.

.2 All kickplates, push plates, and bumper plates must have beveled sides and corners rounded to ensure there are no sharp edges. Supply plates with counter sunk screw holes. The plates will be .050 gauge. Size to suit door width. Supply stainless steel type 315 as listed.

.3 All exterior door pulls shall be specified as the hospital pull type.

ACCEPTABLE MANUFACTURERS	ITEM	ITEM	ITEM
CBH	7109-1	CBH 353 TB	7130-1
GALLERY	1181-2	2616H MOD TB	4212-2
STANDARD METAL	3112-2	H12 TB	2112-2

2.9 Door Stops and Holders

.1 Wall stops are only to be used on proper wall conditions such as block or masonry. Supply floor stops with sufficient height to suite the floor condition or undercut of doors.

.2 Overhead stops and holders will be surface mounted unless there is a conflict with door closers or other hardware. Provide door stays with friction action in locations that do not have door closers. Install all overhead stops and holders for 90 DEG stop unless otherwise specified.

.3 Electronic door holder will be supplied to suit the specified voltage and be connected to the fire alarm system to release the door when signaled.

.4 Approved Manufacturers:

ACCEPTABLE MANUFACTURERS	ITEM	ITEM	ITEM
RIXSON	1 SERIES	9 SERIES	FM 998 TRIVOLT
GLYN JOHNSON	100 SERIES	90 SERIES	SEM7830
DORMA	1020 SERIES	9020 SERIES	2100 TRIVOLT

2.10 Door Seals

.1 Perimeter seals must be supplied to fully cover all gaps between the door, frame, and floor condition to seal against weather, sound, or smoke.

.2 Frame gasketing must be closed cell neoprene. Extruded housing must have a rib to prevent distortion during installation. Aluminum frames will be equipped with felt inserts by the frame supplier.

.3 Door bottoms will be heavy duty and have an adjustment screw to ensure proper contact with the floor. Supply the correct drop insert for carpet where required.

.4 Thresholds must be installed to ensure the door bottom makes full contact. Supply thermally broken thresholds for all exterior door openings.

.5 Approved products:

1. KN CROWDER MFTG.
2. PEMKO MFTG.
3. ZERO MFTG .

2.11 Fastening

.1 Supply screws, bolts, expansion shields and other fastening devices required for the Satisfactory installation and operation of hardware, and as recommended by the Hardware manufacturers for long life under hard use.

.2 Exposed screws for installing hardware shall have Phillips or Robertson heads.

.3 Where a door pull is scheduled on one side of door and a push

plate on the other side, fastening devices, and install so the pull can be secured through the door from the reverse side. Install push plate to cover fasteners.

.4 Exposed fastening devices shall match the finish and material of hardware.

PART 3 – EXECUTION

3.1 Inspection

.1 The hardware supplier must inspect all the door openings to ensure that installation is complete and that all items are operating as intended. When requested, provide a written report on all site inspections made.

3.2 Installation

.1 The installer shall obtain a copy of ANSI/DHI A115.1G-94, **"Installation Guide for Doors and Hardware".** It is the intent of this document to be used as a reference guide in the proper handling, storage, and installation of finishing hardware, and doors and frames. This document can be obtained through the Door and Hardware Institute.

.2 Installers of hardware must follow all manufacturer's instructions including door closer adjustment, handing of locksets as required, and degree of door swing. Advise the consultants if door frames are not square and plumb and prevent proper door installation.

.3 All finishing hardware and electronic hardware are to be bid as a supply and install package.
Testing and verification of all electronic products and systems is the responsibility of this division.

.4 Mount hardware to suit door elevations. Unless otherwise directed by the consultant, install hardware at the following mounting heights:

Locksets	40"	(1015mm)
Exit device	40"	(1015mm)
Push/Pull	42"	(1065mm)
Deadlock	48"	(1200mm)

.5 When requested, the hardware supplier will instruct the installer on installation of newer or unusual.

3.3 Hardware Schedule

.1 See attached hardware list.

END OF SECTION

FINISHING HARDWARE SCHEDULE

Kings Rd P.S. Accessibility Reno 2026 HDSB

660 Greenwood Dr , Burlington

Architect
W.K. Lim & M.P. Liu Architects Inc.

Detailer: **AUSTIN BARIL**
Consultant: **ROSS RUPRECHT B.A., A.H.C.**

Submittal Date: **June 15/26**

Manufacturers & Finishes

Manufacturers

Baron Metal
Camden
CBH
Gallery
Glynn-Johnson
GYRO-TECH
Ives
K.N. Crowder
LCN
MISC
Schlage
Schlage E.S.
UNK
Von Duprin
Zero

Finishes

626 - Satin chromium plated over nickel
628 - Satin aluminum, clear anodized
630 - Satin stainless steel
652 - Satin chromium plated over nickel
689 - Aluminum painted
US26D - Satin chromium plated over nickel
US32D - Satin stainless steel

Openings Schedule

Opening Number(s)	Qty	Door Catalog	Location 1	To/ From	Location 2	Nominal Width	Nominal Height	Door Thickness	Hand	Label	Degree of Opening	Hardware Group	Remarks	Heading Num.
126	1	<Aluminum>	EXTERIOR	FROM	VEST	1050, 1050	2150	57	LHRA/RHRA		100°	EXT PR ALUM RM ADO	LEVERSET + PANIC DEVICE, CLOSER WITH STOP, MOTORIZED OPERATOR, ELEC. STRIKE, KICKPLATE, WEATHERSTRIPPING, SWEEP, THRESHOLD, REMOVABLE MULLION	1
127	1		VEST	TO	STORAGE	950	2150	45	RH	45 min	90°	STORAGE	LEVERSET, DOOR CLOSER, KICKPLATE	2
129	1		EXTERIOR	FROM	MACH RM	950	2150	45	LHR		110°	EXT STORAGE SGL	LEVERSET, DOOR CLOSER, KICKPLATE, WEATHERSTRIPPING	3
209	1		VEST	TO	UNIV WR	965	2150	45	RH	45 min	90°	WR ADO	LEVERSET, OVERHEAD STOP, AUTO DOOR OPERATOR, LOCKING ELEC. STRIKE, KEY SWITCH, KICKPLATE	4

GENERAL:

ALL AUTO OPERATORS GYRO-TECH NO ALTERNATE WILL BE ACCEPTED.

FINISHING HARDWARE SUPPLIER SECTION 08710 TO SUPPLY & INSTALL AUTO OPERATORS.

Hardware Schedule

Heading #1 (Group: EXT PR ALUM RM ADO)

Item #1 — 1 Pair of doors 126, EXTERIOR FROM VEST — 100° LHRA/RHRA

1050, 1050 x 2150 x 57 - AL DR x AL FR

REM HARDWARE MULLION WITH QUICK ELECTRICAL DISCONNECT.

6	Standard Hinge	Ives 5BB1HW 5" x 4 1/2" 630 NRP	630
1	Removable Mullion	Von Duprin KR4854-BLANK -96 --689- 154	689
1	Exit Device	Von Duprin CD-33A-EO-4'-626- 57-- INS-2	626
1	Exit Device	Von Duprin CD-33A-NL-OP-4' -626- 57--388/626- INS-2	626/626
2	Cylinder	Schlage 20-001 114 XQ11-949 36-083	626
1	Cylinder	Schlage 20-001-1 1/4 " L583-477 626 GMK	626
1	Cylinder	Schlage 20-021 GMK 626	626
1	Electric Strike	Von Duprin 6300- CON 24VAC -630	630
2	Door Pull	Gallery GSH 1180-2 C32D 57	US32D
1	Surface Closer	LCN 4021 REGARM 689 57	689
1	Mounting Bracket	LCN 4020-18G	689
1	Electronic Closer	GYRO-TECH ADO 8710 X HEADER (NO ALTERNATE)	628
2	Kick Plate	CBH CBH 903 200 X 40MM LDW C32D	US32D
2	Overhead Door Stop	Glynn-Johnson 105S US32D	US32D
1	Accessory	Camden CM-160/22 INSTALL ADO HEADER	
2	Accessory	Camden CM-60/4	
2	Accessory	Camden CM-89S	
1	Accessory	Camden CX-33	
1	Threshold	Zero 625A 84"	A
1	Weatherstripping	K.N. Crowder W-25-CA X DOOR HEIGHT	CA
2	Gasketing	Zero SWEEP 8192AA 48	AA
2	Miscellaneous Item	Schlage E.S. 679-05HM BY SECURITY CONTRACTOR	BLK
1	Miscellaneous Hardware	LCN WEATHER RING8310-802	PLA
1	Miscellaneous Hardware	UNK WEATHER STRIPPING BY DOOR AND FRAME	

THIS HARDWARE SUPPLIER SECTION 08710 TO SUPPLY AND INSTALL AUTO OPERATOR.

DIV 16 ELECTRICAL CONTRACTOR TO PROVIDE 120VAC TO FRAME HEADER AND SUPPLY & INSTALL ALL LVW IN CONDUIT TO ALL ACTUATORS AND ELECTRICAL COMPONENTS LISTED IN THE HARDWARE SCHEDULE.
INTEGRATION OF SECURITY INTERCOM WITH ADO BY DIV 26

Heading #2 (Group: STORAGE)

Item #2 — 1 Single door 127, VEST TO STORAGE — 90° RH

950 x 2150 x 45 - HM DR x HM FR - 45 min

3	Standard Hinge	Ives 5BB1 4.5 X 4 NRP	652
1	Lockset	Schlage ND80 P6 RHO 626 MK	626
1	Surface Closer	LCN 1461 689 - REG MTD 45	689
1	Kick Plate	CBH CBH 903 200 X 40MM LDW C32D	US32D
1	Wall Door Stop	Ives WS401/402CCV US26D	US26D

Heading #3 (Group: EXT STORAGE SGL)

Item #3 — 1 Single door 129, EXTERIOR FROM MACH RM — 110° LHR

950 x 2150 x 45 - HM DR x HM FR

3	Standard Hinge	Ives 5BB1HW 4.5 X 4.5 NRP 630	630
1	Dead Lock	Schlage B660 P6 626 MK	626
1	Door Pull	CBH CBH 352 2 1/8 DIAM C26D 45 INSTALL PULL SIDE	US26D
1	Push Plate	CBH CBH 923 5" x 20" C32D INSTALL PUSH SIDE	US32D
1	Surface Closer	LCN 4040XP SCUSH 689 45	689
1	Kick Plate	CBH CBH 903 200 X 40MM LDW C32D	US32D
1	Threshold	Zero 625A 48"	A
1	Gasketing	Zero HD SEAL 429AA 48 x 0	AA
2	Gasketing	Zero JS 485AA 96	AA
1	Gasketing	Zero SWEEP 8192AA 48	AA
1	Miscellaneous Item	Schlage E.S. 679-05HM BY SECURITY CONTRACTOR	BLK

Heading #4 (Group: WR ADO)

Item #4 — 1 Single door 209, VEST TO UNIV WR — 90° RH

965 x 2150 x 45 - HM DR x HM FR - 45 min

INSTALL WR SET UP AS FAIL SECURE .

3	Standard Hinge	Ives 5BB1HW 5" x 4 1/2" 630 NRP	630
1	Lockset	Schlage ND80 P6 RHO 626 MK	626
1	Electric Strike	Von Duprin 6211- FSE Shim CON-630 FAIL SECURE	630
1	Electronic Closer	GYRO-TECH ADO 8710 PULL SIDE MTD (NO ALTERNATE)	628
2	Kick Plate	CBH CBH 903 400 X 40MM LDW C32D MTD BOTH SIDES	US32D
1	Wall Door Stop	Ives WS401/402CVX	626
1	Accessory	Camden CM-160/22 INSTALL ADO HEADER	
1	Accessory	Camden CX-WC13AXFM-PS	
1	Accessory	Camden EMERG WR KIT CX-WEC10K2	
1	Miscellaneous Hardware	Schlage CON-6W	
1	Miscellaneous Hardware	Camden CX-PS13V3	
1	Miscellaneous Hardware	Camden CX-TRX-4024	
1	Miscellaneous Hardware	MISC WIRING / RISER DIAGRAM	

THIS HARDWARE SUPPLIER SECTION 08710 TO SUPPLY AND INSTALL AUTO OPERATOR.

DIV 16 ELECTRICAL CONTRACTOR TO PROVIDE 120VAC TO FRAME HEADER AND SUPPLY & INSTALL ALL LVW IN CONDUIT TO ALL ACTUATORS AND ELECTRICAL COMPONENTS LISTED IN THE HARDWARE SCHEDULE. REFER TO WIRING /RISER DIAGRAM SUPPLIED BY HARDWARE SUPPLIER.

CX-33: ADVANCED LOGIC RELAY

CX-33 is a 'state of the art' door controller designed for 'universal' operation in virtually any automatic door application. This compact unit is small enough to fit inside most door operator cases. It provides a large 3 segment LED and simple push buttons for the easiest programming, and supports illuminated signage in restroom applications. It also leads the market with a range of exclusive operating features, including time duration in airlock applications and protection of automatic door operators when utilizing magnetic locks.



Features

- 15 operating modes with sub-modes
- Easily sequence multiple inputs with multiple maintain and hold outputs
- New V3.2 Features Include:
  - Lock Down Mode
  - Delayed Relay Activation
  - Selectable N.O or N.C. Inputs
- Large 3 segment (blue) LED display
- Outstanding power filtering and surge protection
- Selectable time delays with delay on input activation
- Larger terminal strips
- 12V to 24V AC/DC
- 3 year warranty

Specifications

Voltage:	12V to 24V AC/DC
Current Draw:	105mA Typical, 320mA Max
Response Time:	0.5 Seconds
Display:	Blue Multi-Segment LED
Input:	4 x Dry 1 x Wet: min. 5V AC/DC N/O or N/C Selectable
Output:	3 x Form C (SPDT)
Contact Rating:	3A @ 30 VDC
Temp Range:	-22°F to +185°F (-30°C to +85°C)
Time Delay:	Hold 1 timer: 0-50 Seconds Delay 1 Timer: 0-15 Seconds Hold 2 timer: 0-50 Seconds Delay 2 timer: 0-60 Seconds Hold 3 Timer: 0-50 Seconds Delay on Activate: 0-10 Seconds
Dimensions:	2"H x 6"W x 7/8"D (51mm x 152mm x 22mm)

MODEL	
CX-33	Advanced Logic Relay

CX-33PS: ADVANCED LOGIC RELAY, POWER SUPPLY AND CABINET

*The industry leading **CX-33** Advanced Logic Relay is available in a metal cabinet that centralizes all door control system components; a 12/24 VDC power supply module, and color coded termination blocks for quick and easy installation.*



Features

- Rugged and compact metal cabinet
- Pre-wired with large terminal block for easy access
- Removable door with option for cabinet lock
- Five convenient conduit knockouts; one per side
- 12/24V DC power supply, 2 Amp. (UL listed)
- Available as part of Camden Restroom Control Kits (See pages 34-37).
- Short circuit and thermal overload protection
- 3 year warranty

Specifications

Voltage:	16V to 28V AC/DC
Output:	12V or 24 VDC
Current:	2 Amps
Temp Range:	32°F to +120°F (0°C to +49°C)
Dimensions:	11-1/16" H x 7-7/8"W x 2-13/16"D 281mm x 200mm x 72mm)

MODEL	
CX-33PS	Advanced Logic Relay, 2 Amp, Power Supply Cabinet and Transformer
Option	
'L'	Add suffix '**L**' to model number for Cabinet Lock

CDH
Commercial Doors & Hardware Ltd.
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660 Greenwood Dr , Burlington

Submittal Date: June 15/26

CM-49, 79, 59S AND 89S: SURFACE AND FLUSH MOUNT ESCUTCHEONS (FOR ROUND PUSH PLATE SWITCHES)

*Camden offers a range of **flame and vandal resistant** low profile escutcheons for mounting 4-1/2" and 6" round push plate switches. ABS escutcheons feature a patented 2-piece design and may be ordered as complete 'kits' or individual parts. Stainless steel escutcheons feature one piece heavy gauge construction.*

Features	
• Exclusive 2 piece ABS escutcheons can be surface mounted or mounted on in-wall single gang, double gang or 4" square electrical boxes	• Heavy gauge stainless steel escutcheons provide an attractive, rugged look • ABS models are designed for use with Lazerpoint RF™ 915 Mhz. wireless wall switch transmitters

FOR 4-1/2" ROUND SWITCH - STAINLESS STEEL ESCUTCHEON	
CM-59S	Surface, Round, Standard Depth. Heavy gauge stainless steel, 7-3/4" x 1-1/18"D
FOR 4-1/2" ROUND SWITCH - ABS SPACESHIP ESCUTCHEON	
CM-49	Surface/Flush Mount Kit, includes **CM-49A, CM- 49B, CM-49C & CM-49G,** 8-3/4" x 2"D
CM-49A	Flush enclosure only (fits single gang box), 7" x 13/16"D
CM-49AK	Flush Mount Kit, includes **CM-49A, CM-49C & CM-49G,** (fits single, double and 4 x 4 boxes), 7" x 13/16"D
CM-49B	Surface mount enclosure only (must be used with **CM-49A**), 8-3/4" x 1"D
CM-49C	Adapter plate for mounting on double gang or 4" Square box, 4" x 1/16"D
CM-49G	Gasket for **CM-49A** OR **CM-49B**, 6-1/4" x 1/8"D
FOR 6" ROUND SWITCH - STAINLESS STEEL ESCUTCHEON	
CM-89S	Surface, round standard depth. Heavy gauge stainless steel, 9-5/8" x 1-1/2"D
FOR 6" ROUND SWITCH - ABS SPACESHIP ESCUTCHEON	
CM-79	Surface/Flush Mount Kit, includes **CM-79A, CM-79B, CM-49C & CM-79G,** 9-5/8" x 2"D
CM-79A	Flush enclosure only (fits single gang box), 8" x 3/4"D
CM-79AK	Flush Mount Kit, includes **CM-79A, CM-49C & CM-79G,** (fits single, double and 4 x 4 boxes), 8" x 3/4"D
CM-79B	Surface mount enclosure only (must be used with **CM-79A**), 9-5/8" x 1-1/8"D
CM-79G	Gasket for **CM-79A or CM-79B**, 7-1/4" x 1/8"D



CM-59S



CM-49A *CM-49B*
(Shown with TX-9 Transmitter)



CM-89S



CM-79A *CM-79B*
(Shown with TX-9 Transmitter)

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CM-160 / 170 / 180 SERIES: KEY SWITCHES

***Key switches** for automatic doors are designed for mounting on the door operator cabinet or door frame, and are available in a range of 2 or 3 position momentary or maintained models. The key cylinder and 2 keys are included.*

Features

- Black lamacoid (plastic) or stainless steel faceplates
- Key removable in all maintained positions
- 2, 3, 4 position maintained and 2 position momentary models
- All switches are keyed alike

MODELS

CM-160	Key switch with plastic lamacoid (mini) faceplate
CM-170	Key switch with stainless steel (narrow stile) faceplate
CM-180	Key switch with stainless steel (single gang) faceplate

OPTIONS (Add suffix to model above)

Faceplate Graphics

MOMENTARY	MAINTAINED	MAINTAINED	MAINTAINED	MAINTAINED
OFF / OPEN	OFF / AUTO	AUTO / OFF / HOLD OPEN	DAY / OFF / NIGHT	EXIT / AUTO / OFF / HOLD OPEN
CX-xx/20	*CX-xx/21*	*CX-xx/22*	*CX-xx/23*	*CX-xx/24*

Extra Keys

CM-A126	(2) Extra keys for CM-160, 170 and 180 series key switches

Listed Components



CM-160/23



CM-170/21 *CM-180/23*

Specifications

Voltage:	12/24 VDC
Contact Rating:	4A @ 28 VDC
Switch Life:	100,000 cycles
Dimensions:	**CM-160:** 3"H x 1-11/16"W x 1-3/8"D (76mm x 42mm x 35mm) **CM-170:** 4-1/2"H x 1-3/4"W x 1-3/8"D (114mm x 44mm x 35mm) **CM-180:** 4-1/2"H x 2-3/4" W x 1-3/8" D (114mm x 70mm x 35mm)

CM-190 SERIES: TOGGLE SWITCH

***CM-190 Series** maintained toggle switches are designed to control automatic door operators, featuring a choice of faceplates, for mounting on the operator cabinet/wall.*

Features

- Mini metal faceplate designed to install on door operator cabinet or door frame
- 2 or 3 position maintained operation
- Single gang faceplate for mounting on standard electrical box
- Heavy duty 6 Amp. contacts

MODELS

CM-190	Mini aluminum faceplate
CM-195	Single gang stainless steel faceplate

OPTIONS (Add suffix to model above)

Faceplate Graphics

ON / OFF	*CX-xx/30*
AUTOMATIC / OFF / OFF / HOLD OPEN	*CX-xx/31*

Listed Components





CM-190/30 *CM-195/31*

Specifications

Voltage:	12/24 VDC
Contact Rating:	6A @ 30 VDC
Switch Life:	50,000 cycles
Temp Range:	-4°F - 185°F (-20°C - 85°C)
Dimensions:	**CM-190:** 2-5/8" H x 1-1/2" W x 2"D (59mm x 38mm x 51mm) **CM-195:** 4-1/2" H x 2-3/4" W x 2"D (114mm x 70mm x 51mm)

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CX-WC: BARRIER FREE RESTROOM CONTROL KITS

Listed Components

ADA Compliant

MODELS	
CX-WC13AXSM-PS	**SURFACE MOUNT COMBO ILLUMINATED PUSH PLATE SYSTEM** (1) **CX-33PS** Advanced Logic Relay, 2 Amp Power Supply, Cabinet and Transformer (1) **CM-2520/4854SE1** Combo switch, 2" x 4" narrow 'PUSH TO OPEN' & 'PUSH TO LOCK', Surface mount AURA™ illuminated enclosure and sign (1) **CM-45/454SE1** 4-1/2" Push plate switch, wheelchair & 'PUSH TO OPEN' with Surface mount AURA™ illuminated enclosure and sign (1) **CX-ED2079** Grade 2 ANSI electric strike with 3 faceplates (1) **CX-MDA** Magnetic contact, surface, SPST, white Add suffix 'F' for French, 'FE' for bilingual, 'SP' for Spanish
CX-WC13AXFM-PS	**FLUSH MOUNT COMBO ILLUMINATED PUSH PLATE SYSTEM** (1) **CX-33PS** Advanced Logic Relay, 2 Amp Power Supply, Cabinet and Transformer (1) **CM-2520/4855SE1** Combo switch, 2" x 4" narrow 'PUSH TO OPEN' & 'PUSH TO LOCK', Flush mount AURA™ illuminated enclosure and sign (1) **CM-45/455SE1** 4-1/2" Push plate switch, wheelchair & 'PUSH TO OPEN' with Flush mount AURA™ illuminated enclosure and sign (1) **CX-ED2079** Grade 2 ANSI electric strike with 3 faceplates (1) **CX-MDA** Magnetic contact, surface, SPST, white Add suffix 'F' for French, 'FE' for bilingual, 'SP' for Spanish
CX-WC14AXSM	**SURFACE MOUNT TWO DOOR RESTROOM SYSTEM** (1) **CX-EMF2** Multi-Function Relay Controller (2) **CM-2520/4854SE1** Combo switch, 2" x 4" narrow 'PUSH TO OPEN' & 'PUSH TO LOCK', Surface mount AURA™ illuminated enclosure and sign (2) **CM-45/454SE1** 4-1/2" Push plate switch, wheelchair & 'PUSH TO OPEN' with Surface mount AURA™ illuminated enclosure and signs (2) **CX-MDA** Magnetic contact, surface, SPST, white Add suffix 'F' for French, 'FE' for bilingual, 'SP' for Spanish
CX-WC14AXFM	**FLUSH MOUNT TWO DOOR RESTROOM SYSTEM** (1) **CX-EMF2** Multi-Function Relay Controller (2) **CM-2520/4855SE1** Combo switch, 2" x 4" narrow 'PUSH TO OPEN' & 'PUSH TO LOCK', Flush mount AURA™ illuminated enclosure and sign (2) **CM-45/455SE1** 4-1/2" Push plate switch, wheelchair & 'PUSH TO OPEN' with Flush mount AURA™ illuminated enclosure and signs (2) **CX-MDA** Magnetic contact, surface, SPST, white Add suffix 'F' for French, 'FE' for bilingual, 'SP' for Spanish



CX-WC13AXSM-PS



CX-WC13AXFM-PS



CX-WC14AXSM



CX-WC14AXFM

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Submittal Date: June 15/26

CX-PS13 V3: VARIABLE OUTPUT LINEAR POWER SUPPLY

*The low cost **CX-PS13** linear power supply is designed to provide regulated low voltage power for electrified locks, MProx™ card access systems, washroom control packages and other electronic devices. A 120 VAC transformer with a 6 to 26 VAC output is required. Recommended for use with electric strikes.*



Features

- Low cost linear power supply
- Compact board-only design
- Input voltage: 6 - 26 VAC, depending on output voltage selected
- Self-resetting smart fuse protection
- Input voltage transformer required. See manual for specification
- 3 year warranty

Specifications

Voltage:	6-26 VAC
Output Voltage:	6,12, 24 VDC Selectable or 2-24 VDC if ADJ is selected
Output Protection:	PPTC Resettable Fuse
Output Power:	800mA, 200mA Charging Current
Ripple:	<40mV
Efficiency:	12 VDC = 85% , 24 VDC = 90%
Dimensions:	2-3/4"H x 1-1/2"W x 1-3/4"D (69mm x 38mm x 46mm)

MODEL

CX-PS13V3	Variable Output Linear Power Supply

TRANSFORMERS AND RECTIFIERS

*Camden offers a range of 12 VAC to 24 VAC standard, plug-in and panel (nipple) mount transformers to support any low voltage system application. The **CX-5024** rectifier is used to convert AC power for use with DC powered devices.*

Features

- AC and DC models
- Standard and panel mount models
- Fused model for additional circuit protection

MODELS

Panel (Nipple) Mount	
CX-TRN-2024*°	24 VAC, 20VA panel (nipple) mount transformer
Standard Mount	
CX-TRX-2012*°	12 VAC, 20VA standard mount transformer
CX-TRX-4024*°	24 VAC, 40VA standard mount transformer
CX-TRX-5024°^	24 VAC, 50VA standard mount transformer
Fused Standard Mount	
CX-TRX-2024*°	24 VAC, 20VA, fused, standard mount transformer
Rectifier	
CX-5024	Rectifier (AC/DC) 50 VA
CX-TRK-2450	24 VAC, 40VA standard mount transformer and AC to DC Rectifier

Specifications

Input Voltage: 120 VAC 60 MHz.
Output Voltage: 12 / 24 VAC

Dimensions:

CX-TRN-2024:
2"H x 2-3/8"W x 2-1/4"D (51mm x 60mm x 57mm)

CX-TRX-2012:
3"H x 2"W x 2-1/8"D (76mm x 51mm x 54mm)

CX-TRX-4024:
2"H x 2-3/8"W x 2-1/2"D (51mm x 60mm x 64mm)

CX-TRX-5024:
2-1/8"H x 3-1/8"W x 2-5/16"D (54mm x 80mm x 60mm)

CX-TRX-2024:
2"H x 2-3/8"W x 2-1/2"D (51mm x 60mm x 64mm)

CX-5024:
1"H x 3/4"W x 1/4"D (25mm x 19mm x 6mm)


CX-TRN-2024


CX-TRX-2012


CX-TRX-5024


CX-5024

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CDH
Commercial Doors & Hardware Ltd.
2150 Winston Park Drive, Unit 16
Oakville, L6H 5V1

Kings Rd P.S. Accessibility Reno 2026 HDSB
660 Greenwood Dr , Burlington

Submittal Date: June 15/26

CM-40, CM-41 & CM-60 SERIES: ROUND PUSH PLATE SWITCHES

KINETIC BY CAMDEN VERSIONS AVAILABLE

UL Listed Components ADA Compliant

CM-40, CM-41 and CM-60 Series 'All-Active' push plate switches are heavy-duty, ADA-compliant door controls. Faceplates are stainless steel or solid brass, and the assembly is designed for easy installation. The CM-41 4-1/2" square stainless steel backplate is large enough to cover a poorly installed electrical box. Also fits Camden 4-1/2" square surface boxes.


CM-40/2



CM-41/3



CM-60/4

Features

- Durable stainless steel or brass construction
- 4 stud switch design and rubber dampers for quieter operation
- All-Active design requires minimal actuation force
- Weather resistant boot included
- Large variety of graphics options
- Available in a range of architectural finishes
- 3 year 'Camden Tough' warranty with '2 for 1' replacement

Specifications

Contact Rating:	15A @ 30 VDC
Contact Type:	SPDT Form 'C'
Mounting:	**CM-40/41:** Single Gang **CM-60:** Single/Double Gang or 4 x 4
Switch Type:	Momentary
Std. Finish:	US32 / 630
Dimensions:	**CM-40:** 4-1/2" Diameter x 1-3/4"D (114mm x 44mm) **CM-41:** 4-1/2"H x 4-1/2"W x 1-3/4"D (114mm x 114mm x 44mm) **CM-60:** 6" Diameter x 1-1/8"D (152mm x 28.6mm)

ROUND SWITCHES

CM-40	4-1/2" Round push plate switch, brushed stainless steel finish
CM-41	4-1/2" Round push plate switch, with square back plate, brushed stainless steel finish
CM-60	6" Round push plate switch, brushed stainless steel finish

NO-BATTERY KINETIC BY CAMDEN™ WIRELESS ROUND SWITCHES with built-in transmitter. Receiver required.

CM-40K	4-1/2" Round push plate switch, brushed stainless steel finish
CM-41K	4-1/2" Round push plate switch, with square back plate, brushed stainless steel finish
CM-60K	6" Round push plate switch, brushed stainless steel finish

OPTIONS (Add suffix to model above)

Faceplate Graphic Options


CM-xx/1


CM-xx/2


CM-xx/A2


CM-xx/2AL


CM-xx/2AR



CM-xx/3



CM-xx/3F



CM-xx/4



CM-xx/A4



CM-xx/4AL



CM-xx/4AR



CM-xx/4F


CM-xx/4FE



CM-xx/8



CM-xx/8B



CM-xx/8F



CM-xx/8D

Architectural Finishes (Only available with /1, /2, /3, /4 graphic options)		Water Tight Option	Contact Option
CM-xx-AB Antique Brass	CM-xx-OB Oil Rub Bronze	CM-xx-WT Boot & watertight coating	CM-xx-DP DPDT switch instead of SPDT
CM-xx-SB Satin Brass	CM-xx-PB Polished Brass		

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CX-WEC: EMERGENCY CALL SYSTEM CONTROL KITS FOR UNIVERSAL & RESTROOM APPLICATIONS

CX-WEC Series equipment packages are designed to provide a complete solution that includes assistance request and notification that meets the latest OBC building code requirements. CX-WEC Series Emergency Call System kits are available with white only or red/green/blue/white multi-color dome lights with sounder, and with system reset that support the use of momentary 'PRESS FOR ASSISTANCE' switches.

CX-WEC10: Universal Emergency Call System Kit

(1) **CM-450R/12** Mushroom push button, single gang, stainless steel faceplate, push/pull, 'PRESS FOR EMERGENCY ASSISTANCE'

(1) **CM-AF501SO** Single gang LED annunciator with adjustable sounder 'ASSISTANCE REQUESTED'

(1) **CM-AF141SO** Single gang LED dome light with adjustable sounder

(1) **CM-SE21** White panel sign, 12.5" x 8.5" (317.5mm x 216mm)

Add suffix 'F' for French, 'FE' for French/English, 'SP' for Spanish



CX-WEC10K2: Universal Emergency Call System Kit

(1) **CM-AF540SO** Double gang, push/pull mushroom push button, red, 'Assistance Required', with LED annunciator & adjustable sounder, 'Assistance Requested'

(1) **CM-AF141SO** Single gang LED dome light with adjustable sounder

(1) **CM-SE21** White panel sign, 12.5" x 8.5" (317.5mm x 216mm)

Add suffix 'F' for French, 'FE' for French/English, 'SP' for Spanish



CX-WEC10BK2: Universal Emergency Call System Kit with Multi-Color LED Dome Light

(1) **CM-AF540SO** 'PRESS FOR EMERGENCY ASSISTANCE' maintained mushroom push button & 'ASSISTANCE REQUESTED' LED annunciator with adjustable sounder

(1) **CM-SE21** White panel sign, 12.5" x 8.5" (317.5mm x 216mm)

(1) **CM-AF142SO** Single gang multi-volor LED dome light with adjustable sounder and flashing LED

Add suffix 'F' for French, 'FE' for French/English, 'SP' for Spanish



CX-WEC10CK2: Emergency Call System Kit 2 Door Restrooms Multi-Color Dome Light

(1) **CM-AF540SO** 'PRESS FOR EMERGENCY ASSISTANCE' maintained mushroom push button & 'ASSISTANCE REQUESTED' LED annunciator with adjustable sounder

(2) **CM-AF142SO** Single gang multi-color LED dome light with adjustable sounder and flashing LED

(1) **CM-SE21** White panel sign, 12.5" x 8.5" (317.5mm x 216mm)

Add suffix 'F' for French, 'FE' for French/English, 'SP' for Spanish



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Oakville, L6H 5V1

Kings Rd P.S. Accessibility Reno 2026 HDSB
660 Greenwood Dr , Burlington

Submittal Date: June 15/26

CANADIAN BUILDERS HARDWARE
MANUFACTURING INC.

71 Sheffield Street
Toronto, Ontario
M6M 3E9
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Tel: 416-243-1166
Fax: 416-243-3352
Email: info@cbhmfg.com
Web: www.cbhmfg.com

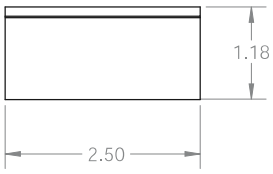
All dimensions are in inches. Product specifications are subject to change. For the most updated product features, contact our customer service department.

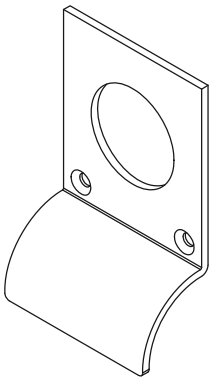
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CBH 351

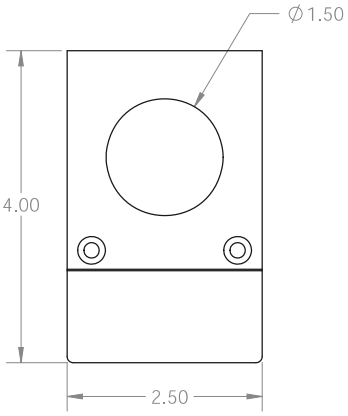
MATERIAL:
BRASS, BRONZE AND STAINLESS STEEL (.125")

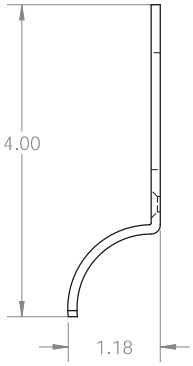
FINISHES: C32D











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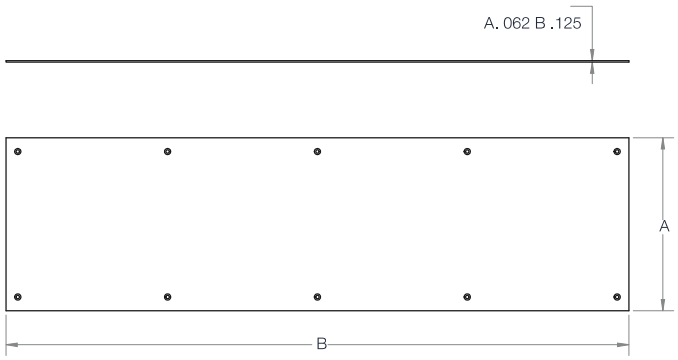
CBH 900/901/902/903

MATERIAL: ALUMINUM, BRASS, BRONZE AND STAINLESS STEEL

FINISHES: ALL STANDARD

SKUS:
CBH 900-ALUMINUM KICKPLATE
CBH 901-BRASS KICKPLATE
CBH 902-BRONZE KICKPLATE
CBH 903-STAINLESS STEEL KICKPLATE

.050 GAUGE PLATES WILL BE SUPPLIED STANDARD.
FOR THICKER GAUGE PLATES USE SUFFIX





CBH 900-ALUMINUM
CBH 901-BRASS
CBH 902-BRONZE
CBH 903-STAINLESS STEEL

KICKPLATE

All kickplates are drilled, countersunk and supplied standard with #6 x 5/8 oval head socket wood screws. Machine screws or tape fastening is available upon request.

Kickplates available with bevelled edges at extra cost. All tape Kickplates are bevelled edge.

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CBH 920/921/922/923

MATERIAL: ALUMINUM, BRASS, BRONZE AND STAINLESS STEEL

FINISHES: N/A

SKUS:
CBH 920-ALUMINUM PUSH PLATE
CBH 921-BRASS PUSH PLATE
CBH 922-BRONZE PUSH PLATE
CBH 923-STAINLESS STEEL PUSH PLATE

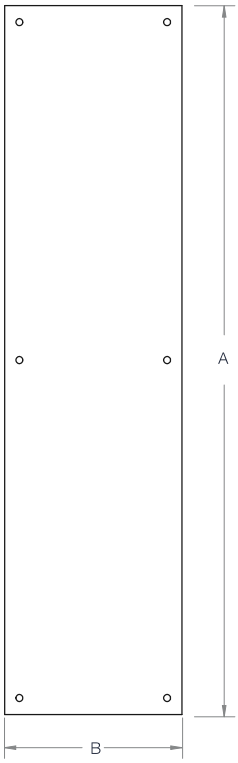


PUSHPLATE

All push plates are drilled and countersunk with bevelled edges and supplied standard with #6x5/8 socket wood screws. Machine screws or tape are available upon request.

.050 GAUGE PLATES WILL BE SUPPLIED STANDARD, FOR THICKER PLATES USE SUFFIX

A .062
B .125



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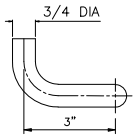
GSH 1180 - (1, 2, 3 OR 4) 12" C/C

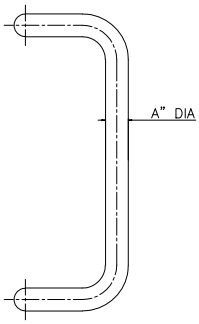


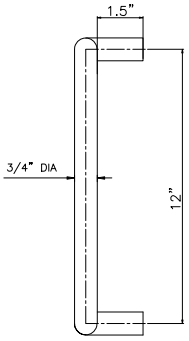
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specialty hardware ltd.

GallerySpecialty.com
1.800.267.1236

- Wrought Brass, Bronze, Aluminum and Stainless Steel
- Fasteners for 1 3/4" Door provided
- C3, C4, C9, C10, C10B, C14, C15, C26, C26D, C28 and C32D
- 1=3/4" DIA
- 2=1" DIA
- 3=1-1/4" DIA
- 4=1-1/2" DIA







676 Petrolia Road, Toronto, ON, Canada M3J 2V2
Tel: 416.667.9593 Fax: 416.667.0806
Email: info@galleryspecialty.com

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100 Series concealed overhead door holders/stops



100 Series heavy-duty

Glynn-Johnson offers a complete line of overhead door holders and stops, accommodating virtually all openings with solutions for even the most complex door control problems. These concealed holders and stops provide the most attractive and reliable heavy-duty door control available.

Glynn-Johnson 100 Series holders and stops provide the most reliable and versatile concealed overhead door control. They are designed for installation on virtually all types of doors mounted on conventional type butt hinges, pivots, continuous hinges, swing clear hinges and numerous other specialty hinges. When used in conjunction with many surface-applied door closers, 100 Series holders and stops provide the most effective control for entrance doors and vestibule doors of all types, as well as heavy or often used interior doors. Templates provided allow for variable mounting positions, ranging from 85° - 110° of opening.

Five models:

- 100H Series hold-open model
- 100HP Series internal hold-open model
- 100F Series friction hold-open model
- 100S Series stop-only model
- 100SE Series special stop-only model

Six sizes:

- Each model comes in six sizes.
- Simple
- Standardized

Three options:

- ADJ—Adjustable jamb bracket
- CJ—Jamb Bracket for use with LCN 5030 closer
- SOC—Pin-in-socket security screw package

Unmatched convenience:

- Non-handed
- Improved compatibility with door closers
- Single/double-acting doors
- Interior/exterior applications
- Reduced door prep
- Durable
- Improved corrosion resistance
- Function conversion kits are available

Materials and finishes

In heavy gauge brass or 300 Series stainless steel, these models offer the broadest range of finishes in the industry, complementing any design and offering the highest resistance to corrosion. Available in the following finishes:

BHMA	US	Finish description
605	US3	Polished Brass
606	US4	Satin Brass
612	US10	Satin Bronze
613	US10B	Oil Rubbed Bronze
619	US15	Satin Nickel
625	US26	Polished Chrome
626	US26D	Satin Chrome
629	US32	Bright Stainless Steel
630	US32D	Stainless Steel
643E/716	–	Aged Bronze, Blackened, Edge Relieved
706	SP4	Powder Coat Brass
691	SP10	Powder Coat Bronze
689	SP28	Powder Coat Aluminum
695	SP313	Powder Coat Dark Bronze
622	SPBLK	Powder Coat Black

Models

These models provide a wide range of optional features, and are ideal for use on entrance and vestibule doors, large doors, doors opened frequently, or doors subject to abuse. These models are also furnished with an offset-style jamb bracket.

Designed for heavy-duty applications, 100 Series models will provide long-lasting protection to doors, frames, hinges, related hardware and surrounding walls or obstructions.

100H Series hold-open

(Suffix H) The hold-open function should be used where it is desired to hold a door open at a predetermined position for short or long periods of time, permitting an unobstructed traffic flow through the opening.

These models are both selective and adjustable, featuring the most reliable hold-open mechanism available. They feature a control knob which protrudes from the face of the door and turns the hold-open function on or off. Set in the inactive position, the unit acts as a stop and shock absorber. The tension on the hold-open mechanism can be adjusted using an Allen wrench to offset air currents or other exterior conditions. The hold-open tension adjustment is located in the bottom of the track in the top of the door.

5BB1HW



5 Knuckle, ball bearing, heavy weight full mortise hinge

- Recommended for heavier weight doors (>150 lbs)
- Recommended for high frequency usage (400 cycles per day)
- Made with four ball bearing assemblies
- Recommended for use with a door closer
- Packed with fasteners for hollow metal and wood doors
  – 12-24 x 1/2 UFPHMS, 12 x 1 1/4 FPHWS

Specifications

Material substrate	Made from brass, 1040 steel or 304 series stainless steel
Certifications	▪ Certified ANSI/BHMA A156.1 for performance standards ▪ Meets ANSI/BHMA 156.7 for template hinge dimensions ▪ UL Classified for windstorm rated assemblies - R37965 ▪ UL 10C Listed for steel only (3 hour)

Dimensions

Height x Width	Size (mm)	Gauge
4.5 x 4	114 x 102	0.180
4.5 x 4.5	114 x 114	0.180
5 x 4.5	127 x 114	0.190
5 x 5	127 x 127	0.190

Refer to General Hinge Information page to determine proper hinge for application

Options

NRP	Non-removable pin	**TW4**	Four wire
HT	Hospital tip	**TW4M**	Four wire with monitor
SH	Security stud - comes standard with NRP	**TW8**	Eight wire
RC-1/4, RC-5/8	Rounded corners	**TW8M**	Eight wire with monitor
SEC	Security fasteners - pin-in-socket (for hollow metal doors and frames only)	**TW12**	Twelve wire
		MON	Monitor

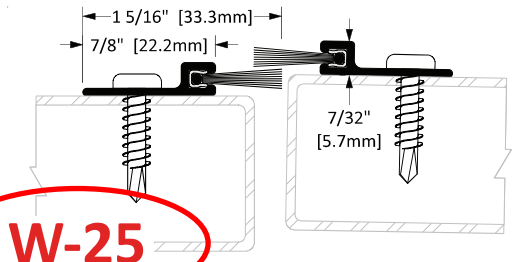
Finishes

BHMA	Description	Substrate	Finish
600	Primer Paint	Steel	USP
605	Bright Brass	Brass	US3
606	Satin Brass	Brass	US4
612	Satin Bronze	Brass	US10
613	Oil Rubbed Bronze	Brass	US10B
614	Oxidized Bronze	Brass	US10A
619	Satin Nickel	Brass	US15
622	Matte Black	Brass	B-BLK
625	Bright Chrome	Brass	US26
626	Satin Chrome	Brass	US26D
643e/716	Aged Bronze	Brass	B-643e/716
629	Bright Stainless	Stainless steel	US32
630	Satin Stainless	Stainless steel	US32D
631	Matte Black	Steel	F-BLK
632	Bright Brass	Steel	US3
633	Satin Brass	Steel	US4
639	Satin Bronze	Steel	US10
640	Oil Rubbed Bronze	Steel	US10B
641	Oxidized Bronze	Steel	US10A
646	Satin Nickel	Steel	US15
651	Bright Chrome	Steel	US26
652	Satin Chrome	Steel	US26D
643e/716	Aged Bronze	Steel	F-643e/716
695	Dark Bronze Painted	Steel	F-695/US10BE

For other colors, consult factory.

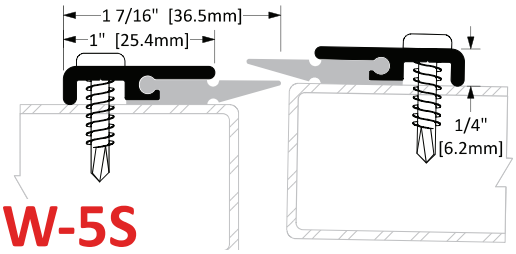
ALL PRODUCTS ON THIS PAGE

ASTRAGALS



W-25

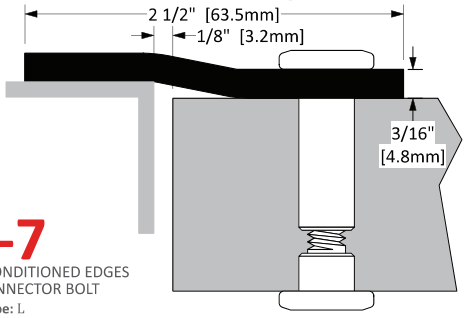
ANODIZED ALUMINUM WITH BRUSH
Screw Type: A
OPT Screw Type: B
STD Finish: Clear Anodized
OPT Finish: B.A., BL.A.



W-5S

ANODIZED ALUMINUM WITH SILICONE
Screw Type: A
OPT Screw Type: B
STD Finish: Clear Anodized
OPT Finish: B.A., BL.A.

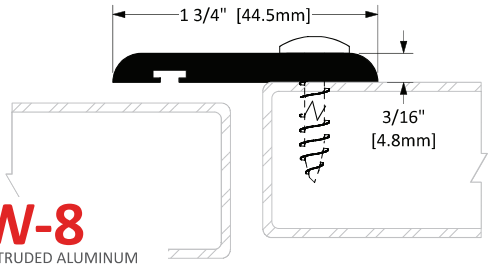
IMPROVED



LISTED

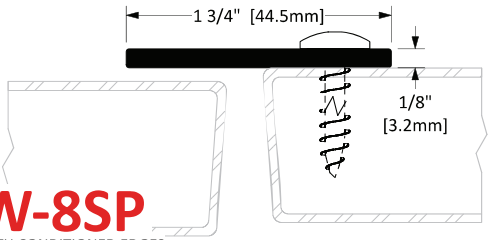
W-7

WITH CONDITIONED EDGES
C/W CONNECTOR BOLT
Screw Type: L
OPT Screw Type: M
STD Finish: Primed C.R. Steel



W-8

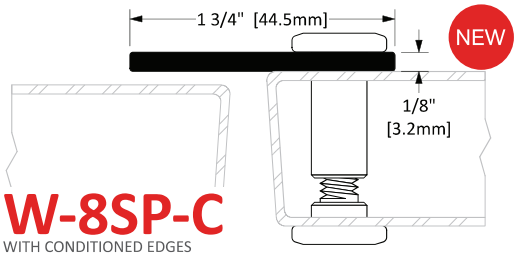
EXTRUDED ALUMINUM
Screw Type: J
OPT Screw Type: K
STD Finish: Mill
OPT Finish: B.A., BL.A., C.A.



W-8SP

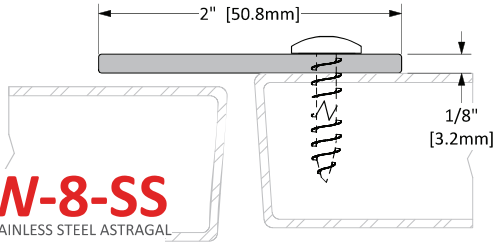
WITH CONDITIONED EDGES
Screw Type: J
OPT Screw Type: K
STD Finish: Primed C.R. Steel

NEW



W-8SP-C

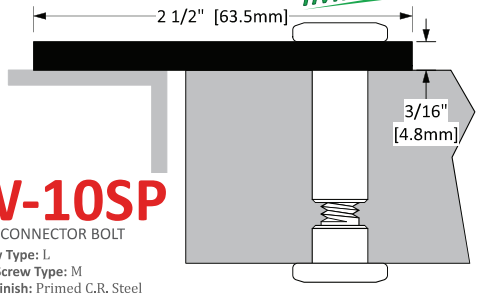
WITH CONDITIONED EDGES
C/W CONNECTOR BOLT (-C)
Screw Type: L
OPT Screw Type: M
STD Finish: Primed C.R. Steel



W-8-SS

STAINLESS STEEL ASTRAGAL
Screw Type: J
OPT Screw Type: K, L
STD Finish: 18 GA. 304 SS. 2B

IMPROVED



W-10SP

C/W CONNECTOR BOLT
Screw Type: L
OPT Screw Type: M
STD Finish: Primed C.R. Steel

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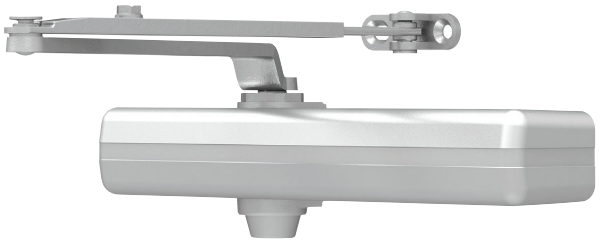
CDH

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Kings Rd P.S. Accessibility Reno 2026 HDSB
660 Greenwood Dr , Burlington

Submittal Date: June 15/26

1460 Series



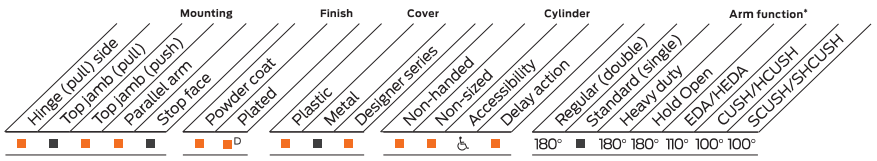
Designed for maximum versatility, the 1460, available with multiple cover options, can be used for both commercial and institutional applications. This fully universal closer offers a wide variety of options and fast and accurate installation.

Features

Certifications	Grade 1 - ANSI A156.4, UL 10C, ADA, 100 hour salt spray, meets BAA - Buy American Act
Body construction	▪ Cast iron body ▪ Full complement bearing ▪ 1 1/4" diameter piston ▪ 3/4" diameter single heat treated pinion journal
Fluid	All weather fluid
Handing	Non-handed
Templating	Peel-n-Stick templates - 1" x 7 1/2" mounting hole pattern
Size	Adjustable Spring Size 1-6 (Includes patented Green Dial)
Warranty	30 years

Cover	▪ Slim line plastic, standard ▪ Full plastic and metal designer series, optional
Fasteners	Self reaming and tapping screws (SRT)
Mounting	Hinge (pull side), top jamb (push side), Parallel arm (push side)
Arms	Standard regular pull side, and top jamb
Finishes/colors/ powder coat	▪ 689 Aluminum ▪ 690 Statuary Bronze ▪ 691 Light Bronze ▪ 693 Black ▪ 695 Dark Bronze ▪ 696 Brass ▪ Custom colors optional
	▪ Optional SRI primer - powder coat only ▪ Optional plated finishes

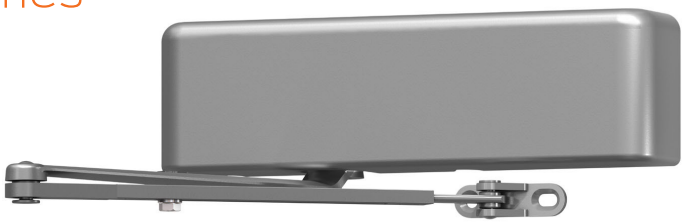
Special templates | Customized installation templates or products may be available to solve non-standard applications. Contact LCN Product Support for assistance.



■ Available
■ Not available

♿ Closer available with less than 5.0 lbs. opening force on 36" door.
* Maximum opening/hold open point with standard template.
D For designer series only

4020 Series



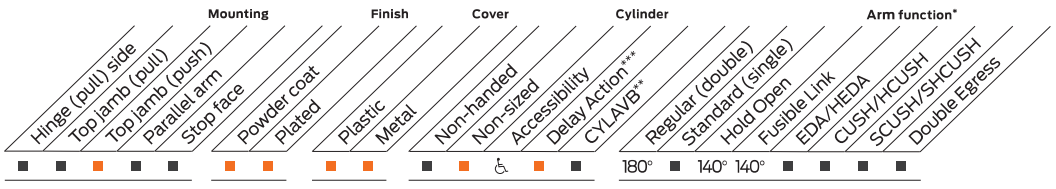
The 4020 is a heavy duty closer with adjustable spring power using the LCN Green Dial. This creates a custom fit to meet the specific demands of high traffic use and brings reliable performance.

Features

Certifications	Grade 1 - ANSI A156.4, UL 10C, ADA, 100 hour salt spray, meets BAA - Buy American Act
Body construction	▪ Cast iron body ▪ Full complement bearing ▪ 1 ½" diameter piston ▪ 11/16" diameter double heat treated pinion journal
Fluid	All weather fluid
Handing	Handed
Templating	Peel-n-Stick templates - 2 ½" x 6" mounting hole pattern
Size	Adjustable 1-5 or sized 6
Warranty	30 years

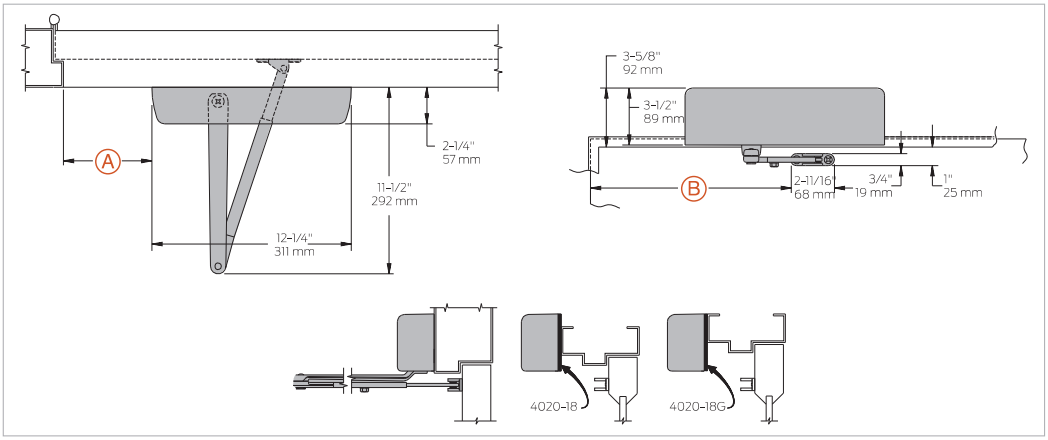
Cover	▪ Plastic Cover (PC), standard ▪ Metal Cover (MC), optional
Fasteners	Self Reaming and Tapping Screws (SRT)
Mounting	Top jamb (Push side)
Arms	Regular arm
Finishes/colors/ powder coat	▪ 622 Matte black ▪ 689 Aluminum ▪ 690 Statuary bronze ▪ 691 Light bronze ▪ 693 Black ▪ 695 Dark bronze ▪ 696 Brass ▪ Custom colors optional ▪ Optional SRI primer - powder coat only ▪ Optional plated finishes

Special templates | Customized installation templates or products may be available to solve non-standard applications. Contact LCN Product Support for assistance.



Mounting details

Top jamb (push) side mounting



Butt hinges	Should not exceed 5" (127 mm) in width
Auxiliary stop	Recommended at hold open point or where the door cannot swing 180°
Reveal	▪ 2 9/16" (65 mm) allows 180° opening with regular arm ▪ 4 13/16" (122 mm) allows up to 140° opening with regular arm ▪ 8" (203 mm) allows up to 140° opening with Long Arm (LONG) where standard rod and shoe is replaced with optional long rod and shoe (4020-79LR)
Head frame	Less than 3 7/16" (87 mm) requires plate, 4020-18. Use plate, 4020-18G for flush ceiling condition. Either plate requires 1 3/4" (44 mm) frame minimum.
Top rail	▪ Requires minimum 1 1/2" (38 mm) ▪ Closer on 4020-18 plate requires 2" (51 mm) minimum ▪ Closer on 4020-18G plate requires 2 3/4" (70 mm) minimum
Delay action	▪ Add suffix "CYLDEL" to selected cylinder. ▪ Not available with 4026 cylinder ▪ Delays closing from maximum opening to approximately 75° ▪ Delay time adjustable up to approximately 1 minute
Maximum opening	Can be templated for: 100°: A = 6" (152 mm), B = 12 3/8" (314 mm) 140°: A = 4" (102 mm), B = 10 3/8" (264 mm) 180°: A = 2" (51 mm), B = 8 3/8" (213 mm)

Notes:
- Hold open points up to maximum opening or 140°, whichever is less, for Hold Open or Fusible Link Arm
- For hold open beyond 140°, use 4110 Series closer

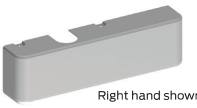
Accessories

Cylinders



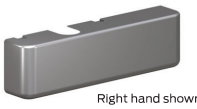
4021(6)-3071
Cast iron cylinder assembly (CYL)
- Handed
- Standard

Covers



Right hand shown

4020-72
Plastic Cover (PC)
- Handed
- Standard



Right hand shown

4020-72MC
Metal Cover (MC)
- Handed
- Required for plated finishes and custom powder coat finishes
- Optional

Arms



4020-3077
Regular Arm (REGARM)
- Non-handed



4020-3077L
Long Arm (LONG)
- Non-handed
- Includes 4020-79LR for deep reveals
- Optional



4020-3049
Hold Open Arm (H)
- Handed
- Provides hold open function, adjustable at elbow
- 5 3/4" (146 mm) maximum reveal, 140° hold open
- Optional



4020-3049FL
Fusible Link Arm (FL)
- Handed
- Releases hold open function, adjustable at shoe, when exposed to temperatures above 165° F
- 3 7/8" (98 mm) maximum reveal
- Optional

Note: Check local codes before specifying FL arms. NOT A life safety product!

Installation accessories



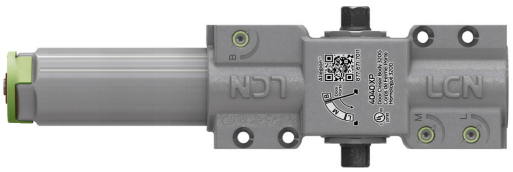
4020-18
Plate
- Required where head frame is less than 3 7/16" (87 mm)
- Requires minimum 1 3/4" (44 mm) minimum head frame and 2" (51 mm) top rail 3 7/8" (98 mm) maximum reveal



4020-18G
Plate
- For flush ceiling condition
- Requires minimum 1 3/4" (44 mm) minimum head frame and 2 3/4" (70 mm) top rail

4040XP Series





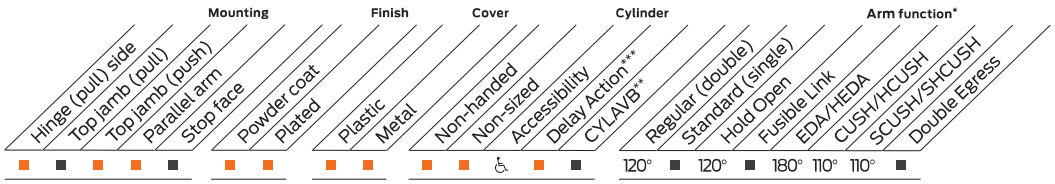
The 4040XP Series is LCN's most popular door closer—and for good reason. This durable non-handed, surface-mounted heavy-duty closer, is designed for the most demanding high-use-and-abuse applications as well as for easy installation and maintenance.

Features

Certifications	Grade 1 - ANSI A156.4, UL 10C, ADA, 100 hour salt spray, meets BAA - Buy American Act
Body construction	▪ Patented positive stop ▪ Patented regulation valve indicators ▪ Independent speed adjustments ▪ QR code for instructions and support ▪ Cast iron body ▪ Full complement bearing ▪ 1 ½" diameter piston ▪ Double heat treated pinion journal
Fluid	All weather liquid X fluid
Handing	Non-handed
Templating	Peel-n-Stick templates - 2 ¼" x 5" mounting hole pattern
Size	Adjustable spring size 1-6, includes LCN Green Dial
Warranty	30 years

Cover	▪ Redesigned snap-fit plastic cover (PC) with improved retention fit, standard ▪ Metal Cover (MC), optional
Fasteners	Self reaming and tapping screws (SRT)
Mounting	Hinge (pull side), top jamb (push side), parallel arm (push side)
Arms	Regular arm
Finishes/colors/ powder coat	▪ 622 Matte black ▪ 689 Aluminum ▪ 690 Statuary bronze ▪ 691 Light bronze ▪ 693 Black ▪ 695 Dark bronze ▪ 696 Brass ▪ Custom colors optional
	▪ Optional SRI primer - powder coat only ▪ Optional plated finishes

Special templates | Customized installation templates or products may be available to solve non-standard applications. Contact LCN Product Support for assistance.

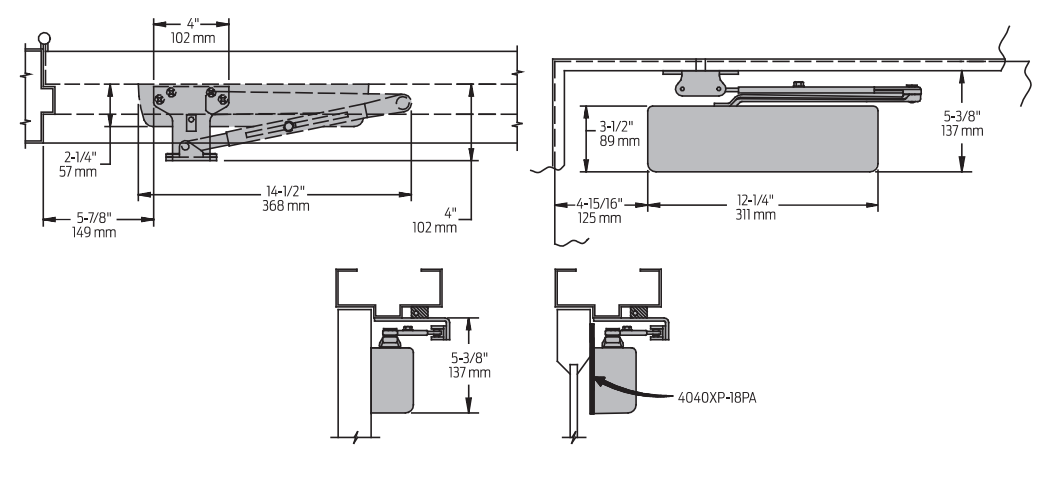


■ Available
■ Not available

Closer available with less than 5.0 lbs. opening force on 36" door.
* Maximum opening/hold open point with standard template.
** Advanced Variable Back Check.
*** Delay feature incorporates standard 4040 cylinder (not XP).

Mounting details

Parallel arm (push) side mounting



Butt hinges	Should not exceed 5" (127 mm) in width
Auxiliary stop	Recommended at hold open point, where the door cannot swing 180º, or where Cush-n-Stop Arm is not used
Reveal	Should not exceed 7/32" (6 mm)
Top rail	Less than 5 3/8" (137 mm) measured from the stop requires plate, 4040XP-18PA. Plate requires 2" (51 mm) minimum from the stop.
Head frame	Flush or rabetted requires PA shoe adapter, 4040XP-419
Stop width	Minimum 1" (25 mm). CUSH arm requires minimum 1 1/2" (38 mm)
Blade stop	Clearance requires 1/2" (13mm) blade stop spacer, 4040XP-61
Clearance	▪ 4040XP-62PA shoe is 4" (102 mm) from door face ▪ EDA shoe projects 5 1/2" (140 mm) from door face ▪ CUSH shoe projects 6" (152 mm) from door face
Delay action	▪ Incorporates standard 4041 cylinder, without XP cylinder ▪ Delays closing from 120º to 70º ▪ Delay time adjustable up to approximately 1 minute
Maximum opening	▪ 180º opening/hold open points with all except CUSH arms ▪ 110º opening/hold open with CUSH arms

Notes:
- Optional mounting requires PA shoe, 4040XP-62PA for regular or Hold Open Arms
- Add prefix "P" to closer description (eg. P4040XP)
- P4040XP closer includes 4040XP-201 fifth hole spacer to support PA shoe

CDH
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Oakville, L6H 5V1
Kings Rd P.S. Accessibility Reno 2026 HDSB
660 Greenwood Dr , Burlington
Submittal Date: June 15/26

Accessories

Cylinders

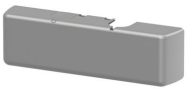


4040XP-3071
Cast iron cylinder assembly (CYL)
- Non-handed
- Heavy duty

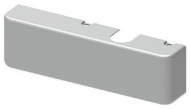


4041-3071 DEL
Delay Action Cylinder (CYLDEL)
- Used for delayed action closing
- Non-handed
- Heavy duty

Covers



4040XP-72
plastic cover (PC)
- Non-handed
- Includes 4040XP-54 snap-on cover clip
- Redesigned patented snap-fit cover with improved retention fit



4040XP-72MC
metal cover (MC)
- Handed
- Required for plated finishes and custom powder coat finishes
- Optional

Arms



4040XP-3077
Regular Arm (REGARM)
- Non-handed
- Mounts pull side or top jamb with shallow reveal P4041 closer includes PA shoe, 4040XP-62PA required for parallel arm mounting



4040XP-3077L
Long Arm (LONG)
- Non-handed
- Includes long rod and shoe, 4040XP-79LR for top jamb mount
- Optional



4040XP-3077ELR
Extra Long Arm (XLONG)
- Non-handed
- Includes extra long rod and shoe, 4040XP-79ELR for top jamb mount with deep reveal
- Optional



4040XP-3049
Hold Open Arm (H)
- Non-handed
- Mounts pull side or top jamb with shallow reveal, hold open adjustable shoe
- 4040XP closer includes 4040XP-62PA shoe required for parallel arm mounting
- Optional



4040XP-3049L
Hold Open Long Arm (HLONG)
- Non-handed
- Includes long head and tube, 4040XP-3048L for top jamb mount
- Optional



4040XP-3077EDA
Extra Duty Arm (EDA)
- Non-handed
- Features forged, solid steel main and forearm for potentially abusive installations
- Optional



4040XP-3049EDA
Hold Open Extra Duty Arm (HEDA)
- Handed
- Parallel arm features forged, solid steel main and forearm for potentially abusive installations
- Hold open function is adjusted at the shoe
- Optional



4040XP-3077EDA/62G
Extra Duty Arm with 62G Thick Hub Shoe (EDAW62G)
- Non-handed
- Features forged, solid steel main and forearm for potentially abusive installations
- 62G shoe provides additional blade stop clearance
- Optional



4040XP-3049EDA/62G
Hold Open Extra Duty arm with 62G Thick Hub Shoe (HEDA62G)
- Handed
- Features forged, solid steel main and forearm for potentially abusive installations
- 62G shoe provides additional blade stop clearance; hold open function is adjusted at the shoe
- Optional



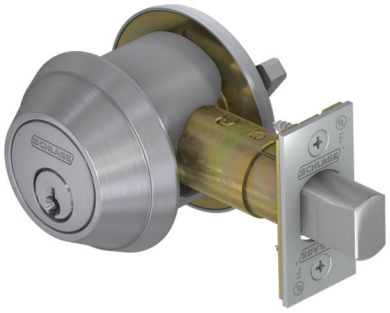
4040XP-3077CNS
Cush-n-Stop Arm (CUSH)
- Non-handed
- Features solid forged steel main arm and forearm with stop in soffit shoe.
- Optional

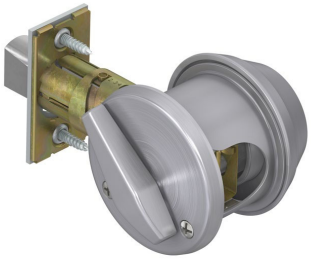


4040XP-3049CNS
Hold Open Cush-n-Stop Arm (HCUSH)
- Non-handed
- Hold open function with templated stop/hold open points
- Handle controls hold open function
- Optional

B600/700/800 Series

Grade 1 Deadbolts





OVERVIEW

Schlage® commercial grade 1 deadbolts are designed for security, durability and beauty. They feature a thick, anti-saw hardened steel bolt with anti-pry, anti-wrench and other protections to make it one tough lock. Optional single- or dual-sided lock status indicator trim features Schlage's patented 180-degree visibility. The large window size and red/white background messaging assures easy readability for even the color blind.

600 Series: Grade 1 deadbolt furnished with Conventional cylinder standard. Also available with Full Size Interchangeable Core (FSIC) or Small Format Interchangeable Core (SFIC).

700 Series: Features the upgraded security of patented Primus RP in Classic Obverse keyways (FSIC or Conventional) or Primus XP in patented Everest 29 keyways (FSIC or Conventional including SL cylinders). Primus levels of security add an independent sidebar and finger pin locking mechanism for resistance to picking, bumping and impressioning.

800 Series: Utilizes a Conventional format Primus XP UL 437 high security cylinder which features added hardened steel drill pins to resist drilling and other forms of physical attack.

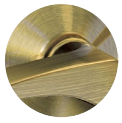
FINISHES



605
Bright Brass



606
Satin Brass



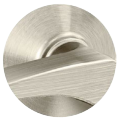
609
Antique Bronze



612
Satin Bronze



613
Oil Rubbed Bronze



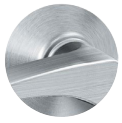
619
Satin Nickel



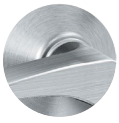
622
Matte Black



625
Bright Chrome



626
Satin Chrome



626AM
Satin Chrome Antimicrobial



643e
Aged Bronze

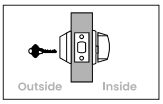
e = an equivalent finish to the BHMA standard.

SCHLAGE | ALLEGION

Commercial.Schlage.com

LOCK FUNCTIONS

Schlage **ANSI**
B660 **E0151**
B760
B860



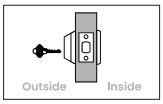
Single cylinder deadbolt



- Key cylinder outside; thumbturn inside
- Deadbolt thrown or retracted by key outside or thumbturn inside
- When installed with optional lock status indicator trim, in unlocked state message displays on white background; in locked state on red background

To order configured with indicator specify function and note indicator code as a special option.

Schlage **ANSI**
B661 **E0161**
B761
B861



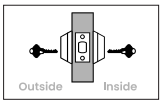
Cylinder x blank plate deadbolt



- Key cylinder outside; blank plate inside
- Deadbolt thrown or retracted by key outside
- When installed with optional lock status indicator trim, in unlocked state message displays on white background; in locked state on red background

To order configured with indicator specify function and note indicator code as a special option.

Schlage **ANSI**
B662 **E0141**
B762
B862



Double cylinder deadbolt

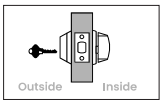


- Key cylinder both sides
- Deadbolt thrown or retracted by key from either side
- When installed with optional lock status indicator trim, in unlocked state message displays on white background; in locked state on red background

Caution: Double cylinder locks on any door, in any structure which is used for egress are a life safety hazard in times of emergency and their use is not recommended. Installation should be in accordance with existing codes only.

To order configured with indicator specify function and note indicator code as a special option.

Schlage **ANSI**
B663 **E0171**
B763
B863



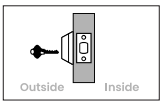
Classroom deadbolt



- Key cylinder outside; thumbturn inside
- Deadbolt thrown or retracted by key outside
- Thumbturn inside can only retract deadbolt
- When installed with optional lock status indicator trim, in unlocked state message displays on white background; in locked state on red background

To order configured with indicator specify function and note indicator code as a special option.

Schlage **ANSI**
B664 **E0101**
B764
B864



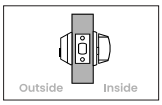
Cylinder only deadbolt

- Key cylinder outside; no inside trim
- Deadbolt thrown or retracted by key outside

Note: Available in Conventional cylinder format only.

Note: 1-1/2" bore only.

Schlage **ANSI**
B672 **–**



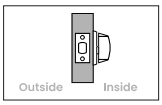
Door bolt with coin turn



- Coin turn outside; thumbturn inside
- Deadbolt thrown or retracted by thumbturn inside
- A flat screwdriver inserted in the coin turn outside can also retract deadbolt
- When installed with optional lock status indicator trim, in unlocked state message displays on white background; in locked state on red background

To order configured with indicator specify function and note indicator code as a special option.

Schlage **ANSI**
B680 **E0191**



Door bolt

- No outside trim; thumbturn inside
- Deadbolt thrown or retracted by thumbturn inside

Note: 1-1/2" bore only.

CDH

Commercial Doors & Hardware Ltd.
2150 Winston Park Drive, Unit 16
Oakville, L6H 5V1

Kings Rd P.S. Accessibility Reno 2026 HDSB
660 Greenwood Dr , Burlington

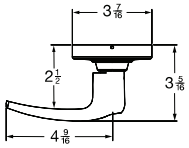
Submittal Date: June 15/26

Trims & Finishes

Lever Designs & Finishes

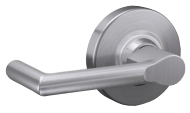
Athens (ATH)

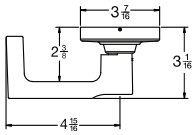




Cores *KIL, FSIC, SFIC, L-CO, L-SA, J-CO6, J-ME, J-SA, J-YA6*

Boardwalk (BRK)[1]

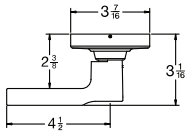




Cores *KIL, FSIC, SFIC*

Broadway (BRW)

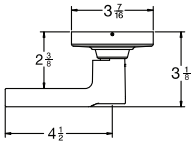




Cores *KIL, FSIC, SFIC*

Latitude (LAT)

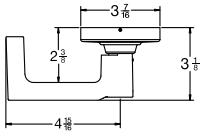




Cores *KIL, FSIC, SFIC*

Longitude (LON)[1]

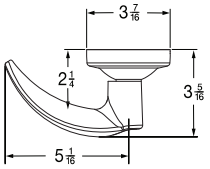




Cores *KIL, FSIC, SFIC*

Omega (OME)[1]

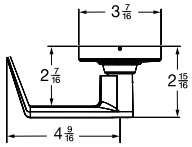




Cores *KIL, FSIC, SFIC*

Rhodes (RHO)[1]

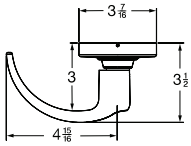




Cores *KIL, FSIC, SFIC, L-CO, L-SA, J-CO6, J-CO7, J-ME, J-SA, J-YA6, J-YA7*

Sparta (SPA)[1]

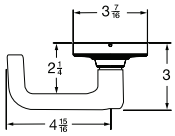




Cores *KIL, FSIC, SFIC, L-CO, L-SA, J-CO6, J-ME, J-SA, J-YA6*

Tubular (TLR)[1]





Cores *KIL, FSIC, SFIC, L-CO, L-SA, J-CO6, J-ME, J-SA, J-YA6*

Finishes



605 Bright Brass	606 Satin Brass	612 Satin Bronze	613[2] Oil Rubbed Bronze	619 Satin Nickel	622 Matte Black	625 Bright Chrome	626/626AM Satin Chrome/ Antimicrobial	630[3] Satin Stainless Steel	643e Aged Bronze

1. Boardwalk, Longitude, Omega, Rhodes, Sparta, and Tubular levers comply with California state code for return within 1/2" of door face.
2. NDE wireless electronic locks not available in 613 finish.
3. Available on HSLR trim only.

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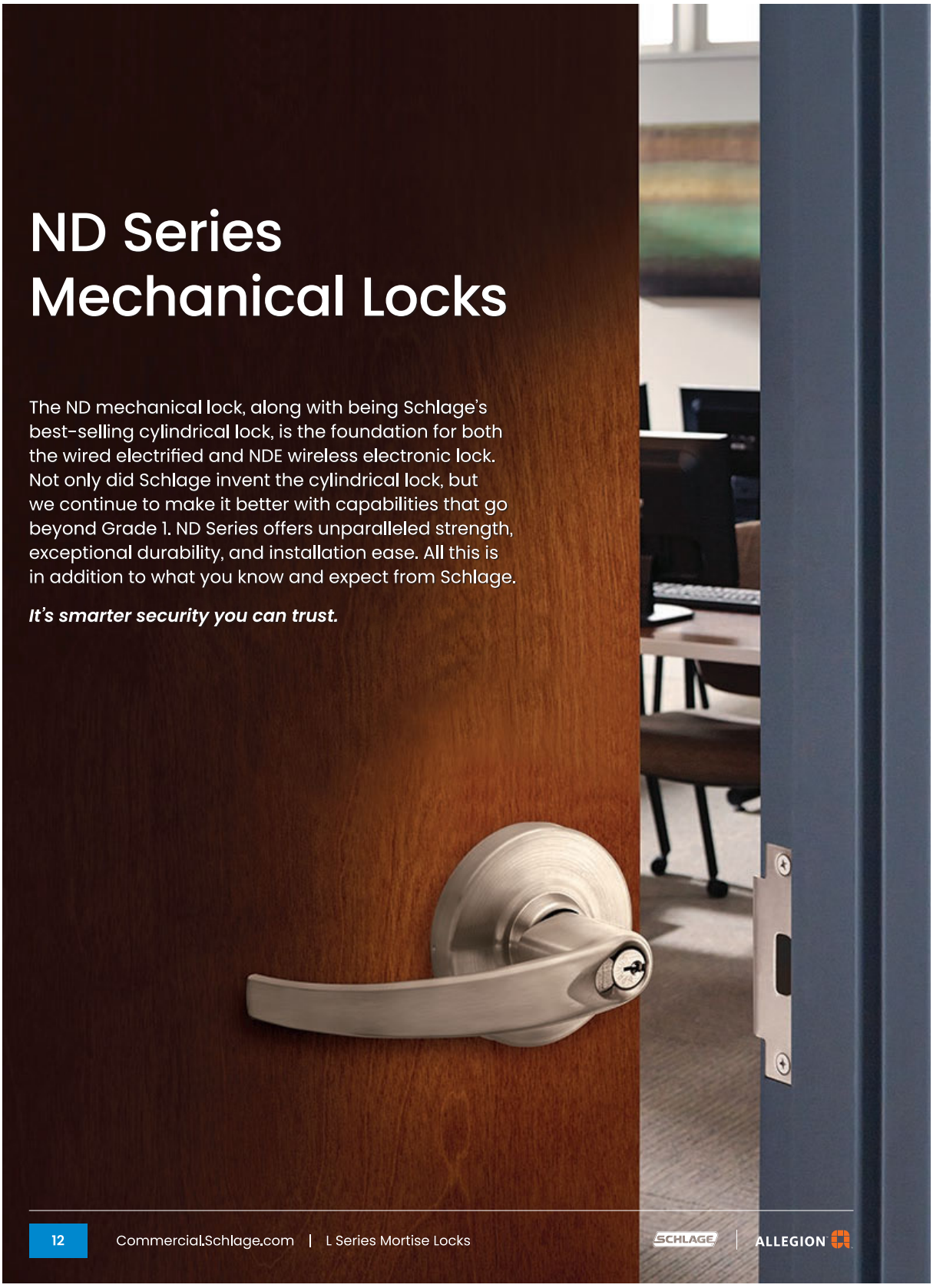
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ND Series Mechanical Locks

The ND mechanical lock, along with being Schlage's best-selling cylindrical lock, is the foundation for both the wired electrified and NDE wireless electronic lock. Not only did Schlage invent the cylindrical lock, but we continue to make it better with capabilities that go beyond Grade 1. ND Series offers unparalleled strength, exceptional durability, and installation ease. All this is in addition to what you know and expect from Schlage.

It's smarter security you can trust.



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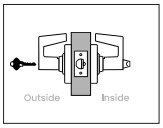
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Mechanical Lock Functions

Keyed Functions

Schlage **ANSI**
ND53 **F109**

Entrance lock





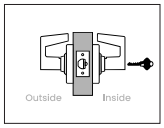
- Lever with key cylinder outside; push/turn button in lever inside; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is made inoperative by pushing button or pushing and turning button on inside lever; key outside does not lock
- **Pushed button unlocking:** key outside or rotating inside lever retracts latch and releases button unlocking outside lever
  Pushed/turned button unlocking: key outside or rotating inside lever retracts latch but does not unlock outside lever; rotate inside button to start position to allow button release and unlocking by key or by rotating inside lever
- Inside lever always free for immediate egress

Caution: Egress without fully releasing the push/turn button can result in lock-out situations.

Note: Locks ordered with indicator trim fit 1-3/4" doors. Sold separate spacer kits allow application to doors 1-3/8" to 1-11/16".

Schlage **ANSI**
ND60 with XN12-001 **–**

Vestibule lock with interior unlocking only

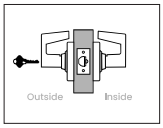


- Lever outside; lever with key cylinder inside; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is locked or unlocked by key inside
- Inside lever always free for immediate egress

To order, specify function and note XN12-001 as a special option.

Schlage **ANSI**
ND70 **F84**

Classroom lock, exterior lockdown only

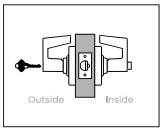




- Lever with key cylinder outside; lever inside; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is locked or unlocked by key outside
- Inside lever always free for immediate egress

Schlage **ANSI**
ND73 **F9**

Corridor lock

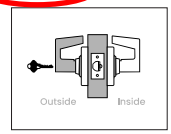




- Lever with key cylinder outside; push button in lever inside; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is made inoperative by pushing button on inside lever or by key outside
- **When locked by pushed button:** rotating inside lever retracts latch and releases button unlocking outside lever; closing door also unlocks preventing lock-out
  When locked by key: rotating inside lever retracts latch but outside lever remains fixed until unlocked by key outside
- Inside lever always free for immediate egress

Schlage **ANSI**
ND80 **F86**

Storeroom lock



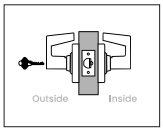


- Lever with key cylinder outside; lever inside; deadlatch
- Outside lever always fixed; latch retracted by inside lever
- Key in outside lever retracts latch only
- Inside lever always free for immediate egress

To order configured with Request to Exit (RX), specify RX under special options.

Schlage **ANSI**
ND81 **F86**

Accessible storeroom lock





- Lever with key cylinder outside; lever inside; deadlatch
- Outside lever is always fixed when key is not present; latch retracted by inside lever
- Key outside turned counter-clockwise retracts latch; 180-degree clockwise rotation of key allows outside lever to retract latch
- Inside lever always free for immediate egress

To order configured with Request to Exit (RX), specify RX under special options.

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Conventional cylinders

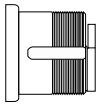
Cylinders to use with rim, mortise exit and competitive devices

Security	Key mechanism	Pins	Patent protected keyway families	Schlage rim cylinders for exit devices: Cylinder (horizontal tailpiece)	Cylinder (vertical tailpiece)	Lockout cylinder (horizontal tailpiece)	Schlage mortise cylinders for Von Duprin and other straight cam applications: Cylinder with compression ring, spring and blocking ring	Cylinder with compression ring and spring
Basic security Open keyways	Standard pin and tumbler	6	–[1]	20-022	20-021	–	20-002	20-001
	Check pin	6	S (Everest 29)					
Enhanced security Restricted use	Check pin	6	T (Everest 29)	20-022	20-021	–	20-002	20-001
	SL	7	R (Everest 29)	91-075	91-074	–	91-052	91-051
Upgraded Security Primus level restricted use, geographic exclusivity, and independent sidebar	Legacy Primus	6	S, T (Everest 29)	20-710	20-709	20-716	20-703	20-700
	Primus RP	6	Obverse[1] (Classic)	20-710-RP	20-709-RP	20-716-RP	20-703-RP	20-700-RP
	Primus XP	6	S, T (Everest 29)	20-710-XP	20-709-XP	20-716-XP	20-703-XP	20-700-XP
	Primus XP SL	7	R (Everest 29)	91-775-XP	91-774-XP	–	91-752-XP	91-751-XP
High security All Primus benefits plus added UL 437 physical security	Legacy Primus	6	S. T (Everest 29)	20-510	20-509	20-516	20-503	20-500
	Primus RP	6	Obverse[1] (Classic)	20-510-RP	20-509-RP	20-516-RP	20-503-RP	20-500-RP
	Primus XP	6	S, T (Everest 29)	20-510-XP	20-509-XP	20-516-XP	20-503-XP	20-500-XP
	Primus XP SL	7	R (Everest 29)	91-575-XP	91-574-XP	–	91-562-XP	91-561-XP

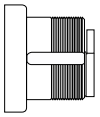


Security	Key mechanism	Pins	Patent protected keyway families	Adams Rite[2] MS, 4500 and 4700 Series; Lori 4500 Series and Corbin Russwin DL3000 Series deadlocks: Cylinder only	Lockout function[3]	Cylinder with 3/8" blocking ring	Adams Rite[2] 4070 deadbolt: Cylinder only
Basic security Open Keyways	Standard pin and tumbler	6	–[1]	26-072	--	20-013	26-073
	Check pin	6	S (Everest 29)				
Enhanced security Restricted Use	Check pin	6	T (Everest 29)	26-072	--	20-013	26-073
	SL	7	R (Everest 29)	91-060	--	91-054	91-061
Upgraded security Primus level restricted use, geographic exclusivity, and independent sidebar	Legacy Primus	6	S, T (Everest 29)	--	20-718	20-706	20-708
	Primus RP	6	Obverse[1] (Classic)	--	20-718-RP	20-706-RP	20-708-RP
	Primus XP	6	S, T (Everest 29)	--	20-718-XP	20-706-XP	20-708-XP
	Primus XP SL	7	R (Everest 29)	91-758-XP	--	91-755-XP	91-759-XP
High security All Primus benefits plus added UL 437 physical security	Legacy Primus	6	S. T (Everest 29)	--	20-518	20-506	20-508
	Primus RP	6	Obverse[1] (Classic)	--	20-518-RP	20-506-RP	20-508-RP
	Primus XP	6	S, T (Everest 29)	--	20-518-XP	20-506-XP	20-508-XP
	Primus XP SL	7	R (Everest 29)	91-558-XP	--	91-555-XP	91-559-XP





Cylinder only



Cylinder with compression ring and spring (lockout function)

1. Out-of-patent keyways like Classic Obverse are available. Obverse, however, can gain patent protection in a Primus RP or XP cylinder. RP is recommended because patent coverage carries to 2029 versus 2024 for Primus XP.
2. All cylinders include a set screw pack (B220-050) for Adams Rite locks.
3. Includes cylinder, compression ring and spring. Lockout keys must be ordered separately and lockout cylinders will not be master keyed by Schlage.

Note: 1 1/8" length standard. Optional lengths available in 1/8" (4mm) increments up to 1 3/4" (44mm).

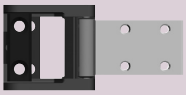
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33A/35A Rim device





1439 Roller ships standard, optional strikes available



299 Strike needs to be specified for Hollow Metal Frames

33A and 35A for all types of single and double doors with mullion, UL listed for panic exit hardware. Devices are ANSI A156.3 – 2014 Grade 1. The 35A has a smooth mechanism case and the 33A has grooved case. The rim device is non-handed except when the SS (signal switch) option is used. See opposite page for available outside trim and device functions.

33A/35A fits door stiles as narrow as 1 3/4" (44mm). Newly designed device has a one piece center case cover.

Finishes – US3, US4, US10, US15 (35A Only) US26, US26D, US26D-AM,US28, 313 and 315.

Specifications

Device lengths	**3'** 2' 4" to 3' (711mm to 914 mm) Door size **4'** 2'10" to 4' (864 mm to 1219 mm) Door size
Device centerline from finished floor	39 13/16" (1011 mm) 39 11/16" (1008 mm) with Mullion
Center case dimensions	8 3/16" x 1 9/16" x 2 13/32" (208mm x 40mm x 62mm)
Mechanism case dimensions	2 1/4" x 2 1/4" (57mm x 57mm)
Projection	Pushbar Neutral – 3 13/16" (97 mm) Pushbar Depressed – 3 1/16" (78 mm)
Latch bolt	Deadlocking, 3/4" (19mm) throw
Fasteners & sex bolts (SNB)	Includes 1 3/4" (44mm) – 2 1/4" (57mm) wood & metal doors #425 SNB furnished standard for end case #325 SNB furnished standard for EO (exit only device)
Electric options	**ALK** Alarm kit **CX** Chexit delayed exit **EL** Electric latch retraction **HD-EL** Electric latch retraction with hex dogging **QEL** Quiet electric latch retraction **RX** Request to exit, WP-RX waterproof option **LX** Latchbolt monitoring **LX-RX** Request to exit / latchbolt monitoring **RX-LC, LX-LC, LX-RX-LC** Low current option for RX, LX, LX-RX **SS** Signal switch **CON** Allegion Connect
Mechanical options	**AX** Accessible device
Miscellaneous options	**GBK** Glass bead kit **PN** Pneumatic **SG** Safety glow **SEC** Security screws **SNB** Sex bolts
Dogging feature	**Hex Dogging standard** **CD** Cylinder dogging **LD** Less dogging
Strikes	**1439** – Dull black **Optional strikes**

QEL
Quiet electric latch retraction
- Bolt retraction via switch
- Converts exit door to push-pull operation

AX
Accessible device
- UL certified to meet new 5 lb. maximum operating force requirement
- Exceeds ANSI/BHMA requirements

CX
Chexit delayed exit
- Meets NFPA 101 requirements
- Self-contained controls, locking, alarm

ALK
Alarm exit kit
- Unauthorized opening triggers 85-decibel horn
- Set in armed or disarmed mode by key

EL
Electric latch retraction
- Enables remote unlatching
- Alternative to manual dogging

RX
Pushpad monitor switch
- Signals use of an opening
- SPDT switch to monitor pushpad

E (E360L)
Electric lever trim
- Electrified remote locking/unlocking
- Fail safe & fail secure options available
- No key override

CON
Allegion Connectors
- Common connectors to connect various door hardware all the way to the power supply

PN
Pneumatic latch retraction
- For areas where electrical devices banned
- Special linkage for mechanical or pneumatic dogging

CD
Cylinder dogging
- Replaces hex key dogging
- Requires standard 1 1/4" mortise cylinder

Standard trim

	EO	DT	NL	NL-OP
	No outside trim Exit only	 **Dummy trim** Pull when dogged	 **Night latch** Key retracts latchbolt	 **Night latch** Key retracts latchbolt optional pull required
Product description	33A-EO 35A-EO	33A-DT 35A-DT	33A-NL 35A-NL	33A-NL-OP 35A-NL-OP
Trim description	—	386DT	386NL	388
Base size	—	7 15/32" x 1 5/8" (190x41mm)	7 15/32" x 1 5/8" (190x41mm)	7 1/2" x 1 11/16" (190x43mm)
Grip size	—	8 1/2" x 4 5/16" (216x110mm)	8 1/2" x 4 5/16" (216x110mm)	—
Projection	—	2 7/16" (62mm)	2 7/16" (62mm)	1" (25mm)
ANSI function	01	02	03	03
Cylinder type	—	—	Rim	Rim
Handing	—	—	Handed	—
Optional trim	—	x360L-DT x550DT x IVES 8190	—	x550DT x IVES 8190 10"

	L	L-BE	T	T-BE
	 **Lever** Key Locks and Unlocks	 **Lever Blank Escutcheon** Always Operable (No Cylinder)	 **Thumbturn** Key Locks and Unlocks	 **Thumbturn** Always Operable (No Cylinder)
Product description	33A-L 35A-L	33A-L-BE 35A-L-BE	33A-T 35A-T	33A-T-BE 35A-T-BE
Trim description	360L	360L-BE	360T	360T-BE
Base size	7 1/2" x 1 11/16" x 7/8" (190x43x22mm)	7 1/2" x 1 11/16" x 7/8" (190x43x22mm)	7 1/2" x 1 11/16" x 7/8" (190x43x22mm)	7 1/2" x 1 11/16" x 7/8" (190x43x22mm)
Grip size	—	—	—	—
Projection	3" (76mm)	3" (76mm)	1 13/16" (46mm)	1 13/16" (46mm)
ANSI function	08 or 09 field selectable	—	11 or 12 field selectable	—
Cylinder type	1 1/4" Mortise	—	1 1/4" Mortise	—
Handing	Handed/Reversible	Handed/Reversible	—	—
Optional trim	—	E360L-BE	—	E360T-BE

Note: 360L & 360T used on wood door require the 33A-WDA cover plate

Notes

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Steel mullions

1654 Prepared for two 1606 strikes. **If 1606 strikes are not specified on the order, two per mullion will be added. Additional charges apply.**

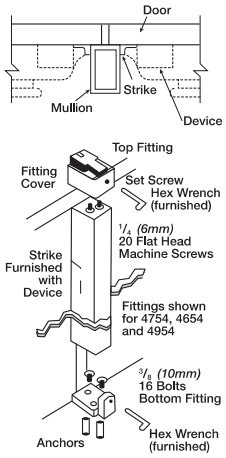
4954 Prepared for 264 or 299 strikes. For use with all Von Duprin Panic rim devices. **Note:** Specify strike choice with device.

9954 Prepared for and must be used with two 268 strikes (88-F device), or two 499F (22-F, 98-F, 99F devices). UL fire labeled mullion for up to 3 hour opening using Von Duprin fire exit rim devices. This mullion is not easily removed due to special fittings.

22-F and 88-F devices are rated up to 8' x 8" (2438mm x 2438mm).

98-F and 99-F devices are rated up to 10'0" (3048mm).

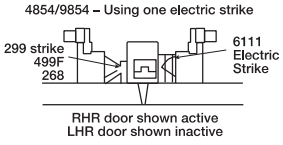
Note: If 268 or 499F strikes are not specified on the order, two per mullion will be added. Additional charges apply.



4754 Prepared for two 4263 monitor strikes.

4854 Prepared for one 299 and one 6111 electric strike. Indicate handing for electric strike.

9854 Prepared for one 268 or 499F strike and one 6111 electric strike. Indicate handing for electric strike. UL fire labelled mullion for up to 3 hour openings up to 8' x 8' (2438mm x 2438mm) using Von Duprin Fire Exit Rim Devices.



Aluminum mullions

5654 Prepared for two 264 or 299 strikes with weatherstripping. Includes one set of 154 stabilizers.

5754 Prepared and furnished with one 1408 double door strike. Includes one 154 stabilizer set. Note: specify device "less strike".

Sizes for mullions

1654, 4954, 4754, 4854, 5654	9854, 9954
7' 2" (2184mm)	7' 3" (2210mm)
*8' 2" (2489mm)	8' 3" (2475mm)
*10' 2" (3099mm)	10' 3" (3124mm)

KR1654, KR4954, KR4754, KR4854	KR9854**, KR9954***
7' 6" (2286mm)	7' 5" (2261mm)
8' 6" (2591mm)	*8' 5" (2565mm)
10' 6" (3200mm)	*10' 5" (3175mm)

* Only qualifying applications will be provided with UL Label.
** Fire rated same as 9854
*** Fire rated same as 9954

Angle plate is used with narrow transom frames. The plate attaches to the transom extending the surface area needed to mount the mullion. Must be ordered separately. Specify finish.



154 Stabilizer is a two-piece interlocking set. One piece mounts on the mullion with the top mounting hole 5 3⁄16" (148mm) below the centerline of the strike; the other piece mounts on the door. Shims are provided to adjust for misalignment between the door and mullion.



The set maintains integrity between the door and mullion to prevent vandalism and to ensure contact between the device and strike as the doors expand and contract with temperature changes.

Furnished standard on aluminum mullions; optional for steel and all blank steel mullions.

MT54 Storage kit is a set of floor and wall brackets that provide convenient storage of the keyed removable mullion when removed from the opening.

To order, specify

1. Model MT54
2. Finish SP28, SP313, or SPBLK

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660 Greenwood Dr , Burlington
Submittal Date: June 15/26

6200 Series strikes for mortise or cylindrical devices

Overview
Von Duprin electric strikes are known for their reliability, durability and security. The 6200 Series is designed to withstand abuse. Its heavy-duty stainless steel construction is fully UL1034 and UL10C listed.

6200 Series electric strikes are designed for use with a variety of mortise or cylindrical locksets. It interfaces with the latch mechanism of the exit device. The 6200 Series movable lip (keeper) allows a door to open, even when the latch bolt is extended. This feature, called remote release provides added benefits such as increased convenience and efficiency. The 6200 Series also provides added security and traffic control.

6200 Series electric strikes can be used for retrofit applications or new construction. To assure the proper selection of an electric strike on new applications, lockset compatibility charts are shown below. When using a lockset not listed or when retrofitting a strike to an existing application, please contact Von Duprin Technical Support for application assistance.

Features and benefits

- Non handed design provides greater flexibility
- Strike box is adjustable to compensate for misalignment of the door or frame
- Two piece plug connectors are furnished for ease of installation and for removal during strike servicing
- UL1034 Burglary-Resistant and UL10C Electric Strike for Fire Door
- Six finishes available to suite with existing hardware
- Durable stainless steel construction
- 24 VDC standard with 12 VDC and AC operation optional



6200 Series power requirements

Models	Voltage	Current	Duty	Amps	Ohms
All	12V	DC	Continuous	0.60	21
All	16V	DC	Continuous	0.40	38
All	24V	DC	Continuous	0.33	83
All	28V	DC	Continuous	0.25	111

Continuous duty = Energized 1 minute or more

Mortise lockset compatibility[1,2,3]

6211, 6211AL, 6211WF, 6212, 6213, 6214, 6215, 6221, 6222, 6223, 6224, 6224AL, 6225 and 6226 Strikes

Manufacturer	Model number
Von Duprin	7500
Adams Rite	4510, 4710
Baldwin	6000
Best	24H, 30H
Corbin	9000
Falcon	M2300, M2500, M2600, M3300, M3500, M3600
Precision	Mortise
Russwin	Mortise
Sargent	7700, 8100, 9000
Schlage	L9000, K30, K40, K50, K60
Yale	7030, 7130, 8600, 8700

Cylindrical lockset compatibility[1,2,3]

6211, 6211AL, 6211WF, 6212, 6213, 6214, 6215, 6221, 6222, 6223, 6224, 6224AL, 6225 and 6226 Strikes

Manufacturer	Cylindrical latchbolt projection
Baldwin	1/2" – 3/4" (13mm – 19mm)
Best	3/8" – 3/4" (10mm – 19mm)
Corbin	1/2" – 3/4" (13mm – 19mm)
Falcon	1/2" – 3/4" (13mm – 19mm)
Russwin	1/2" – 3/4" (13mm – 19mm)
Sargent	1/2" – 3/4" (13mm – 19mm)
Schlage	3/8" – 3/4" (10mm – 19mm)
Yale	1/2" – 3/4" (13mm – 19mm)

Mortise lockset compatibility[1,3]

6210

Manufacturer	Model number
Von Duprin	7500
Best	30H (not 45H/47H)
Corbin/Russwin	ML2200, 5000, 9000, CR2200 (not 2000)
Falcon	M100, M200, M300, M400, M500, M600
Sargent	7700, 8100 (not 7800/8200)
Schlage	L9000
Yale	8700 (not 8800)

1. Von Duprin cannot guarantee compatibility as other manufacturer's designs may change without notice.
2. Signalling may not function when using 3/8" (10mm) throw bolt. Deadlocking cannot be guaranteed with all locks.
3. When using a lockset not listed or when retrofitting a strike to an existing application, please contact Von Duprin Technical Support for assistance.

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6300 Series surface mounted strike for rim exit devices

Overview
Von Duprin electric strikes are known for their reliability, durability and security. The 6300 Series is designed to withstand abuse. Its heavy-duty stainless steel construction is fully UL1034 and UL10C Listed.

6300 Series electric strikes are designed for use with a variety of rim devices. It interfaces with the latch mechanism of the exit device. The movable lip (keeper) allows a door to open even when the latch bolt is extended. This feature, called remote release, provides added benefits such as increased convenience and efficiency. The 6300 Series also provides added security and traffic control.

6300 Series electric strikes are ideal for aftermarket applications. It is easy to install without modifying or altering the door frame. To assure the proper selection of an electric strike on new applications, lockset compatibility charts are shown on the next page. When using a lockset not listed or when retrofitting a strike to an existing application, please contact Von Duprin technical support for application assistance.

The 6300 is fail-secure (FSE) only to achieve compliance with UL10C for fire-rated openings. In a fail-secure application, the door is normally locked. To unlock the door, power must be applied. The 6300 strike can be used with either 12VDC or 24VDC. There are 2 connectors that ship with it and the appropriate connector for either 12VDC or 24VDC will be used, based upon the available voltage at the opening.

Features and benefits

- Non-handed design provides greater flexibility
- Requires no alteration or cutting to existing frame
- UL1034 burglary-resistant and
- UL10C electric strike for fire door
- Stainless steel (satin) finish
- Durable stainless steel construction
- Field selectable voltage 12VDC or 24VDC
- Dynamic strength 70 ft-lbs
- Endurance 2,000,000 cycles

6300 Series power requirements

Model	Voltage	Current	Duty	Amps	Ohms
6300	12V	DC	Continuous	0.50	22
6300	24V	DC	Continuous	0.24	89



Rim exit device compatibility 6300 strikes

Manufacturer	Model Number
Von Duprin	VD 22/22-F Rim
Von Duprin	VD 33A/35A Rim*
Von Duprin	VD 55 Rim
Von Duprin	VD 88 Rim
Von Duprin	VD 98/99 and 98/99-F Rim
Falcon	Falcon 24/24-F Rim*
Falcon	Falcon 25/25-F Rim
Falcon	Falcon 19/19-F Rim
Falcon Doromatic	Falcon Doromatic 1590*
Falcon Doromatic	Falcon Doromatic 1790*
Falcon Doromatic	Falcon Doromatic 2090*

* Stile and frame condition may affect compatibility.

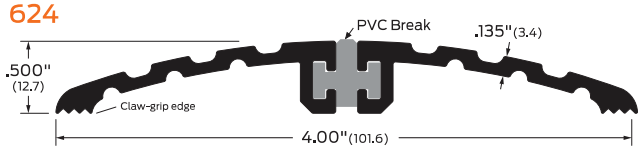
Model specifications

Model number	6300
Retrofits model	N/A
Latchbolt throw	3/4"
Face plate length	9"
Projection	3/4"
Lockset	Rim exit device
Number of doors	Single or pair with mullion
Door/frame type	Hollow metal, aluminum and wood
EB (entry buzzer)	Optional
Certifications	UL1034, UL10C, UL 294, CSFM
Application notes	Surface mounted electric strike ideal for aftermarket applications. Strike designed for use with Von Duprin 98/99, however it can be used with most rim exit devices.

Thresholds

Thermal break thresholds

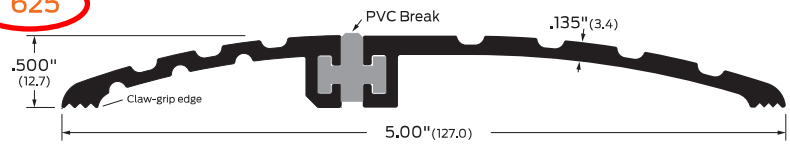
624



Finishes: A, BK, D, G
Options: E, EL, V3, EV3, ELV3
ANSI/BHMA: 624A, 624D, 624G, 624BK J32139; 624A-E, 624D-E, 624G-D, 624BK-E J32239

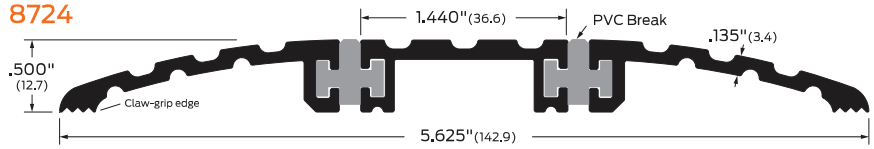
BHMA CERTIFIED

625



Finishes: A, BK, D, G
Options: E, EL, V3, EV3, ELV3

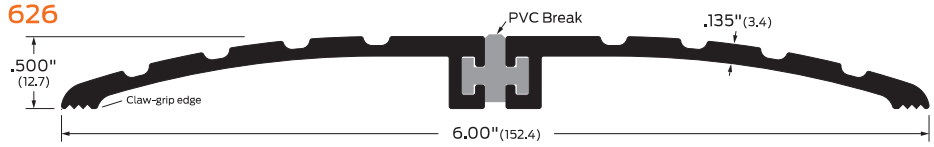
8724



Finishes: A, BK, D, G
Options: E, EL, V3, EV3, ELV3
ANSI/BHMA: 8724A, 8724D, 8724G, 8724BK J32139; 8724A-E, 8724D-E, 8724G-E, 8724BK-E J32239

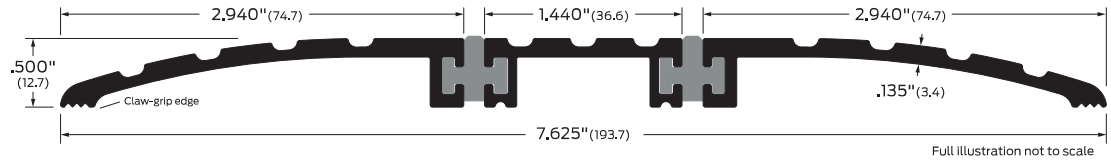
BHMA CERTIFIED

626



Finishes: A, BK, D, G
Options: E, EL, V3, EV3, ELV3

8726



Full illustration not to scale

Finishes: A, BK, D, G
Options: E, EL, V3, EV3, ELV3

All items on this page:

See Thresholds Accessories & options page for details.

Finishes:

A	Aluminum mill finish
BK	Aluminum black anodized
D	Aluminum dark bronze anodized
G	Aluminum gold anodized
B	Bronze, architectural mill finish
B-ORB	Oil-rubbed bronze

Options:

E	Epoxy abrasive tread
EL	Photoluminescent and abrasive epoxy tread
V3	Full body strength fill
EV3	Epoxy and full body strength fill
ELV3	Photoluminescent and abrasive epoxy tread, full body strength fill

Note:

Special anchors available for mounting most thresholds on concrete surfaces.

Width dimensions for thresholds on this page are nominal. Slight variations may result from thermal break manufacturing.

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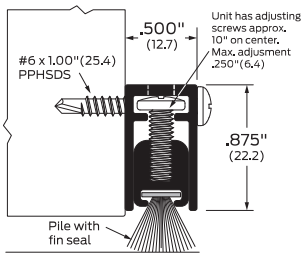
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Perimeter seals

Door sweeps

871

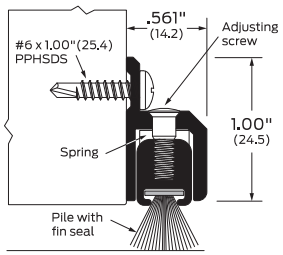


Finishes: AA, BK, D, G
Options: S, SEC
ANSI/BHMA: 871AA, 871BK, 871D, 871G R3F434

Adjustable

10C

255

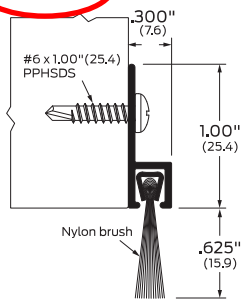


Finishes: AA, BK, D, G
Option: SEC
ANSI/BHMA: 255AA, 255BK, 255D, 255G R3F434

Adjustable

10C

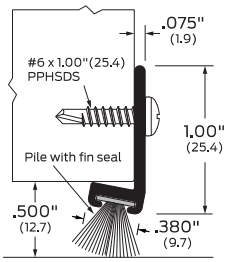
8192



Finishes: AA, BK, D, G
Options: PSA, SEC
ANSI/BHMA: 8192AA, 8192BK, 8192D, 8192G R3A436

10C

98

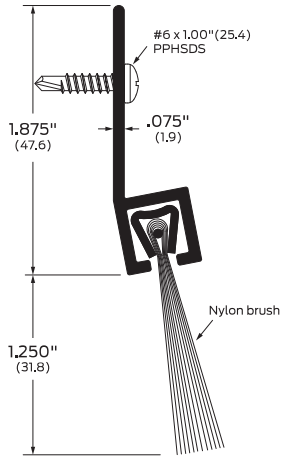




Finishes: A, BK, D, G
Options: PSA, S, SEC
ANSI/BHMA: 98A, 98BK, 98D, 98G R3F436

10C

96



Finishes: A, BK, D, G
Option: SEC
ANSI/BHMA: 96A, 96BK, 96D, 96G R3A436

Suitable for mixed-use commercial, hospitality, multi-family, as well as sliding barn doors.

All items on this page:

BHMA CERTIFIED

See Perimeter seals Accessories & options page for details.

Finishes:

A	Aluminum mill finish
AA	Aluminum clear anodized
BK	Aluminum black anodized
D	Aluminum dark bronze anodized
G	Aluminum gold anodized

Options:

PSA	Pressure-sensitive adhesive
S	Order as a set
SEC	Security screws

Note:

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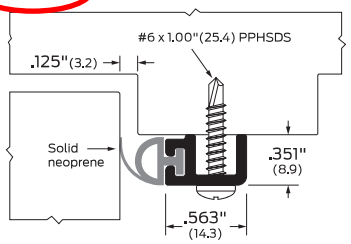
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Perimeter seals

Head and jamb gasketing

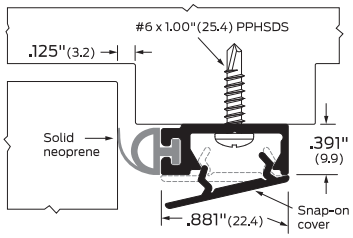
485



Finishes: AA, BK, D, G
Options: ZAG, S, SEC
ANSI/BHMA: 485AA, 485BK, 485D, 485G R3B164

ZAG option for mental health applications includes security screws. Extruded Bulb/Finger for double-sealing protection.

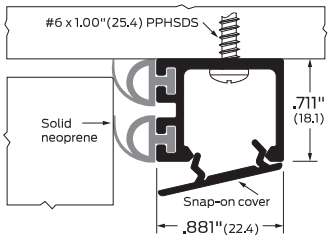
475



Finishes: AA, BK, D, G
Options: S, SEC
ANSI/BHMA: 475AA, 475BK, 475D, 475G R3B164

Neoprene extruded bulb/finger for secure seal. Subject to local building codes.

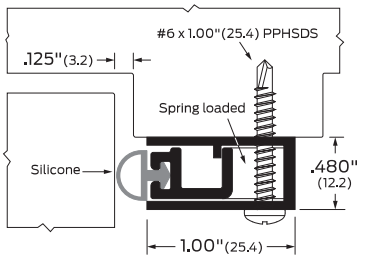
478



Finishes: AA, BK, D, G
Options: S, SEC
ANSI/BHMA: 478AA, 478BK, 478D, 478G R3B154

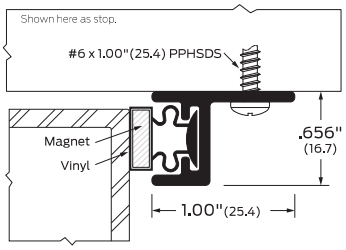
Neoprene extruded bulb/finger for secure seal. Subject to local building codes.

570



Finishes: AA, BK, D, G
Options: S, SEC
ANSI/BHMA: 570AA, 570BK, 570D, 570G R3E164

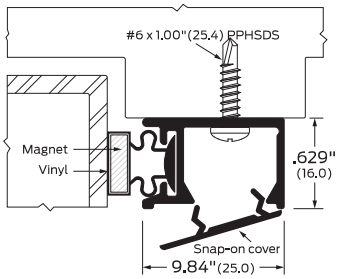
370



Finishes: A, BK, D, G
ANSI/BHMA: 370A, 370BK, 370D, 370G R3L155

Magnetic head and jamb gasketing For use with interior metal doors only. Available to order as engineering special.

375



Finishes: AA, BK, D, G
ANSI/BHMA: 375AA, 375BK, 375D, 375G R3L165

Magnetic head and jamb gasketing. For use with interior metal doors only. Available to order as engineering special.

All items on this page:

See Perimeter seals Accessories & options page for details.

Finishes:		Options:		Note:
A	Aluminum mill finish	**ZAG**	Ligature resistant gasketing	
AA	Aluminum clear anodized	**S**	Order as a set	
BK	Aluminum black anodized	**SEC**	Security screws	
D	Aluminum dark bronze anodized			
G	Aluminum gold anodized			

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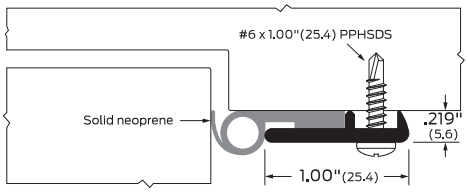
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Perimeter seals

Head and jamb gasketing

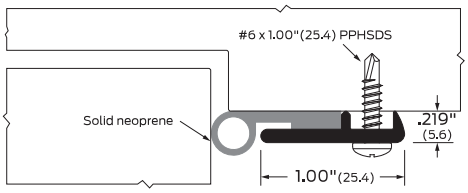
326



Finishes:	Options:	ANSI/BHMA:	
AA, BK, D, G, B, B-ORB	ZAG, S, SEC	326AA, 326BK, 326D, 326G 326B	R3B164 R1B164

Neoprene extruded bulb/finger for secure seal.

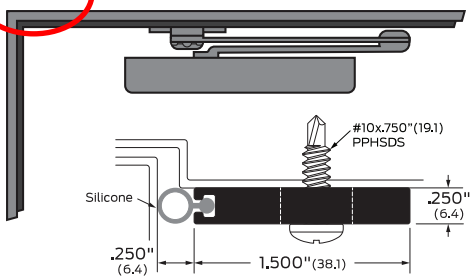
328



Finishes:	Options:	ANSI/BHMA:	
AA, BK, D, G, B, B-ORB	ZAG, S, SEC	328AA, 328BK, 328D, 328G 328B	R3B164 R1B164

ZAG option for mental health applications includes security screws

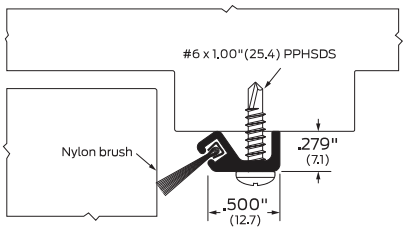
429



Finishes:	Options:	ANSI/BHMA:	
AA, BK, D, G	S, SEC	429AA, 429BK, 429D, 429G	R3E164

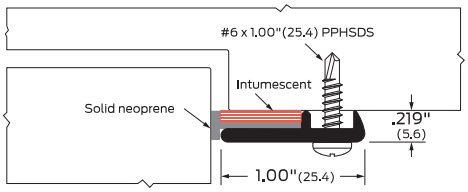
Gasketing protection for closer bracket or door coordinator.

8305



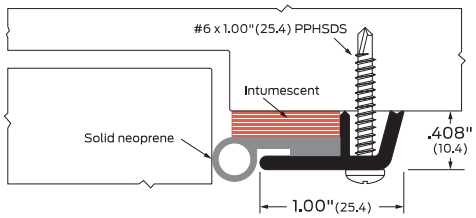
Finishes:	Options:	ANSI/BHMA:	
AA, BK, D, G	S, SEC	8305AA, 8305BK, 8305D, 8305G	R3A166

302FS



Finishes:	Options:	ANSI/BHMA:	
AA, BK, D, G, B	S, SEC	302FS-AA, 302FS-BK, 302FS-D, 302FS-G	R3R164

328FS



Finishes:	Options:	ANSI/BHMA:	
AA, BK, D, G	S, SEC	328FS-AA, 328FS-BK, 328FS-D, 328FS-G	R3R164

See Perimeter seals Accessories & options page for details.

Finishes:

AA	Aluminum clear anodized
BK	Aluminum black anodized
D	Aluminum dark bronze anodized
G	Aluminum gold anodized

Options:

ZAG	Ligature resistant gasketing
S	Order as a set
SEC	Security screws

Note:

All items on this page:

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GT710/8710

Low-Energy
ADA Swing Door Operator

Where SOLUTIONS are AUTOMATIC



Product Features and Benefits

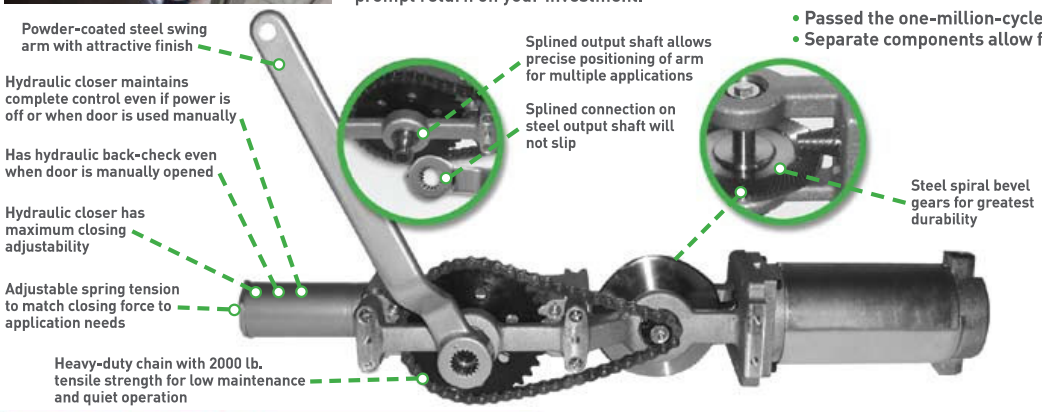
- Hydraulic design offers **proven reliability**
- Adjustable closing speeds to **enhance energy savings**
- Manual mode requires very little pressure to open **promoting ease of operation**
- Approved on fire door assemblies rated up to 3 hours, **maintaining security and safety**
- Hydraulic back-check during windy conditions **protects the door and operator from damage**



GT710/8710 Low-Energy ADA Swing Door Operator

The NABCO GT710/8710 Low-Energy Operator is engineered for interior and exterior use, and designed to automate essentially any new or existing door frame. The GT710/8710 operates in both automatic and manual modes with a hydraulic back-check that protects the door and mechanical operator from damage when forced open in windy conditions or when manually operated. The GT710/8710 Operator has been approved for use on fire door assemblies rated up to 3 hours. The low-energy performance, combined with the adjustable opening and closing speeds, reduces energy consumed, which offers a prompt return on your investment.

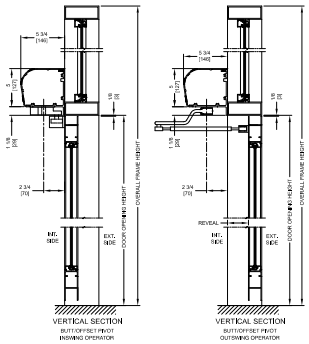
- Passed the one-million-cycle endurance test
- Separate components allow for lower repair costs



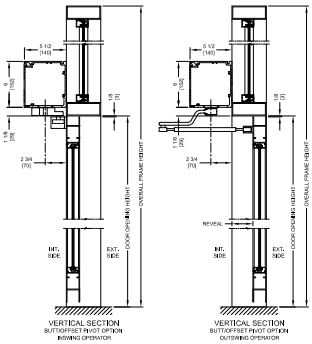
PRODUCT INFORMATION

Header dimensions	Side load - 5" H X 5 3/4" D (GT710) curved header Side load - 6" H X 5 1/2" D (GT8710)
Standard finish	Clear and dark bronze anodized
Optional finishes	Painted, clad, special anodized
Mounting	Surface applied or overhead concealed
Installation types	Push or pull
Operating voltage	120 VAC @ <5 amps
Auxiliary power output	12VDC 750mA
Operator drive	Electro-hydraulic
Motor voltage	Pulse width modulated
Motor type	1/8th HP @ peak
Control type	Microprocessor
Door panel weight	300 lbs.
Adjustable open	Force and speed
Adjustable close	Force and speed
Closing method	Spring/hydraulic (with selectable power assist)
Adjustable opening angle	Up to 145º
Power boost close	Selectable
Basic features	Low-energy operation Push and go Obstacle detection in opening and closing cycles Sequential or timer mode operation LCD display for programming and diagnostics Open- or closed-circuit safety inputs Momentary or maintained activation
Switch modes	On, off, hold-open
Opening and closing speed	Adjustable
Hold-open time	Adjustable (0-30 seconds)
Code compliances	ANSI A156.19/ANSI A117.1
Approvals	UL, ULC

GT710 Operator



GT8710 Operator



CONFIGURATIONS:
The GT710/8710 is available for multiple configurations, such as single doors, simultaneous pairs, and dual-egress, as well as the Opman configuration, which is a single continuous header for a pair of doors containing a manual closer on one side and an automatic operator on the other.

NABCO Service and Specifications

Along with the NABCO factory branches, NABCO has the largest independently owned network of automatic door distributors in North America. Their friendly, qualified installers and technicians always strive to exceed your expectations from install to after-sales service. NABCO's factory branches and independent distributors provide AAADM-certified technicians to ensure your doors meet all ANSI A156.10/A156.19 standards.

Complete three-part specifications and CAD drawings are available on the NABCO website.

NABCO
Member of the Nabtesco Group

Member AAADM

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06/15

CDH

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660 Greenwood Dr , Burlington

Submittal Date: June 15/26

PART 1 - GENERAL

1.1 References

.1 ASTM E 330-02 Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.

.2 ASTM C 542-94(1999) Specification for Lock-Strip Gaskets.

.3 ASTM D 790-02 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

.4 ASTM D 1003-00 Test Method for Haze and Luminous Transmittance of Plastics.

.5 ASTM D 1929-96(2001)e1e1 Test Method for Ignition Properties of Plastics.

.6 ASTM D 2240-02b Test Method for Rubber Property - Durometer Hardness.

.7 ASTM E 84-01 Test Method for Surface Burning Characteristics of Building Materials.

.8 ASTM F 1233-98 Test Method for Security Glazing Materials and Systems.

.9 CAN/CGSB-12.1-M90 Tempered or Laminated Safety Glass.

.10 CAN/CGSB-12.2-M91 Flat, Clear Sheet Glass.

.11 CAN/CGSB-12.3-M91 Flat, Clear Float Glass.

.12 CAN/CGSB-12.4-M91 Heat Absorbing Glass.

.13 CAN/CGSB-12.5-M86 Mirrors, Silvered.

.14 CAN/CGSB-12.8-M97 Insulating Glass Units.

.15 CAN/CGSB-12.10-M76 Glass, Light and Heat Reflecting.

.16 CAN/CGSB-12.11-M90 Wired Safety Glass.

.17 CAN/CGSB-12.12-M90 Plastic Safety Glazing.

.18 Flat Glass Manufacturers Association (FGMA) Glazing Manual.

.19 Laminators Safety Glass Association Standards Manual.

1.2 Performance Requirements

.1 Provide continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:
  .1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.

.2 Size glass to withstand wind loads, dead loads and positive and negative live loads acting normal to plane of glass to a design pressure applicable to locale as measured in accordance with ASTM E 330-02.

.3 Limit glass deflection to lesser of 1/200 or flexural limit of glass with full recovery of glazing materials.

.4 Provide fire rated labelled glass in accordance with tested assemblies recognized by authorities having jurisdiction to achieve specified fire resistance ratings for intended application.

1.3 Samples

.1 Submit samples in accordance with Section 01300.

.2 Submit duplicate 12" size samples of mullions and sealant material.

1.4 Closeout Submittals

.1 Provide maintenance data including cleaning instructions for incorporation into manual specified in Section 01730.

1.5 Quality Assurance

.1 Perform work in accordance with FGMA Glazing Manual IGMAC and Laminators Safety Glass Association - Standards Manual for glazing installation methods.

.2 Maintain one copy of each standard document on site.

.3 Provide testing and analysis of glass under provisions of Section 01450.

.4 Provide shop inspection and testing for glass.

1.6 Environmental Requirements

.1 Install glazing when ambient temperature is 10°C minimum. Maintain ventilated environment for 24 hours after application.

.2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

PART 2 - PRODUCTS

2.1 Glass Materials

.1 Tempered safety glass to CAN/CGSB-12.1-M90, Type 2, Class A of thickness indicated.

.2 Laminated safety glass to CAN/CGSB-12.1-M90, Type 1, Class A minimum 6mm or thickness as indicated.

.3 Float glass: to CAN/CGSB-12.3-M91, glazing quality.

.4 Mirrors silvered, glass: to CAN/CGSB-12.5-M86, silvered, Type 1A 6 mm thick, ground and polished edges framed with stainless steel edging and supported with concealed tamperproof fasteners and adhesive of sizes indicated.

.5 Insulating glass units:
.1 CAN/CGSB-12.8-M97, with outer pane of 6 mm thick tempered safety glass and inner pane of 6 mm thick clear float glass with 25 mm total thickness, Low E coating on #2 surface.
.1 Outerboard Lite: Guardian CrystalGray Glass or equal. a) Coating on Surface No.2: SN 68 #2 Clear 1" IGU.
.2 Air Space: 12 mm (1/2 inch) wide, hermetically sealed, dehydrated air space.
.3 Inboard Lite: Guardian Clear Glass or equal.
.4 Glass Unit Performance Characeristics: a) Visible Light Transmittance: 68 percent b) Visible Light Reflectance Outdoors: 11 percent c) Ultraviolet Transmittance: 30 percent d) Winter U-Value Nightime: 0.245 e) Summer U-Value Daytime: 0.22 f) Solar Heat Gain Coefficient: 0.34 g) Light to Solar Gain: 1.82
.5 Edge Seals: ASTM E 2188, with aluminum spacers, dual-sealed with a primary seal of polyisobutylene and a secondary seal of silicone sealant for glass-to-spacer seals.
.6 Sealant: Approved by glass manufacturer.

.6 Wired glass: to CAN/CGSB-12.11-M90, type 1 clear Georgian Polished Plate, wire mesh style 3, 6 mm thick.

.7 Obscure patterned glass: to CAN/CGSB-12.13-M91, 6mm thick, inside pane of insulating glass units where shown. Submit samples to Consultant for approval.

.8 Fire rated glass: glass material labelled by accredited testing organization recognized by authorities having juridiction. Firelite Plus 8mm non-wired ceramic glazing or equal as approved by Consultant.

.9 At all glass in exterior doors and exterior sidelights, CAN/CGSB-12.8-M97, with outer pane of 6mm thick laminated safety glass and inner pane of 6mm thick laminated safety glass with 25mm total thickness, capillary tubes. Match Tint and Low E to window glass.

2.2 Glazing and Sealing Compound Materials

.1 Glazing compound:
.1 Oil base, to CAN/CGSB-19.6-M87, Type 1, black colour.
.2 Non-hardening, modified oil type to CAN/CGSB-19.2-M87, black colour.

.2 Sealant compound: one component acrylic base, to CGSB 19-GP-5M, gun grade, black colour.

.3 Sealant compound: one component compound, to CAN/CGSB-19.13-M87, Class A, gun grade, black colour.

.4 Sealant compound: one component, silicone base, solvent curing to CAN/CGSB-19.18-M87, black colour.

.5 Sealant compound: multi-component, chemical curing to CAN/CGSB-19.24-M90, type 2, class A, black colour.

.6 Sealing and Bedding Compound, Acoustical: to CAN/CGSB-19.21-M87.

.7 Putty Linseed Oil: to CAN/CGSB-19.1-M87.

2.3 Accessories

.1 Glazing tape: pre-shimmed preformed butyl tape, 10-15 durometer hardness, paper release, black colour, to suit.

.2 Setting blocks: neoprene, Shore "A" durometer hardness Shore "A" 80-90, 100 mm long x 6 mm high x width to suit glass thickness.

.3 Spacer shims: neoprene, Shore "A" durometer hardness 80, 75 mm long x 2.4 mm thick x 9 mm high.

.4 Glazing splines: neoprene manufacturer's standard dry glazing splines to suit aluminum extrusions, grey colour.

.5 Glazing points and wire spring clips: corrosion resistant, manufacturer's standard.

.6 Lock-strip gaskets: black neoprene to ASTM C 542-94(1999), H type U type for cavities spline type for recessed reglets type. Provide internal drainage channel with drainage holes in sill section. Injection mould one-piece corner sections and heat-seal to main gasket.

.7 Primer-sealers and cleaners: to glass manufacturer's standard.

.8 Breather tubes: to manufacturer's standard.

.9 Mirror attachment accessories:
- .1 Stainless steel clips.
- .2 Plastic rosettes.
- .3 Mirror adhesive, chemically compatible with mirror coating and wall substrate.
- .4 Mirror frames: Stainless steel.

PART 3 - EXECUTION

3.1 Examination

.1 Verify that openings for glazing are correctly sized and within tolerance.

.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.2 Preparation

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.3 Workmanship

.1 Remove protective coatings and clean contact surfaces with solvent and wipe dry.

.2 Apply primer-sealer to contact surfaces.

.3 Place setting blocks as per manufacturer's instructions.

.4 Install glass, rest on setting blocks, ensure full contact and adhesion at perimeter.

.5 Install removable stops, without displacing tape or sealant.

.6 Provide edge clearance of 3 mm minimum.

.7 Insert spacer shims to center glass in space. Place shims at 600 mm oc and keep 6 mm below sight line.

.8 Apply cap bead of sealant at exterior void.

.9 Apply sealant to uniform and level line, flush with sightline and tooled or wiped with solvent to smooth appearance.

.10 Do not cut or abrade tempered, heat treated, or coated glass.

3.4 Exterior Glazing

.1 Dry method - tape/tape and sealant:
- .1 Cut glazing tape to proper length and set against permanent stops 5 mm below sightline. Install horizontal strips first, extend over entire width of opening before applying vertical strips. Weld corners together by butting tape and dabbing with sealant.
- .2 Place glazing tape on glass in manner described above.

.2 Combination method - tape/sealant:
- .1 Cut glazing tape to proper length and set against permanent stops, 5 mm below sightline. Install horizontal strips first, extend over entire width of opening before applying vertical strips. Weld corners together by butting tape and dabbing with sealant.
- .2 Fill gap between glass and applied stop with sealant to depth equal to bite of frame on glass but not more than 10 mm below sightline.

.3 Wet method - sealant/sealant:
- .1 Apply sealant to back and bottom of rabbet.
- .2 Bed glass in position with sealant.
- .3 Fill gap between glass and stops with sealant to depth equal to bite of frame on glass but not more than 10 mm below sightline.

.4 Lock strip gasket method:
- .1 Unpack and lay out gaskets on flat warm area to permit recovery of shape.
- .2 Install gaskets under compression from corners inward.
- .3 Drain infiltrated moisture to exterior through drain holes in sill.
- .4 Install locking strip and gasket assembly to manufacturer's instructions.

3.5 Interior Glazing

.1 Dry method - tape/tape:
  .1 Cut glazing tape to length and install against permanent stop, project 1.5 mm above sightline.
  .2 Place glazing tape on free perimeter of glass in same manner described above.

.2 Combination method - tape/sealant:
  .1 Cut glazing tape to proper length and install against permanent stop, projecting 1.5 mm above sightline.
  .2 Fill gap between glass and applied stop with sealant to depth equal to bite of frame on glass to uniform and level line.
  .3 Trim off excess tape to sightline.

.3 Wet method - compound/compound:
  .1 Apply sealant to back and bottom of rabbet.
  .2 Bed glass in position with sealant.
  .3 Locate and secure glass using glaziers' clips.
  .4 Fill gaps between glass and stops with compound until flush with sightline and tool to smooth straight line.

.4 Gasket method:
  .1 Install gasket to permanent stop and install glass.
  .2 Apply removable stops. Install gaskets in frame channels.

3.6 Fire Rated Glass

.1 Install fire rated glass in accordance with manufacturer's specifications.

3.7 Mirror Installation

.1 Install mirrors where indicated using full adhesive bed and clips.

3.8 Cleaning

.1 Remove glazing materials from finish surfaces.

.2 Remove labels after work is complete.

.3 Clean glass and mirrors.

3.9 Protection of Finished Work

.1 After installation, mark light with an "X" by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.

PART 1 - GENERAL

1.1 References

.1 CAN/CGSB-1.40-M89, Primer, Structural Steel, Oil Alkyd Type.

.2 CAN/CGSB-19.21-M87, Sealing and Bedding Compound Acoustical.

.3 ASTM C 645-00, Specification for Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board.

PART 2 - PRODUCTS

2.1 Materials

.1 Non-loadbearing channel stud framing: to ASTM C 645-00, 92 mm stud size, roll formed from 0.91 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.

.2 Floor and ceiling tracks: to ASTM C 645-00, in widths to suit stud sizes, 32 mm flange height.

.3 Metal channel stiffener: 38 x 19 mm size, 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.

.4 Acoustical sealant: to CAN/CGSB-19.21-M87.

.5 Insulating strip: rubberized, moisture resistant 3 mm thick foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.

PART 3 - EXECUTION

3.1 Erection

.1 Align partition tracks at floor and ceiling and secure at 600 mm o.c. maximum.

.2 Install dampproof course under stud shoe tracks of partitions on slabs on grade.

.3 Place studs vertically at 400 mm oc and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

.4 Erect metal studding to tolerance of 1:1000.

.5 Attach studs to bottom track using screws .

.6 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.7 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.

.8 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.

.9 Install heavy gauge single jamb studs at openings.

.10 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.

.11 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

.12 Provide 40 mm stud or furring channel secured between studs for attachment of millwork and fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including coat and boot racks, grab bars and towel rails, attached to steel stud partitions. Provide double studs as required and as directed by Consultant.

.13 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.14 Extend partitions to underside of structure except where noted otherwise on drawings.

.15 At suspended bulkheads and partitions, brace back to structure as required at 1200mm o.c. Suspend bulkheads and partitions in strict accordance with manufacturer's instructions. Review method of suspension with Consultant prior to commencement of Work. Failure to do so will result in immediate rejection of Work.

.16 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 50 mm leg ceiling tracks to form double track slip joint.

.17 Install continuous insulating strips to isolate studs from uninsulated surfaces.

.18 Install two continuous beads of acoustical sealant or insulating strip under studs and tracks around perimeter of sound control partitions.

PART 1 - GENERAL

1.1 References

.1 ASTM C 635-00 Specifications for Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.

.2 ASTM C 636-96 Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

1.2 Design Criteria

.1 Maximum deflection: 1/360th of span to ASTM C 635-00 deflection test.

1.3 Samples

.1 Submit samples in accordance with Section 01300 - Submittals.

.2 Submit one representative model of each type ceiling suspension system.

.3 Ceiling system to show basic construction and assembly, treatment at walls, recessed fixtures, splicing, interlocking, finishes, acoustical unit installation.

1.4 Regulatory Requirements

.1 Fire-resistance rated ceiling assembly: ULC Design No. D216 or similar for min. 2 hrs FRR.

.2 Fire-resistance rated roof assembly: ULC Design No. R217 or similar for min. 1 hr FRR.

PART 2 - PRODUCTS

2.1 Materials

.1 Intermediate duty system to ASTM C 635-00.

.2 Basic materials for suspension system: commercial quality cold rolled steel zinc coated or aluminum sheet mill finished.

.3 Exposed tee bar grid components: shop painted satin sheen white colour . Components die cut. Main tee with double web, rectangular bulb and 25 mm rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection.

.4 Hanger wire: galvanized soft annealed steel wire.
- .1 3.6 mm diameter for access tile ceilings.
- .2 to ULC design requirements for fire rated assemblies.
- .3 2.6 mm diameter for other ceilings.

.5 Hanger inserts: purpose made.

.6 Carrying channels: 38 x 19 mm channel, of 1.2 mm thick galvanized steel.

.7 Accessories: splices, clips, wire ties, retainers and wall moulding flush, to complement suspension system components, as recommended by system manufacturer.

.8 Secondary Support System: Unistrut or equal complete with purpose made clamps and fastening systems as required, spanning between structural members. Submit shop drawings signed and sealed by member of Professional Engineers of Ontario (P.E.O.).

PART 3 - EXECUTION

3.1 Installation

.1 Installation: in accordance with ASTM C 636-96 except where specified otherwise.

.2 Install suspension system to manufacturer's instructions and Certification Organizations tested design requirements.

.3 Do not erect ceiling suspension system until work above ceiling has been inspected by Consultant. Remove existing suspension system leaving existing hangers and anchorage to structure intact and serviceable for re-use. Re-use existing hangers and anchorage wherever possible after verifying condition capable of supporting suspension system. Where existing hangers and/or anchors are not capable of supporting suspension system replace hangers and/or anchors to match existing or as specified herein.

.4 Secure hangers to overhead structure using attachment methods acceptable to Consultant. DO NOT SUSPEND FROM METAL DECK. Suspend from open web steel joists, beams or channels or provide secondary support systems spanning between structural members. Where secondary support systems are utilized, submit shop drawings signed and sealed by member of Professional Engineers of Ontario (PEO).

.5 Secure hangers to overhead structure using attachment methods acceptable to Consultant. DO NOT SUSPEND FROM METAL OR PRE-CAST CONCRETE DECK. Suspend from open web steel joists, beams or channels or provide secondary support systems spanning between structural members. Where secondary support systems are utilized, submit shop drawings signed and sealed by member of Professional Engineers of Ontario (PEO).

.6 Lay out center line of ceiling both ways, to provide balanced borders at room perimeter with border units not less than 50% of standard unit width and according to reflected ceiling plan.

.7 Lay out center line of ceiling both ways, to provide balanced borders at room perimeter with border units not less than 50% of standard unit width and according to reflected ceiling plan. Match location of existing suspension system wherever possible.

.8 Install wall mould to provide correct ceiling height.

.9 Completed suspension system to support super- imposed loads, such as lighting fixtures diffusers grilles and speakers.

.10 Support at light fixtures and diffusers with additional ceiling suspension hangers within 150mm of each corner and at maximum 600mm

around perimeter of fixture.

.11 Interlock cross member to main runner to provide rigid assembly.

.12 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.

.13 Install access splines to provide 10 percent ceiling access.

.14 Finished ceiling system to be square with adjoining walls and level within 1:1000.

3.2 Cleaning

.1 Touch up scratches, abrasions, voids and other defects in painted surfaces.

PART 1 - GENERAL

1.1 Reference Standards

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.

.2 Underwriters Laboratories of Canada (ULC)
- .1 CAN/ULC-S102-M88, Building Materials and Assemblies, Standard Method of Test for Surface Burning Characteristics of.

.3 American Society for Testing and Materials (ASTM)
- .1 ASTM A 653/A 653M-02a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 ASTM C 36/C 36M-01, Specification for Gypsum Wallboard.
- .3 ASTM C 79/C 79M-01, Specification for Gypsum Sheathing Board.
- .4 ASTM C 442/C 442M-01, Specification for Gypsum Backing Board and Coreboard.
- .5 ASTM C 475/C 475M-02, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- .6 ASTM C 514-01, Specification for Nails for the Application of Gypsum Board.
- .7 ASTM C 630/C 630M-01 630M-96a 630M-96a 630M-96a 630M-96a, Specification for Water-Resistant Gypsum Backing Board.
- .8 ASTM C 840-02, Specification and Finishing of Gypsum Board.
- .9 ASTM C 931/C 931M-02, Specification for Exterior Gypsum Soffit Board.
- .10 ASTM C 954-00, Specification for Steel Drill Screws for the Application of Gypsum Board.
- .11 ASTM C 960/C 960M-01, Specification for Predecorated Gypsum Board.
- .12 ASTM C 1047-99, Accessories for Gypsum Wallboard and Gypsum Veneer.
- .13 ASTM C 1280-99, Specification for Application of Gypsum Sheathing Board.
- .14 ASTM C 1177/C 1177M-01 1178M-96 1178M-96 1178M-96 1178M-96, Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

.15 ASTM C 1178/C 1178M-01 1178M-96 1178M-96 1178M-96 1178M-96, Specification for Glass Mat Water-Resistant Gypsum Backing Board.

1.2 Environmental Requirements

.1 Maintain temperature minimum 10°C, maximum 21°C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.

.2 Apply board and joint treatment to dry, frost free surfaces.

PART 2 - PRODUCTS

2.1 Gypsum Board

.1 Standard board: to CAN/CSA-A82.27-M91 regular, 12 mm thick and Type X, 16 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges beveled.

.2 Exterior sheathing: to CAN/CSA-A82.27-M91 16 mm thick, 1200 mm wide x maximum practical length. Georgia Pacific Densglas Gold or equal.

.3 Reinforced cement board: aggregated portland cement board with vinyl-coated, woven glass-fibre mesh embedded in front and back surfaces, specially formulated to resist water and steam, square cut and smooth finished edges, 900 mm wide x 1800 mm long.

.4 Impact resistant gypsum board: to CAN/CSA-A82.27-M91, 16mm thick, 1200mm wide x maximum practical length, ends square cut, edges beveled. CGC Sheetrock Abuse Resistant or equal.

2.2 Metal Furring and Suspension Systems

.1 Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82.30-M1980, galvanized .

.2 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.

.3 Resilient drywall furring: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.

2.3 Fastenings and Adhesives

.1 Nails, screws and staples: to CAN/CSA-A82.31-M91.

.2 Stud adhesive: to CAN/CGSB 7125 ASTM C 557-99.

.3 Laminating compound: as recommended by manufacturer, asbestos-free.

2.4 Accessories

.1 Casing beads, corner beads fill type: 0.5 mm base thickness commercial grade sheet steel to ASTM C 1047-99 with Z275 zinc finish to ASTM A 525-93, perforated flanges; one piece length per location.

.2 Acoustic sealant: to CAN/CGSB-19.21-M87 and Section 07900.

.3 Polyethylene: to CAN/CGSB-51.34-M86, Type 2.

.4 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.

.5 Joint compound: to CAN/CSA-A82.31-M91, asbestos- free.

PART 3 - EXECUTION

3.1 Suspended and Furred Ceilings

.1 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with CAN/CSA-A82.31-M91 except where specified otherwise.

.2 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.3 Install work level to tolerance of 1:1200.

.4 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, and grilles.

.5 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.

3.2 Ceiling Bulkheads

.1 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.

.2 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

3.3 Wall Furring

.1 Install wall furring for gypsum board wall finishes in accordance with CAN/CSA-A82.31-M91, except where specified otherwise.

.2 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

.3 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

3.4 Resilient Furring

.1 Erect drywall resilient furring transversely across studs spaced maximum 600 mm oc and not more than 150 mm from ceiling/wall juncture.

Secure to each support with 38 mm common nail 25 mm drywall screw.

.2 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

3.5 Bracing

.1 Brace suspended assemblies as required to structure at 1200mm o.c. max. Conform strictly to manufacturer's specifications and instructions. Maintain continuity of fire separations at all times. Review method of suspension with Consultant prior to commencement of Work. Failure to do so will result in immediate rejection of Work.

3.6 Gypsum Board Application

.1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.

.2 Apply single or double layer gypsum board to metal furring or framing using screw fasteners for first layer, screw fasteners for second layer. Maximum spacing of screws 300 mm oc.

.3 Apply single or double layer gypsum board to concrete concrete block surfaces, where indicated, using laminating adhesive.

.4 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, and other penetrations, in partitions where perimeter sealed with acoustic sealant.

3.7 Fire Rated Assemblies

.1 Construct fire rated assemblies where indicated in strict accordance with specified ULC Design..

3.8 Accessories

.1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm oc using contact adhesive for full length.

.2 Install casing beads around perimeter of suspended ceilings.

.3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

.4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.

.5 Install shadow mould at gypsum board/ceiling juncture as indicated. Minimize joints; use corner pieces and splicers.

3.9 Control Joints

.1 Construct control joints of preformed units or two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.

.2 Provide continuous polyethylene dust barrier behind and across control joints.

.3 Locate control joints at changes in substrate construction at approximate 10 m spacing on long corridor runs at approximate 15 m spacing on ceilings.

.4 Install control joints straight and true.

3.10 Expansion Joints

.1 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.

.2 Install expansion joint straight and true.

3.11 Access Doors

.1 Install access doors to electrical and mechanical fixtures specified in respective Sections.

.2 Rigidly secure frames to furring or framing systems.

3.12 Taping and Filling

.1 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

.2 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.

.3 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.

.4 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.5 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

3.13 Skim Coat

.1 Mix joint compound slightly thinner than for joint taping.

.2 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.

.3 Allow skim coat to dry completely.

.4 Remove ridges by light sanding or wiping with damp cloth.

3.14 Reinforced Cement Board

.1 Pre-cut board to required sizes and make necessary cutouts.

.2 Fit ends and edges closely but not forced together.

.3 Fasten board to wood studs with 38 mm galvanized roofing nails, or blued or galvanized annular ring nails at 200 mm oc.

.4 Fasten board to steel studs with rust proof self-drilling, self-threading case hardened screws at 200 mm oc.

.5 Filling and reinforcing of joints between board is specified in Section 09310 - Ceramic Tile.

3.15 Impact Resistant Gypsum Board

.1 Provide impact resistant gypsum board at all exterior soffits.

.2 Provide in accordance with manufacturer's specifications including recommended accessories and materials.

PART1 - GENERAL

1.1 References

.1 American Society for Testing and Materials (ASTM)
- .1 ASTM C 144-02 93 , Standard Specification for Aggregate for Masonry Mortar.
- .2 ASTM C 207-91(1997) 91 , Standard Specification for Hydrated Lime for Masonry Purposes.
- .3 ASTM C 847-95(2000) 93 , Standard Specification for Metal Lath.

.2 American National Standards Institute (ANSI)
- .1 ANSI A118.1-1999 1992 , Specifications for Dry-Set Portland Cement Mortar.

.3 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86 M86 , Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CGSB 71-GP-22M 86 , Adhesive, Organic, for Installation of Ceramic Wall Tile.
- .3 CAN/CGSB-75.1-M88 M88 , Tile, Ceramic.

.4 Canadian Standards Association (CSA)
- .1 CAN/CSA-A5-93 93 , Portland Cement/Masonry Cement/Blended Hydraulic Cement.
- .2 CAN/CSA-ISO 14040-97 97 , Environmental Management - Life Cycle Assessment - Principles and Framework.

1.2 Samples

.1 Submit samples in accordance with Section 01300 - Submittals.

.2 Submit duplicate 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.

.3 Adhere tile samples to 11 mm thick plywood and grout joints to represent project installation.

1.3 Maintenance Material

.1 Provide maintenance materials in accordance with Section 01750 - Maintenance Materials, Special Tools and Spare Parts .

.2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.

.3 Maintenance material to be of same production run as installed material.

1.4 Environmental Conditions

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 °C for 48 h before, during, and 48 h after, installation.

1.5 Waste Management

.1 Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.

.2 Close and seal tightly all partly used sealant containers and store protected in a well ventilated fire-safe area at moderate temperature.

.3 Place used hazardous sealant tubes and other containers in areas designated for hazardous materials.

.4 Place materials defined as hazardous or toxic waste in designated containers.

PART 2 - PRODUCTS

2.1 Ceramic Floor and Wall Tile

.1 Ceramic Floor tile:
  .1 Ceramic floor tile: to CAN/CGSB-75.1-M88, Type 7, Class MR 1, 300 x 600 x 8 mm size, square edges, matte slip resistant surface, Olympia Tile Rock Series, Anthractile.
  .2 Base, matching base with bullnose, 150mm high x 600mm wide.

.2 Ceramic Wall tile:
  .1 to CAN/CGSB-75.1-M88, Type 7, Class MR 1, 100 x 400 size, square edges, glazed surface, Olympia Tile Colour and Dimensions series, Arctic White Bright, and up to two additional accent tiles.

2.2 Mortar and Adhesive Materials

.1 Portland cement: to CAN/CSA-A5-93 , type 10 .

.2 Sand: to ASTM C 144-02.

.3 Hydrated lime: to ASTM C 207-91(1997) .

.4 Latex additive: formulated for use in portland cement mortar and thin set bond coat.

.5 Water: potable and free of minerals which are detrimental to mortar and grout mixes.

.6 Dry set mortar: to ANSI A118.1-1999 .

.7 Organic adhesive: to CGSB 71-GP-22M , Type 1.

2.3 Grout

.1 Grout type and preparation for wall and floor application to manufacturer's instructions. Seal tile prior to grouting.

.2 Grout colour to be selected by Consultant from manufacturer's full range.

2.4 Accessories

.1 Thresholds: slate slab to match tile, 1/2" thick, bevelled one side , honed finish to exposed surfaces, size to suit door opening and frame width.

.2 Sealant: in accordance with Section 07900 - Joint Sealers .

.3 Floor sealer and protective coating: to tile and grout manufacturers' recommendations.

.4 Termination trim: Schluter-RONDEC.

2.5 Mortar and Adhesive Mixes

.1 Scratch coat: 1 part portland cement, 1/5 to 1/2 parts hydrated lime to suit job conditions, 4 parts sand, 1 part water. Adjust water volume depending on water content of sand.

.2 Slurry bond coat: portland cement and water mixed to creamy paste. Latex additive may be included.

.3 Mortar bed for floors: 1 part portland cement, 4 parts sand, 1 part water. Adjust water volume depending on water content of sand. Latex additive may be included .

.4 Mortar bed for walls and ceilings: 1 part portland cement, 1/5 to 1/2 parts hydrated lime to suit job conditions, 4 parts sand and 1 part water. Adjust water volume depending on water content of sand. Latex additive may be included .

.5 Levelling coat: 1 part portland cement, 4 parts sand, minimum 1/10 part latex additive, 1 part water including latex additive.

.6 Bond or setting coat: 1 part portland cement, 1/3 part hydrated lime, 1 part water.

.7 Measure mortar ingredients by volume.

.8 Dry set mortar: mix to manufacturer's instructions.

.9 Organic adhesive: pre-mixed.

PART 3 - EXECUTION

3.1 Workmanship

.1 Do tile work in accordance with Installation Manual 200 , "Ceramic Tile", produced by Terrazzo Tile and Marble Association of Canada (TTMAC), except where specified otherwise.

.2 Apply tile or backing coats to clean and sound surfaces.

.3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even.

.4 Maximum surface tolerance 1:800 .

.5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.

.6 Lay out tiles so perimeter tiles are minimum 1/2 size.

.7 Lay out patterns as applicable for review and approval of Consultant. Provide drawing indicating pattern and colour separations.

.8 Sound tiles after setting and replace hollow-sounding units to obtain full bond.

.9 Make internal angles square, external angles bullnosed.

.10 Use round bullnose edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.

.11 Install divider strips at junction of tile flooring and dissimilar materials.

.12 Allow minimum 24 h after installation of tiles, before grouting.

.13 Clean installed tile surfaces after installation and grouting has cured.

.14 Make control joints at 20' in each direction. Make joint width same as tile joints. Fill control joints with sealant in accordance with Section 07900 - Joint Sealers . Keep building expansion joints free of mortar and grout.

3.2 Floor Tile

.1 Install in accordance with applicable TTMAC detail.

3.3 Wall Tile

.1 Provide termination trim at limit of wall tile to adjacent materials and top of wall base.

3.4 Floor Sealer and Protective Coating

.1 Apply in accordance with manufacturer's instructions.

.2 Do not provide sealants and waxes on terrazzo, ceramic and other hard surfaced floors without reviewing products and methods of application with the Board's Caretaking Staff. Failure to comply with this requirement will result in the contractor stripping these floors in their entirety.

PART 1 - GENERAL

1.1 References

.1 American Standards for Testing and Material (ASTM)
- .1 ASTM C 241-90(1997)e1, Standard Test Method for Abrasion Resistance of Stone Subject to Foot Traffic.
- .2 ASTM D 2370-98(2002), Test Method for Tensile Properties of Organic Coatings.

.2 Canadian Environmental Protection Act (CEPA).

.3 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.4 Canadian Standards Association (CSA)
- .1 CAN/CSA-A5/A8/A362- 93 , Portland Cement/Masonry Cement/Blended Hydraulic Cement.
- .2 CAN/CSA-A23.1-00 94 , Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.
- .3 CSA G30.5-M1983 (R1998), Welded Steel Wire Fabric for Concrete Reinforcement.
- .4 CAN/CSA-ISO 14040-97, Environmental Management-Life Cycle Assessment-Principles and Framework.
- .5 CSA Z760-94 94 , Life Cycle Assessment.

.5 Fisheries Act.

.6 Terrazzo, Tile and Marble Association of Canada (TTMAC) standards and specification studies.

1.2 Submittals

.1 Submit proof of manufacturer's CCMC Listing and listing number to Consultant .

.2 Submit proof of manufacturer's ISO 9000 registration and compliance to Consultant .

.3 Submit proof of manufacturer's ISO 14000 registration and compliance to Consultant .

.4 Submit proof of manufacturer's participation certificate for Environmental Choice Program to Consultant .

.5 Manufacturer's instructions: provide to indicate special handling criteria, installation sequence, and cleaning procedures.

1.3 Shop Drawings

.1 Submit shop drawings in accordance with Section 01300.

.2 Indicate layout of divider strips, and expansion joints .

1.4 Samples

.1 Submit samples to match existing terrazzo in accordance with Section 01300.

.2 Submit duplicate 300 x 300 x 20 mm thick samples of each colour terrazzo.

1.5 Closeout Submittals

.1 Provide maintenance data as set out in TTMAC publication for terrazzo work for incorporation into manual specified in Section 01780 - Closeout Submittals.

1.6 Delivery, Storage and Handling

.1 Deliver materials to job site just prior to installation.

.2 Store materials inside, in dry location, away from heavy traffic areas.

.3 Deliver and store materials in manner to prevent damage.

.4 Ensure materials remain in original wrapping and containers until used.

1.7 Waste Management and Disposal

.1 Separate and recycle waste materials.

.2 Close and seal tightly all partly used sealant containers and store protected in well ventilated, fire-safe area at moderate temperature.

.3 Ensure emptied containers are sealed, labeled and stored safely for disposal away from children.

.4 Place used sealant tubes and other containers in areas designated for hazardous materials.

.5 Place materials defined as hazardous or toxic waste in designated, labeled containers.

.6 Use trigger-operated spray nozzles for water hoses.

.7 Fold up metal banding, flatten, and place in designated area for recycling.

.8 Collect wood packing shims and pallets, and place in designated area for recycling and reuse.

.9 Dispose of all waste in accordance with applicable local, provincial and national regulations.

.10 Give preference to suppliers who will take back packaging materials.

1.8 Environmental Requirements

.1 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of materials.

.2 Ventilation.
- .1 Provide continuously during and after installation. Run system 24 hours per day during installation; provide continuous ventilation for 7 days after completion of installation.

.3 Temperature.
- .1 Maintain air temperature and structural base temperature at terrazzo installation area above 12 °C for 24 hours prior to, during, and for 24 hours following installation.

.4 Manufacturing Process.
- .1 To Life Cycle Assessment Standards as per CAN/CSA-ISO 14040-97 CSA Z760-94 .

PART 2 - PRODUCTS

2.1 Materials

.1 Cement
- .1 To CAN/CSA-A5-93.
- .2 Type 10 , grey for underbed.
- .3 White for topping.
- .4 6 % air-entrainment.

.2 Sand, fine and coarse aggregates:
- .1 To CAN/CSA-A23.1-00.
- .2 Clean, washed, locally available.
- .3 Oval aggregate.

.3 Water: potable.

.4 Marble chips:
- .1 Graded in accordance with TTMAC standard.
- .2 Abrasion resistance to ASTM C 241-90(1997)e1.
- .3 No deleterious or foreign matter.
- .4 Match colour of marble chips to range and size of existing.

.5 Pigments:
- .1 Compatible with portland cement.
- .2 Alkali-resistant, colour-stable.
- .3 Lime-proof mineral.

.6 Epoxy bonding agent: two components, epoxy resin and epoxy hardener conforming to following performance properties after cure schedule of 28 days at 25°C.
- .1 Viscosity: mixed viscosity not less than 0.04 Pa.s or more than 0.5 Pa.s.
- .2 Gel time: not less than half hour at 20°C.
- .3 Flexibility: Gardiner flexibility test, passes bending over 12 mm mandrel, without cracking.
- .4 Elongation: ASTM D 2370-98(2002), minimum 10%.
- .5 Bond strength: 2 MPa, with 100% concrete failure at minimum coverage, test concrete specimen minimum compressive strength 20 MPa.
- .6 Coverage: 0.3 L/m ^{2} minimum, dry film thickness not less than 0.2 mm.

.7 Divider strips: to match existing.

.8 Accessories: base caps and base divider strips, separator strips, purpose made and of same material to match divider strips.

.9 Reinforcing steel: billet steel, grade 300 plain bars.

.10 Welded steel wire fabric: to CSA G30.5-M1983 (R1998), 50 x 50 x 1.6 x 1.6 mm wire, galvanized, in flat sheets only.

.11 Slip sheet: polyethylene sheet to CAN/CGSB-51.34-M86, Type 2, 0.05 mm thick.

.12 Non-slip aggregate: aluminum oxide of size and colour to match marble chips.

.13 Curing compound: to manufacturers standard.

.14 Cleaning compound: to TTMAC standard 1004.

.15 Sealants:
- .1 To TTMAC 2002 .
- .2 Sealants, solvents, cleaners, and other fluids: water-based , water clean-up , non-flammable , biodegradable , low Volatile Organic Compound (VOC) content , manufactured without compounds which contribute to ozone depletion in the upper atmosphere , manufactured without compounds which contribute to smog in the lower atmosphere , do not contain methylene chloride , do not contain chlorinated hydrocarbons , do not contain toxic metal pigments.
- .3 Water-borne surface coatings:
  - .1 Meet or exceed all applicable governmental and/or industrial safety and performance standards.
  - .2 Manufactured and transported, including disposal of waste products, to meet all requirements of applicable acts, by-laws and regulations including, for facilities located in Canada, Fisheries Act and Canadian Environmental Protection Act (CEPA).
  - .3 Formulated or manufactured without aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
- .4 Water-borne surface coatings and recycled water-borne surface coatings:
  - .1 Flash point of 61.0 °C or greater.
  - .2 Made by process that does not release:
    - .1 Matter in undiluted production plant effluent generating Biochemical Oxygen Demand (BOD) in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment, or
    - .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.
  - .3 Proper disposal method information contained in packaging.
- .5 Recycled water-borne surface coatings:
  - .1 50 % post-consumer material by volume.
  - .2 Lead levels below 600.0 ppm weight/weight total solids.
  - .3 Mercury levels below 50.0 ppm weight/weight total product.
  - .4 Cadmium levels below 1.0 ppm weight/weight total product.
  - .5 Hexavalent chromium levels below 3.0 ppm weight/weight total product.
  - .6 Organochlorine or polychlorinated biphenyl (PCB) levels below 1.0 ppm weight/weight total product.

.16 Finishing compound: to TTMAC standard 3001.

2.2 Mixes

.1 Slurry coat: cement and water mixed to creamy paste.

.2 Underbed: 1 part cement to 4 parts sand by volume.

.3 Terrazzo topping: to match existing colours, texture and pattern, field colour and coved base.

PART 3 - EXECUTION

3.1 Workmanship

.1 Do terrazzo work in accordance with CSC Architectural Specification Study on Terrazzo (Portland Cement), produced in cooperation with Terrazzo, Tile and Marble Association of Canada (TTMAC), except where specified otherwise.

3.2 Inspection

.1 Examine area to receive terrazzo for defects in existing work which may affect proper execution of terrazzo work.

.2 Ensure tolerances of concrete slab work do not deviate from tolerance set for finished terrazzo floor.

.3 Terrazzo contractor to start work only when all defects are corrected.

3.3 Installation

.1 Install terrazzo after concrete slabs have cured 28 days.

.2 Install divider strips true and level to detailed pattern.

.3 Install control joints above control joints in subfloor.

.4 Slope finished terrazzo floors to drains.

.5 Produce terrazzo finished surfaces to match existing.

.6 Floors
.1 to match existing and applicable TTMAC detail.

.7 Bases

.1 Terrazzo bases: to match existing. .

.8 Clean, seal and finish terrazzo surfaces to TTMAC recommendations.

3.4 Refinishing and Renovated Terrazzo (Reno. Terr.)

.1 Strip existing terrazzo floors and coved base to be refinished.

.2 Sawcut existing cracks minimum 20mm x 35mm deep in existing terrazzo floor and coved base in areas to be refinished. Leave metal dividing strips intact and undamaged.

.3 At damaged and deteriorated existing terrazzo, sawcut to stable finish. Leave metal dividing strips intact and undamaged.

.4 Fill sawcut cracks and damaged and deteriorated existing terrazzo with terrazzo to match existing colour and aggregate size and chip densi ty.

.5 Grind, polish and seal terrazzo floor and base as indicated to be refinished to TTMAC specifications and recommendations.

PART 1 - GENERAL

1.1 References

.1 Canadian Standards Association (CSA)
  .1 CSA B111-1974, Wire Nails, Spikes and Staples.

.2 Canadian General Standards Board (CGSB)
  .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.
  .2 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.

.3 Underwriters Laboratories of Canada (ULC)
  .1 CAN/ULC-S102-M88, Surface Burning Characteristics of Building Materials.

1.2 Environmental Conditions

.1 Permit wet work to dry before commencement of installation.

.2 Maintain uniform minimum temperature of 15°C and humidity of 20 - 40% before and during installation.

.3 Store materials in work area 48 hours prior to installation.

1.3 Maintenance Materials

.1 Provide maintenance materials in accordance with Section 01001.

.2 Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for project.

.3 Materials to be same production run as installed materials.

1.4 Regulatory Requirements

.1 Fire-resistance rated ceiling assembly: ULC Design No. D216 or similar for min. 2 hrs FRR.

.2 Fire-resistance rated roof assembly: ULC Design No. R217 or similar for min. 1 hr FRR.

PART 2 - PRODUCTS

2.1 Materials

.1 Acoustic units for suspended ceiling system as manufacturered by Armstrong World Industries Canada Ltd.: to CAN/CGSB-92.1-M89.
- .1 Type Minaboard/Fireguard or approved equal.
- .2 Pattern Cortega.
- .3 Flame spread rating of 25 or less.
- .4 Noise reduction coefficient (NRC) designation of -.65.
- .5 Light reflectance range of min.75.
- .6 Edge type square.
- .7 Colour white.
- .8 Size 610 x 1220 x 16 mm thick.
- .9 Shape flat.

.2 Adhesive: type recommended by acoustic unit manufacturer.

.3 Staples, nails and screws: to CSA B111-1974 non-corrosive finish as recommended by acoustic unit manufacturer.

.4 Polyethylene: to CAN/CGSB-51.33-M89, Type 2, 0.15 mm thick.

.5 Hold down clips: purpose made clips to secure tile to suspension system, approved for use in fire-rated systems.

PART 3 - EXECUTION

3.1 Installation

.1 Do not install acoustical panels and tiles until work above ceiling has been inspected by Consultant.

.2 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

.3 Provide light fixture protection boxes in accordance with applicable ULC Design.

3.2 Suspension System

.1 Install acoustical panels and tiles in ceiling suspension system.

3.3 Interface With Other Work

.1 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

PART 1 - GENERAL

1.1 References

.1 CSA A126.3-M84 Sheet Vinyl Flooring Products.

.2 CAN/CSA-A126.5-M87 Resilient Wall Base.

1.2 Samples

.1 Submit samples in accordance with Section 01300 - Submittals.

.2 Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long base, feature strips, edge strips.

1.3 Maintenance Data

.1 Provide maintenance data for resilient flooring for incorporation into manual.

1.4 Maintenance Materials

.1 Provide maintenance materials in accordance with Section 01750 - Spare Parts and Maintenance Materials.

.2 Deliver 10 m² of each colour, pattern and type flooring material required for project for maintenance use. Identify each roll. Store where directed.

.3 Maintenance materials to be in one piece and same production run as installed materials.

1.5 Environmental Requirements

.1 Maintain air temperature and structural base temperature at flooring installation area above 20°C for 48 hours before, during and 48 hours after installation.

PART 2 - PRODUCTS

2.1 Materials

.1 Vinyl composition tile: to CSA A126.1-M84 Type A plain, 3.0 mm thick, 300 x 300 mm size selected by Consultant from manufacturer's standard and premium range.

.2 Accent vinyl composition tile: to CSA A126.1-M84 Type A plain, 3.0 mm thick, 300 x 300 mm size in colour selected by Consultant from manufacturer's standard and premium range. Accent tile to be provided in pattern of one tile every fourth tile both ways centred on room or in alternate pattern to be provided by Consultant at a later date.

.3 Commercial luxury vinyl tile: to CSA A126.1-M84 Type A plain, 4.5 mm thick, with attached sound choice accoustical backing, level set colloection, 500mm x 500mm size or 250mm x 1000mm or approved equal in colour selected by Consultant from manufacturer's standard and premium range.

.4 Resilient base: CAN/CSA-A126.5-M87, continuous, top set, complete with premoulded end stops and external corners, Johnsonite, Amtico or approved equal:
- .1 Type: 3-vinyl
- .2 Style: A-straight B-cove.
- .3 Thickness: 3.17 mm.
- .4 Height: 101.6 mm.
- .5 Lengths: coils 3650 mm.
- .6 Colour: as selected by Consultant from manufacturer's standard and premium range.

.5 Primers and adhesives: waterproof, of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.

.6 Sub-floor filler and leveller: white premix latex requiring water only to produce cementitious paste or 2 part latex-type filler requiring

no water as recommended by flooring manufacturer for use with their product.

.7 Metal edge strips: aluminum extruded, smooth, mill finish with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

.8 Sealer and wax: sealing and waxing of floors in accordance with Section 017700 Article 1.8.

2.2 Acceptable Manufacturers

.1 VCT products in accordance with this specification by only the following manufacturers will be accepted.
- .1 Armstrong
- .2 Mannington
- .3 Flextile

.2 Safety sheet flooring products in accordance with this specification by only the following manufacturers will be accepted.
- .1 Altro
- .2 Polyflor
- .3 Gerflor
- .4 Johnsonite
- .5 Armstrong
- .6 Amtico

.3 LVT products in accordance with this specification by only the following manufacturers will be accepted.
- .1 Interface Inc.
- .2 Armstrong
- .3 Mannington.

PART 3 - EXECUTION

3.1 Inspection

.1 Ensure concrete floors are dry by using test methods recommended by flooring manufacturer.

.2 Testing for concrete moisture content paid for by the Owner in accordance with Section 01 45 00 Quality Control.

3.2 Sub-floor Treatment

.1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.

.2 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.

.3 Seal concrete slab to resilient flooring manufacturer's printed instructions.

3.3 Tile Application

.1 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.2 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.

.3 Install flooring to ashlar pattern with all joints aligned.

.4 Lay-out patterns as applicable for review and approval of Consultant. Submit layout drawing indicating patterns.

.5 As installation progresses, and after installation, roll flooring in 2 directions with 45 kg minimum roller to ensure full adhesion.

.6 Cut tile and fit neatly around fixed objects.

.7 Install feature strips and floor markings where indicated. Fit joints tightly.

.8 Install flooring in pan type floor access covers. Maintain floor pattern.

.9 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.

.10 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.

.11 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.4 Sheet Flooring Application

.1 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.2 Lay flooring with seams parallel to building lines to produce a minimum number of seams. Border widths minimum 1/3 width of full material.

.3 Run sheets in direction of traffic. Double cut sheet joints and continuously seal according to manufacturer's printed instructions.

.4 As installation progresses, and after installation roll flooring with roller of weight to manufacturer's recoomendations to ensure full adhesion.

.5 Cut flooring neatly around fixed objects.

.6 Install feature strips and floor markings where indicated. Fit joints tightly.

.7 Install flooring in pan type floor access covers. Maintain floor pattern.

.8 Continue flooring over areas which will be under built-in furniture.

.9 Continue flooring thorugh areas to receive movable type partitions without interrupting floor pattern

.10 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.

.11 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.5 Base Application

.1 Lay out base to keep number of joints at minimum.

.2 Set base in adhesive tightly by using 3 kg hand roller, against wall and floor surfaces.

.3 Install straight and level to variation of 1:1000.

.4 Scribe and fit to door frames and other obstructions. Use premoulded end pieces at flush door frames.

.5 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles.

.6 Use toeless type base where floor finish will be carpet, coved type elsewhere.

.7 Install toeless type base before installation of carpet on floors.

.8 Heat weld linoleum base in accordance with manufacturer's printed instructions.

3.6 Initial Cleaning and Waxing

.1 Remove excess adhesive from floor, base and wall surfaces without damage.

.2 Broom clean completed work. Wet mopping, sealing and waxing to be performed in accordance with Section 01700 Article 1.8.

3.7 Protection of Finished Work

.1 Protect new floors from time of final set of adhesive until final inspection.

.2 Prohibit traffic on floor for 48 hours after installation.

PART 1 - GENERAL

1.1 References

.1 American Society for Testing and Materials (ASTM)
- .1 ASTM D 3960-02 93 , Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.36-M97 97 , General Purpose Interior Varnish.
- .2 CAN/CGSB-1.38-2000 M91 , Interior Enamel Undercoater.
- .3 CGSB 1-GP-48M 78 , Primer, Marine, for Steel.
- .4 CAN/CGSB-1.57-96 96 , Alkyd, Interior, Semigloss, Enamel.
- .5 CAN/CGSB-1.60-97 97 , Interior Alkyd Gloss Enamel.
- .6 CAN/CGSB-1.68-M91 M91 , Solvent Type Primer-Sealer for Interior Walls.
- .7 CAN/CGSB-1.73-97 97 , Exterior and Interior Enamel for Floors.
- .8 CAN/CGSB-1.100-99 95 , Interior Latex Type, Flat Paint.
- .9 CAN/CGSB-1.102-M89 M89 , Clear Alkyd Type Sealer.
- .10 CAN/CGSB-1.118-95 95 , Interior Alkyd, Flat Finish.
- .11 CAN/CGSB-1.119-2000 95 , Primer-Sealer, Wall, Interior Latex Type.
- .12 CAN/CGSB-1.121-93 93 , Vinyl Pretreatment Coating for Metals (Vinyl Wash Primer).
- .13 CAN/CGSB-1.126-M91 M91 , Vinyl Sealer for Wood.
- .14 CAN/CGSB-1.143-98 M90 , Heat Resistant Aluminum Enamel, Silicone Alkyd.
- .15 CAN/CGSB-1.145-97 97 , Solvent-Based Pigmented Stain.
- .16 CAN/CGSB-1.146-99 92 , Cold Curing, Gloss Epoxy Coating.
- .17 CAN/CGSB-1.150-M91 M91 , Clear Lacquer for Wood Furniture.
- .18 CAN/CGSB-1.153-2000 M90 , High Build, Gloss, Epoxy Coating.
- .19 CAN/CGSB-1.165-M89 M89 , Cold Curing Epoxy Primer.
- .20 CAN/CGSB-1.175-97 97 , Polyurethane Interior Coating, Oil Modified, Clear, Gloss and Satin.
- .21 CGSB 1-GP-180Ma 96 , Coating, Polyurethane, Two-Package, General Purpose.
- .22 CAN/CGSB-1.188-96 96 , Emulsion Type Filler Masonry Block.
- .23 CGSB 1-GP-193Ma 83 , Coating, High-Build Epoxy, Marine.
- .24 CAN/CGSB-1.195-99 95 , Interior Semigloss Latex Paint.
- .25 CAN/CGSB-1.198-2001 95 , Cementitious Primer (for Galvanized Surfaces).
- .26 CAN/CGSB-1.202-96 96 , Interior Low Gloss Alkyd Enamel.
- .27 CAN/CGSB-1.209-93 93 , Low Sheen Latex Interior Paint.
- .28 CGSB 85-GP-1M 78 , Painting (New) Exterior Wooden Surfaces.
- .29 CGSB 85-GP-2M 78 , Painting (Maintenance) of Exterior Painted Wooden Surfaces.
- .30 CGSB 85-GP-10M 79 , Shop Painting Structural Steel.

.31 CGSB 85-GP-11M 80 , Painting Steel for Protection Against Continuous Wetting.
.32 CGSB 85-GP-13M 80 , Painting Structural Steel for Protection Against Heavy Industrial Atmospheres.
.33 CGSB 85-GP-14M 78 , Painting Steel Surfaces Exposed to Normally Dry Weather.
.34 CGSB 85-GP-15M 78 , Painting, Maintenance, Exterior Steel Exposed to Normally Dry Weather.
.35 CGSB 85-GP-16M 79 , Painting Galvanized Steel.
.36 CGSB 85-GP-18M 80 , Painting, Maintenance, Exterior, Steel, for Protection Against Continuous Wetting.
.37 CGSB 85-GP-20M 79 , Painting copper and Copper Alloys.
.38 CGSB 85-GP-31M 79 , Painting Stucco, Masonry and Brick Surfaces.
.39 CGSB 85-GP-32M 79 , Painting Concrete Floors.
.40 CGSB 85-GP-33M 79 , Painting Interior Plaster and Wallboard.
.41 CAN/CGSB-85.100-93 93 , Painting.

.3 Canadian Painting Contractors' Association (CPCA).
.1 Painting Specifications Manual 1993 .

.4 Canadian Standards Association (CSA)
.1 CSA Z760-94 94 , Life Cycle Assessment.

.5 Environmental Choice Program (ECP)
.1 ECP-67- 95 , Recycled Water-Borne Surface Coatings.
.2 ECP-76- 98 , Surface Coatings.

.6 Environmental Protection Agency (EPA)
.1 EPA-SW-846, Test Methods for Evaluating Solid Wastes.

.7 International Organization for Standardization (ISO)
.1 ISO 14040/14041- 1997 , Environmental Management - Life Cycle Assessment.

.8 National Fire Code of Canada 1995 .

.9 Steel Structures Painting Council (SSPC).
.1 Systems and Specifications Manual 1989

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1.2 Product Data

.1 Submit product data in accordance with Section 01340.

.2 Submit full records of all products used. List each product in relation to finish formula and include the following:
.1 Finish formula designation.
.2 Product type and use.
.3 CGSB number.

.4 Manufacturer's product number.
.5 Colour number s .
.6 Manufacturer's Material Safety Data Sheets (MSDS).
.7 Maximum VOC classification.
.8 Eco-Logo certification.

.3 Submit manufacturer's installation and application instructions for each product specified.

1.3 Samples

.1 Submit samples in accordance with Section 01340.

.2 Submit duplicate 300 x 200 mm sample panels of each paint.

.3 Submit full range of available colours where colour availability is restricted.

.4 Use 3 mm plate steel for finishes over metal surfaces. Use 12.5 mm birchplywood for finishes over wood surfaces. Use 50 mm concrete block for finishes over concrete or concrete masonry surfaces. Use 12.5 mm gypsum board for finishes over gypsum board and other smooth surfaces.

1.4 Submittals

.1 Within a period of 30 days after award of Contract, and before any paint materials are delivered to the job site, submit to the Owner a complete list of all materials proposed to be furnished and installed under this portion of the work including a letter as to the name of the paint manufacturer proposed for the work.

.2 This shall in no way be construed as permitting substitution of materials for those specified or approved for this work by the Consultant.

.3 Accompanying the materials' list, submit to the Consultant two copies of the full range of colours available in each of the proposed products.

.4 After the award of Contract, the Consultant will prepare and issue a Colour Schedule. This Schedule is guidance for the painter in the preparation of samples of colour and finish. The Painter shall not purchase materials on the basis of the Colour Schedule.

.5 Upon receipt of the Colour Schedule, provide materials and prepare samples indicating colours and degree of gloss. The samples shall be submitted on gypsum board, 600 mm square for those areas where the paint is to be applied to a smooth

finished surface and on Celotex board, 600 mm square where paint is to be applied on finished masonry.

.6 Meet with the Consultant to consider the samples which will be inspected under the conditions and in the areas to which the colours and finishes are to be applied. Modify the colours as often as may be required for the Consultant's final approval. Upon final approval, the Painter will be authorized to proceed with the purchase of the materials.

.7 The samples shall be clearly identified and will be maintained clean and in good condition at the site. Upon receipt of such factory pre-mixed paints as purchased by the Painter, he will satisfy himself that the materials in sealed containers matches precisely the samples which have been approved before applying same to the appropriate surfaces.

.8 Upon commencement of the Work, sample rooms shall be prepared with base and finish coats as specified. This Work shall be executed in the presence of the paint manufacturer's representative to ensure that the materials are applied at the proper coverages. It shall be the responsibility of this trade contractor to advise the paint manufacturer and the Consultant in writing as to time and date which this work will be performed. Sample rooms and finishes when approved shall be a standard for comparison for the remainder of the work. Work subsequently executed which in the Consultant's or paint manufacturer's opinion does not equal the sample finishes, shall be corrected as may be necessary by the painter without additional charge.

.9 Maintenance Materials: Provide 2% additional matching paint of each type and colour used on project for maintenance purposes. Turn over to General Contractor and obtain receipt.

1.5 Quality Assurance

.1 Use only qualified painters for the mixing and application of paint on exposed surfaces. In the acceptance or rejection painting work, no allowance will be made for lack of skill on the part of painters.

.2 Retain purchase orders, invoices and other documents to prove that all materials utilized in this contract meet requirements of the specifications. Produce documents when requested by Consultant.

.3 Standard of Acceptance:

.1 Walls: No defects visible from a distance of 1000 mm at 90 degrees to surface.

.2 Ceilings: No defects visible from floor at 45 degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.6 Delivery, Storage and Handling

.1 Deliver and store materials in original containers, sealed, with labels intact.

.2 Indicate on containers or wrappings:
- .1 Manufacturer's name and address.
- .2 Type of paint.
- .3 Compliance with applicable standard.
- .4 Colour number in accordance with established colour schedule.

.3 Remove damaged, opened and rejected materials from site.

.4 Provide and maintain dry, temperature controlled, secure storage.

.5 Observe manufacturer's recommendations for storage and handling.

.6 Store materials and supplies away from heat generating devices. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste. Safeguards to be taken at all times to prevent fire from improperly stored rags, thinners and paints.

.7 Use all means necessary to protect materials before, during and after application to protect the installed work and materials of all other trades.

.8 Store materials and equipment in a well ventilated area with temperature range 7 to 30 °C.

.9 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.10 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Consultant. After completion of operations, return areas to clean condition to approval of Consultant.

.11 Store only the approved materials at the job site, and store only in a suitable and designated area restricted to the storage of paint materials and related equipment. Provide adequate protection to walls and floors. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

.12 Provide minimum one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.

.13 Remove only in quantities required for same day use.

.14 Fire Safety Requirements:

.1 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.7 Environmental Requirements

.1 Ventilation:

.1 Provide continuous ventilation during and after application of paint. Run ventilation system 24 hours per day during installation; provide continuous ventilation for 7 days after completion of application of paint.

.2 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

.3 Substrate and ambient temperature must be within limits prescribed in paint standard and by manufacturer to approval of Consultant.

.4 Maintain minimum substrate and ambient air temperature of 5°C for Alkyd and 7°C for latex paints. Maximum relative humidity 85%. Maintain supplemental heating until paint has cured sufficiently.

.5 Moisture Content:

.1 Check moisture content of substrates to be painted using electronic moisture meter or other approved method. Maximum moisture content shall be:

.1 Concrete and Concrete Masonry: Maximum 12% for solvent coatings and as recommended by manufacturer for water based coatings.

.2 Gypsum Board and Plaster: Maximum 12%.

.3 Wood: Maximum 15%.

.6 Provide temporary heating where permanent facilities are not available to maintain minimum recommended temperatures.

.7 Apply paint finish only in areas where dust is no longer being generated by related construction operations such that airborne particles will not affect the quality of the finished surface.

.8 Apply paint only when surface to be painted is dry, properly cured and adequately prepared.

.9 Painting in occupied facilities to be carried out during silent hours only. Schedule operations to approval of Consultant such that painted surfaces will have dried and cured sufficiently before occupants are affected.

.10 Provide minimum 270 lx on surfaces to be painted.

1.8 Scheduling

.1 Submit work schedule for various stages of painting to Consultant for approval. Submit schedule minimum of 48 hours in advance of proposed operations.

.2 Obtain written authorization from Consultant for any changes in work schedule.

.3 Schedule painting operations to prevent disruption of occupants in and about the building.

1.9 Extra Materials

.1 Submit maintenance materials.

.2 Submit one - four litre can of each type and colour of primer finish coating . Identify colour and paint type in relation to established colour schedule and finish formula.

.3 Deliver to Owner and store where directed.

1.10 Waste Management

.1 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.2 Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.

.3 Close and seal tightly all partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

.4 Do not dispose of paints or solvents by pouring on the ground. Place in designated containers and ensure proper disposal.

.5 Solvent based paints, wood preservatives, stains and finishes which cannot be reused must be treated as hazardous waste and

disposed of in an appropriate manner in accordance with hazardous waste regulations. Empty paint cans are to be dry prior to disposal or recycling (where available).

.6 Where paint recycling is available, collect all waste paint by type and provide for delivery to recycling or collection facility.

.7 Paints, stains, and finishes are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from the Provincial Ministries of Environment and Regional levels of Government.

PART 2 - PRODUCTS

2.1 Materials

.1 Qualified products: only paint materials listed on the CGSB Qualified Products List are acceptable for use on this project.

.2 Top line paints, or approved equal, of each of the individual companies listed below may be used:
- .1 Benjamin Moore Paints
- .2 Para Paints
- .3 Crown Diamond Company
- .4 Pratt and Lambert Inc.
- .5 Sherwin-Williams Company of Canada Limited
- .6 Colour Your World
- .7 The Glidden Company (Canada)
- .8 PPG Canada Inc.

.3 All products shall be applied to minimum thickness as recommended by the manufacturer and C.G.S.B. Where exact finish coat is not listed, consult supplier's specification sheet.

.4 Paint materials for each coating formula to be products of a single manufacturer.

.5 Low odour products: Whenever possible, select products exhibiting low odour characteristics. If two products are otherwise equivalent, select the product with the lowest odour.

.6 Water-borne surface coatings must:

.1 Meet or exceed all applicable governmental and/or industrial safety and performance standards.

.2 Manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by-laws and regulations including, for

facilities located in Canada, the Fisheries Act and the Canadian Environmental Protection Act (CEPA).

.7 Water-borne surface coatings must not be formulated or manufactured with: aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavelant chromium or their compounds.

.8 Water-borne surface coatings and recycled water-borne surface coatings must have a flash point of 61.0 °C or greater.

.9 Both water-borne surface coatings and recycled water-borne surface coatings must be made by a process that does not release:
.1 Matter in the undiluted production plant effluent generating a 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.
.2 Total Suspended Solids (TSS) in the undiluted production plant effluent in excess of 15 mg/L to a natural watercourse or

a
sewage treatment facility lacking secondary treatment.

.10 Water-borne surface coatings and recycled water-borne surface coatings must contain information describing proper disposal methods within their packaging.

.11 Water-borne paints and stains and recycled water-borne surface coatings must not contain VOCs in excess of 250 g/L as determined by ASTM D 3960-02.

.12 Water-borne varnishes must not contain VOCs in excess of 300 g/L.

.13 Recycled water-borne surface coatings must contain 50 % post-consumer material by volume.

.14 Recycled water-borne surface coatings must not contain:
.1 Lead in excess of 600.0 ppm weight/weight total solids.
.2 Mercury in excess of 50.0 ppm weight/weight total product.
.3 Cadmium in excess of 1.0 ppm weight/weight total product.
.4 Hexavelant chromium in excess of 3.0 ppm weight/weight total product.
.5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.

.15 The following must be performed on each batch of consolidated post-consumer material before the surface coating is reformulated and canned. These tests must be performed at a

laboratory or facility which has been accredited by the Standards Council of Canada.
.1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
.2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
.3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

.16 The manufacturing process must adhere to Lifecycle Assessment Standards as per ISO 14040/14041 , CSA Z760-94 .

2.2 Colours

.1 Consultant will provide Colour Schedule after contract award.

.2 Colour schedule will be based upon the selection of five base colours and three accent colours. No more than eight colours will be selected for the entire project and no more than three colours will be selected in each area.

.3 Selection of colours will be from manufacturers full range of colours.

.4 Where specific products are available in a restricted range of colours, selection will be based on the limited range.

.5 Perform all colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials allowed only with Consultant's written permission.

.6 Second coat in a three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 Paint Finishes

.1 Exterior Metal:
- .1 Galvanized:
  - .1 1 coat Galvanized Metal Primer
  - .2 2 coats acrylic latex enamel
- .2 Structural Iron and Steel:
  - .1 1 coat Rust Inhibitive Paint
  - .2 2 coats acrylic latex enamel
- .3 Aluminum:
  - .1 1 coat Rust Inhibitive Paint
  - .2 2 coats acrylic Latex enamel

.2 Interior Metal:
.1 Galvanized:
.1 1 coat Galvanized Metal Primer
.2 2 coats alkyd enamel
.2 Structural Iron and Steel:
.1 1 coat Rust Inhibitive Paint
.2 2 coats alkyd enamel

.3 Wood:
.1 Paint:
.1 1 coat Latex Enamel Underbody
.2 2 coats acrylic latex enamel
.2 Natural - Opened Grained Woods
.1 1 coat Paste Wood Filler
.2 2 coats Urethane Satin Finish
.3 Natural - Close Grained Woods
.1 3 coats Urethane Satin Finish
.4 Stained - Open Grained Woods
.1 1 coat Paste Wood Filler Tinted with Stain
.2 2 coats Urethane Satin Finish
.5 Stained - Close Grained Woods
.1 1 coat Interior Stain
.2 2 coats Urethane Satin Finish

.4 Interior Gypsum Board:
.1 Primer:
.1 1 coat latex primer
.2 Paint:
.1 1 coat latex primer
.2 2 coats acrylic latex
.3 Epoxy:
.1 1 coat latex primer
.2 2 coats 2-component Waterborne Acrylic Epoxy Enamel

.5 Interior Masonry:
.1 Primer:
.1 1 coat block Filler and primer
.2 Paint:
.1 1 coat block Filler and primer
.2 2 coats alkyd enamel
.3 Epoxy:
.1 2 coats Block Filler and primer
.2 2 coats 2-component Waterborne Acrylic Epoxy Enamel

.6 Interior Concrete:
.1 Paint (Floors):
.1 1 coat concrete floor enamel, thinner as recommended by manufacturer
.2 2 coats floor enamel

2.4 Substitution of Materials

.1 The Consultant reserves the right to interchange finishes called for in regard to Sealer, Primer, Stain, Paint, etc. without an additional labour cost for application of the item. An extra charge for the difference in material cost would be considered.

PART 3 - EXECUTION

3.1 General

.1 Perform all painting operations in accordance with CAN/CGSB-85.100-93 except where specified otherwise.

.2 Apply all paint materials in accordance with paint manufacturer's written application instructions.

.3 Paint or otherwise finish surfaces of building materials, building services and building accessories not otherwise protected or covered, as shown on Room Finish and Door Schedules, Drawings and as specified herein.

.4 In addition, and unless otherwise specified, all work which is exposed to view and which is not prefinished shall be finished by this Section.

.5 In areas specifically designated as "unfinished", painting is not required except for bare, primed and zinc coated metal surfaces and insulated ductwork and pipes.

.6 Where exposed to view paint bare metals, previously primed metals and zinc coated metals unless specified otherwise.

.7 Paint behind surface mounted fixtures on walls and ceilings with full coats of paint.

.8 Paint walls behind wall mounted heating units with full coats of paint.

.9 Paint inside surfaces of light coves white.

.10 Finish tops of doors, trim, projections and other work as specified for surrounding work whether above sight lines or not.

.11 Paint piping, ducts and conduit in colours matching background wall or ceiling colours, unless otherwise directed by Consultant. Ducts in mechanical rooms require only one finish coat in addition to primer. Other exposed ductwork to receive two finish coats.

.12 Unless specifically indicated on Drawings to be painted, all finish carpentry work shall receive transparent finish.

.13 Paint shall be applied by means of brushes except for wall and ceiling surfaces on which the paint shall be applied by rollers. Spray painting will be permitted for ceilings only and must be done outside normal working hours.

.14 Paint shall not be applied in rooms or areas where dust, dirt and debris are present. Cleaning is to be carried out by others to the approval of this trade before the work is commenced.

.15 Regardless of the number of coats specified for any surface, apply sufficient paint to completely cover and hide substrate and to produce solid, uniform appearance.

.16 Where two or more coats of the same paint are to be applied, undercoats shall be tinted in lighter shades of final coat to differentiate from final coat.

.17 Following completion of painting in each area, promptly reinstall all items removed for painting, using only workmen skilled in the particular trade.

.18 Previously Painted Items: When items to receive paint have been previously painted, lightly sand surface and touch up any defective areas with primer. Apply two coats of finish
compatible with existing paint. Paint surfaces to be touched up 'break to break'.

3.2 Inspection

.1 Condition of Surfaces:

.1 Check all surfaces with electric moisture meter and do not proceed if reading is higher than 12-15 without written permission of the Consultant.

.2 Proceed with work only when surfaces and conditions are satisfactory for production of a first class job.

.3 Remove dust, grease, rust and extraneous matter from all surfaces (except that rust occurring on items specified to be primed under other Sections shall be removed and work reprimed under those Sections).

.4 Fine sand all surfaces before starting work of this trade, after filler or primer is applied and between finish coats, where required, so as to eliminate all roughness.
Previously painted surfaces to be fine sanded.

.5 Painting shall not be undertaken at temperatures under 10 degrees C, or on surfaces where condensation has or will form due to presence of high humidity and lack of proper ventilation, or under dusty conditions.

3.3 Preparation

.1 Remove electrical cover plates, light fixtures, surface hardware on doors, door stops, bath accessories and all other surface mounted fittings and fastenings prior to undertaking any painting operations. Store for re-installation after painting is completed.

.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.3 As painting operations progress, place "WET PAINT" signs in occupied areas to approval of Consultant.

.4 Prime all caulked areas before painting.

3.4 Protection

.1 Provide metal pans or adequate tarpaulin to protect floors in areas assigned for the storage and mixing of paints.

.2 Use sufficient drop cloths and protective coverings for the full protection of floors, furnishings and work not being painted.

.3 Leave above areas clean and free from evidence of occupancy upon completion of painting.

.4 Protect paint materials from fire and freezing.

.5 Keep waste rags in metal drums containing water and remove from building at end of each working shift.

.6 Protect existing building surfaces not to be painted from paint spatters, markings and other damage. If damaged, clean and restore such surfaces as directed by Consultant.

.7 Cover or mask floors, windows and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.

.8 Protect items that are permanently attached such as Fire Labels on doors and frames.

.9 Protect factory finished products and equipment.

.10 Protect passing pedestrians, building occupants and the general public in and about the building.

3.5 Existing Conditions

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Engineer all damage, defects, unsatisfactory or unfavourable conditions before proceeding with work.

.2 Investigate moisture content of surfaces to be painted and report findings to Engineer. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:
- .1 Plaster and wallboard: 12%.
- .2 Masonry/Concrete: 12%.
- .3 Concrete Block/Brick: 12%.
- .4 Wood: 15%.

3.6 Cleaning

.1 Clean all surfaces to be painted as follows:
- .1 Remove all dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air .
- .2 Wash surfaces with solution of T.S.P. bleachand clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
- .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
- .4 Allow surfaces to drain completely and allow to dry thoroughly.
- .5 To prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
- .6 Use trigger operated spray nozzles for water hoses.
- .7 Many water-based paints cannot be removed with water once dried. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.

.2 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

.3 Sand existing surfaces with intact, smooth, high gloss coatings to provide adequate adhesion for new finishes.

3.7 Surface Preparation

.1 Prepare new wood surfaces to CGSB 85-GP-1M.

.2 Where possible, prime all surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

.3 Prepare previously painted wood surfaces to CGSB 85-GP-2M.
- .1 Apply vinyl sealer to CAN/CGSB-1.126-M91 over knots, pitch, sap and resinous areas.
- .2 Apply wood filler to nail holes and cracks.
- .3 Tint filler to match stains for stained woodwork.

.4 Prepare stucco, brick, concrete masonry and concrete surfaces to CGSB 85-GP-31M.

.5 Prepare concrete floors to CGSB 85-GP-32M. Prepare new concrete floor by acid etching. Rinse with clean water and thoroughly dry.

.6 Prepare plaster and wallboard surfaces to CGSB 85-GP-33M.

3.8 Surface Preparation -Concrete

.1 Test surfaces for alkalinity with pink litmus paper or other recognized methods.

.2 Where extreme alkalinity occurs, wash surfaces with 4% solution tetrapotassium pyrophosphate (5 oz. per gallon of water) where latex base paint is to be used, and with zinc sulphate solution (3 lbs. per gallon water) where other paint bases are to be used.

.3 Etch normal concrete surfaces to receive alkyd paint with muriatic acid solution (1 part commercial 31.45% to 3 parts water).

3.9 Surface Preparation -Gypsum Board

.1 Gypsum board shall be bone-dry and all patching complete before the first coat of paint is applied. Surfaces shall be inspected, all "hot spots" properly treated and all rough areas sanded smooth.

3.10 Surface Preparation - Woodwork

.1 Sand smooth all woodwork to be finished and clean surfaces free of dust before applying first coat. With painted woodwork, fill nail holes, splits and scratches with non-shrinking filler after first coat is dry. When these blemishes occur on woodwork surface to receive transparent finish, use putty tinted to match local grain condition. Between coats, sand lightly with No. 00 sandpaper and remove dust.

3.11 Surface Preparation -Metal

.1 Clean new metal surfaces to be painted by: removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with the following:
.1 Solvent cleaning: SSPC-SP-1.
.2 Hand tool cleaning: SSPC-SP-2.
.3 Power tool cleaning: SSPC-SP-3.
.4 Commercial blast cleaning: SSPC-SP-6.
.5 Brush-off blast cleaning: SSPC-SP-7.

.2 Clean existing metal surfaces to be repainted by: removing loose, cracked, brittle or non-adherent paint, rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with following:
.1 Scrape edges of old paint back to sound material. Where remaining paint is thick and sound, feather exposed edges.
.2 Commercial blast clean rusted and bare metal surfaces where existing paint system has failed.
.3 Solvent cleaning: SSPC-SP-1.
.4 Hand tool cleaning: SSPC-SP-2.
.5 Power tool cleaning: SSPC-SP-3.
.6 Commercial blast cleaning: SSPC-SP-6.
.7 Brush-off blast cleaning: SSPC-SP-7.

.3 Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes blowing with clean dry compressed air , or vacuum cleaning .

.4 Touch up shop primer to CGSB 85-GP-10M with primer as specified in applicable section. Touch-up to include cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas.

.5 Prepare galvanized steel and zinc coated steel surfaces to CGSB 85-GP-16M.

.6 Prepare copper and copper alloys surfaces to CGSB 85-GP-20M.

.7 Prepare new steel surfaces exposed normally to dry conditions to CGSB 85-GP-14M.

.8 Prepare previously painted steel surfaces exposed normally to dry conditions to CGSB 85-GP-15M.

.9 Prepare steel surfaces exposed to industrial environments to CGSB 85-GP-13M.

.10 Prepare steel surfaces exposed to water or high humidity levels to CGSB 85-GP-11M CGSB 85-GP-18M .

.11 Do not apply paint until prepared surfaces have been accepted by Consultant .

3.12 Mixing Paint

.1 Mix ingredients in container before and during use and ensure breaking up of lumps, complete dispersion of settled pigment, and uniform composition.

.2 Thin paint for spraying according to manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Engineer.

.3 Do not use kerosene or any such organic solvents to thin water-based paints.

3.13 Application

.1 Method of application to be as approved by Consultant. Apply paint by brushroller air sprayer or airless sprayer . Conform to manufacturer's application instructions unless specified otherwise.

.2 Brush application.
.1 Work paint into cracks, crevices and corners. Paint surfaces not accessible to brushes by spray, daubers or sheepskins.
.2 Brush out runs and sags.
.3 Remove runs, sags and brush marks from finished work and repaint.

.3 Spray application.
.1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
.2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.

.3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.
.4 Brush out immediately all runs and sags.
.5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access and only when specifically authorized by Engineer.

.5 Apply each coat of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.7 Sand and dust between each coat to remove visible defects.

.8 Finish tops of cupboards, cabinets and projecting ledges, both above and below sight lines as specified for surrounding surfaces.

.9 Finish inside of cupboards and cabinets as specified for outside surfaces.

.10 Finish closets and alcoves as specified for adjoining rooms.

.11 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.14 Mechanical Electrical Equipment

.1 In finished areas: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment. Colour and texture to match adjacent surfaces, except as noted otherwise.

.2 In boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.

.3 In other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

.4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.

.5 Do not paint over nameplates.

.6 Keep sprinkler heads free of paint.

.7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

.8 Paint disconnect switches for fire alarm system and exit light systems in red enamel.

.9 Paint all fire protection piping red .

.10 Paint all natural gas piping yellow .

.11 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.15 Restoration

.1 Clean and re-install all hardware items that were removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Consultant. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Consultant.

3.16 Adjusting and Cleaning

.1 During progress of the work, do not allow the accumulation of empty containers or other excess items except in areas specifically set aside for that purpose.

.2 Prevent accidental spilling of paint materials and, in event of such spill, immediately remove all spilled material and the waste of other equipment used to clean up the spill. Wash the surfaces to their original undamaged condition, all at no additional cost to the Owner.

.3 Prior to takeover of the project by Owner, inspect work of this Section and touch-up or refinish damaged finishes and finishes unsatisfactory to Consultant.

.4 Upon completion of this portion of the work, visually inspect all surfaces and removal all paint and traces of paint from surfaces not scheduled to be painted.

END

1.0 - INTENT

1.1 The following specification is to give details of the interior door signage. No attempt is being made to discuss each piece of hardware, trim, or screw. Provide door sign at each door.

2.0 - GENERAL REQUIREMENTS

2.1 Work under this contract involves the supply and installation of the Room No. Sign, Room Name Sign, Pictographs and Handicapped Pictographs as indicated on the enclosed directories. Arch. Door No. is provided for reference only in locating the appropriate door for the installation of the sign.

2.2 Examine carefully all drawings and specifications to ensure that work can be satisfactorily carried out as shown before commencing work.

3.0 – PRODUCTS

3.1 Sizes shall be as follows:

.1	Single Line Designation	50mm high x 300mm long
.2	Two Line Designation	75mm high x 300mm long
.3	Room Number Only	50mm high x 150mm long
.4	Handicap Symbol	100mm high x 100mm long
.5	Male or Female Pictograph	100mm high x 50mm long
.6	Male/Female Pictograph	100mm high x 100mm long

3.2 Sign material shall be 3.2mm thick matte finish translucent acrylic sheet with 45 degree bevel edges. All routing shall be on the reverse side with paint fill. Colour of the acrylic sheet and paint shall be premium grade as selected by the Owner, one colour for the acrylic sheet and one colour for the paint (including letters, numbers, and border line).

3.3 Letters and numbers shall be 15mm high Helvetica Medium, upper case, routed on reverse side and filled with paint. Letters and numbers shall be centred within sign length and height.

3.4 Borderlines shall be routed on reverse side 1.5mm wide and filled with paint.

3.5 Pictographs and handicap symbol shall be same construction as name and number plates.

3.6 Screw holes shall be countersunk to accept screw heads.

3.7 Screws shall be #8 x 3/4" stainless steel with tamperproof heads. Supply plastic plugs for screws where necessary in masonry or gypsum board.

3.8 Braille:

.1 Relief etc grade Braille into 3mm thick matte finish clear plexiglass cover sheets to be mounted over the General Office signage and M/F and Barrier Free Pictographs.

.2 Braille work to CSA and OBO standards. Braille to be located in the bottom left of the cover sheet.sheet.

4.0 Samples

4.1 Submit sample of one room name sign, room number sign, pictograph and handicap symbol in selected colours to the Owner for approval prior to manufacture of remaining signs.

5.0 Installation

5.1 Install signs in locations as indicated using screws and double sided tape.

6.0 Additional Signs

The contractor is to allow in his price for the supply and installation of 12 additional signs averaging 10 characters long as directed by the school following the occupancy.

END OF SECTION

PART 1 - GENERAL

1.1 Shop Drawings

.1 Submit shop drawings or catalogue illustrations in accordance with Section 01300.

.2 Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

PART 2 - PRODUCTS

2.1 Materials

.1 Sheet steel: commercial quality to ASTM A 526/A 526M-90 526M-90 526M-90 526M-90 526M-90 80 with ZF001 designation zinc coating.

.2 Stainless steel sheet metal: to ASTM A 167-99, Type 304, with polished finish.

.3 Stainless steel tubing: Type 304, commercial grade, seamless welded, 1.2 mm wall thickness.

.4 Fasteners: concealed screws and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use.

2.2 Finishes

.1 Chrome and nickel plating: to ASTM B 456-95 polished finish.

.2 Baked enamel: condition metal by applying one coat of metal conditioner to CGSB 31-GP-107Ma, apply one coat Type 2 primer to CAN/CGSB-1.81-M90 and bake, apply two coats Type 2 enamel to CAN/CGSB-1.88-92 and bake to hard, durable finish. Sand between final coats. Colour selected from custum range by Consultant.

.3 Manufacturer's or brand names on face of units not acceptable.

2.3 Fixtures

.1 Toilet tissue dispenser: Install toilet tissue dispenser supplied by the Owner.

.2 Soap dispenser: Install soap dispenser supplied by the Owner.

.3 Grab Bars: 38mm stainless steel satin finish with peened gripping surface and concealed mounting. Straight 600mm Bar: Frost F-1001D-24P or equal with concealed mounting. Fold Down Grab Bar with Toilet Tissue Dispenser: Frost 1055-FTS or equal. Fold Down Grab Bar: Frost 1055-S or equal. Configuration as shown on drawings.

.4 Mirrors: to CAN/CGSB-12.5-M86, 6mm thick,heavy galvanized steel back, stainless steel frame with mitred corners and tamperproof tilted mounting. Guaranteed against silver spoilage for 5 years. Frost F941-1830 series or equal.

.5 Sanitary Napkin Disposal: Install sanitary napkin disposal supplied by the Owner.

.6 Paper Towel Dispenser: Flexo Products Ltd Vista hygenic Push Paddle Towel Dispenser- GP54338

.7 Coat Hooks: Frost Safety Coat Hook 1150 or equal.

.8 Convenient shelf: Frost Heavy Duty Shelf 950-18

.9 Washroom accessories of the same materials, construction and finishes, similar in function, design, appearance and conforming to the standards of those specified, manufactured by the following may be considered equal:

.1 Flexo
.2 Bradley
.3 Frost

.4 Twin-Cee
.5 Watrous
.6 Bobrick

2.4 Fabrication

.1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.

.2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.

.3 Brake form sheet metal work with 1.5 mm radius bends.

.4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.

.5 Back paint components where contact is made with building finishes to prevent electrolysis.

.6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CAN/CSA-G164-M92 (R1998) (R1998) M1981.

.7 Shop assemble components and package complete with anchors and fittings.

.8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.

.9 Provide steel anchor plates and components for installation on studding and building framing.

PART 3 - EXECUTION

3.1 Installation

.1 Install and secure accessories rigidly in place as follows:

.1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
.2 Hollow masonry units or existing plaster/drywall: use toggle bolts drilled into cell/wall cavity.
.3 Solid masonry, marble, stone or concrete: use bolt with lead expansion sleeve set into drilled hole.

.2 Use tamper proof screws/bolts for fasteners.

.3 Fill units with necessary supplies shortly before final acceptance of building.

.4 Provide di-electric separation at dissimilar metals in accordance with manufacturer's specifications.

3.2 Location and Quantity

.1 Locate accessories where indicated and as follows. Exact locations determined by Consultant.

.2 Toilet tissue dispenser: one in each toilet compartment. Install toilet tissue dispenser supplied by the Owner.

.3 Soap dispenser:
.1 one per two sinks, one per sink minimum. Install soap dispenser supplied by the Owner.

.4 Mirrors:
.1 One per sink 460mm x 760mm.

.5 Paper Towel Dispensers: one per sink

.6 Convenient Shelf: One in Universal Washroom

.7 Coat Hook: One in Universal Washroom

.8 Grab Bars: In Barrier-free Washrooms. Refer to Architectural Drawings for quantity and type.

.9 Sanitary Napkin Disposal: One per toilet in female washroom and Universal Washroom.

PART 1. GENERAL

1.1 SECTION INCLUDES

A. Commercial wheelchair lifts.

1.2 RELATED SECTIONS

A. Division 16 Sections for electrical service for elevators to and including disconnect and fused switches at machine room.

B. Division 16 Sections for standby power source, transfer switch, and connection from auxiliary contacts in transfer switch to controller.

C. Division 16 Section "Voice and Data Communication Cabling" for telephone service to elevators.

D. Section 03300 - Cast-in-Place Concrete: Concrete for elevator machine foundation, and pit.

E. Section 06100 - Rough Carpentry: Hoistway framing, building-in hoistway door frames and overhead hoist beams.

F. Section 08710 - Door Hardware.

G. Section 09650 - Resilient Flooring: Floor finish in cab.

H. Section 09900 - Paints and Coatings: Interior transparent wood finish in cab.

I. Section 13850 - Detection and Alarm: Fire and smoke detectors and interconnecting devices.

1.3 REFERENCES

A. American National Standards Institute (ANSI) B-29.2 - Chain Standards for Inverted Tooth (Silent) Chains and Sprockets.

B. American Society of Mechanical Engineers (ASME) A17.1 - Safety Code for Elevators and Escalators.

C. American Society of Mechanical Engineers (ASME) A18.1 - Safety Standard for Platform and Stairway Chair Lifts.

D. CSA B44.1 - Elevator and Escalator Electrical Equipment.

E. CSA B355 - Lifts for Persons with Physical Disabilities.

F. CSA B613 - Private Residence Lifts for Persons with Physical Disabilities.

G. U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)".

H. ICC/ANSI A117.1 - Accessible and Usable Buildings and Facilities.

I. NFPA 70 - National Electric Code.

J. CSA - National Electric Code.

1.4 REQUIREMENTS OF REGULATORY AGENCIES:

A. Fabricate and install work in compliance with applicable jurisdictional authorities.

B. File shop drawings and submissions with local authorities as the information is made available. Company pre-inspection and jurisdictional authority inspections and permits are to be made on timely basis as required.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings: Provide a complete layout of lift equipment detailing dimensions and clearances as required.

1.6 QUALITY ASSURANCE

A. Installer Qualifications:
1. Skilled tradesmen shall be employees of the installing contractor approved by the manufacturer, with demonstrated ability to perform the work on a timely basis.
2. Execute work of this section only by a company that has adequate product liability insurance.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install systems under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

A. Coverage - this warranty applies to the repair or replacement, at Manufacturer's option, of parts that fail due to defective material or workmanship. Manufacturer may, at its option, provide factory reconditioned parts. This warranty is provided to the Authorized Dealer on behalf of the final purchaser of the product and is not transferable. The Manufacturer's warranty does not cover labor charges for the removal, repair or replacement of warranty parts but such costs may be covered for a period of time by Authorized Dealer's warranty, which is provided to purchaser separately.

1. The manufacturer shall offer a 36-month limited warranty on parts from date of shipment.

PART 2. PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Savaria, which is located at: 2 Walker Drive, Brampton, ON, Canada, L6T 5E1; Toll Free Tel: 800-661-5112; Tel: 905-791-5555; Fax: 905-791-2222; Email: request info; Web: www.savaria.com

B. Substitutions: Not permitted.

2.2 COMMERCIAL WHEELCHAIR LIFT

A. Hydraulic Vertical Platform Lifts: Savaria V1504-STD.

B. Hydraulic Vertical Platform Lift: The lift described here, manufactured by Savaria Lifts Inc, is a vertical platform lift consisting of a hydraulic tower with a lifting platform. The platform is made to accommodate a wheelchair user or a person with impaired mobility. The lift can be used indoor or outdoor (with optional package) and in commercial or residential applications.

C. Work described in this section includes providing equipment, incidental material and labor required for complete, operable roped hydraulic wheelchair lift installation. Lifts shall be erected, installed, adjusted, tested and placed in operation by lift system manufacturer, or manufacturer's authorized installer.
1. Lifts shall be in accordance:
    a. CSA B355 (Canada)

D. The following preparatory work to receive the lifts specified in this section is part of the work of other sections:
1. Permanent 120 VAC, 20 amp single phase power to operate lift to be provided from a lockable fused/cartridge type disconnect switch with auxiliary contacts for battery operation. Refer to drawings for permanent power specifications and location of disconnects. Temporary power may be provided to expedite installation of lift.
2. Provide a plumb and square hoistway with smooth interior surfaces, including fascias or furring of hoistway interior.
3. Provide rough openings per lift contractor's shop drawings.
4. Provide substantial, level pit floor slab as indicated on the lift contractor's shop drawings.

E. Characteristics:
1. Rated Load: 750 lb (340 kg).
2. Rated Speed: 20 fpm (0.10 m/s).
3. Car Dimensions:
    a. 36 inches W by 54 inches D (914 mm by 1371 mm) – Standard
4. Levels Serviced:
    a. 2.
5. Car Configuration:
    a. 90 degree exit.
6. Travel: 3 feet 9 inches. Maximum of 14' in US and 23' in Canada.
7. Pit Depth:
    a. 3" – Standard

8. Powder Coat Finish
    a. Optional Powder Coat Finishes-Gloss-Black PS311N13

9. Operation: Constant pressure.
10. Power Supply: 110 volt, 20 amp, 1 phase, 60 Hz.
11. Drive System: 2:1 Roller chain hydraulic.
12. Emergency Power:
    a. Battery operation in down direction – Standard.
13. Controller: Relay logic based controller.
14. Motor/Pump: 1 HP (112 kw), gear type
15. Manual Lowering: Outside the hoistway at lower landing.

F. Car Enclosure:
1. Cab Configuration:
    a. Side Guards of platform shall have a steel frame with a powder coat finish and steel panel inserts to a minimum of 42 inches (1067 mm) high.

G. Doors and Gates:
1. First landing door:
    a. Door type: 80" High 1-1/2 hour UL/ULC fire-rated Prodoor with concealed hinges and a concealed electro/mechanical interlock.
    b. Flush closing operation with hoistway side.
    c. Operation
        1) Automatic - Concealed 24 volt door opener with battery back-up for fire-rated door.
    d. Door Width
        1) 36 inches (889 mm) clear opening.
2. Upper landing door/gate:
    a. Door/gate type:
        1) 42" low profile aluminum gate with a concealed electro/mechanical interlock.
    b. Flush closing operation with hoistway side.
    c. Operation
        1) Automatic – Surface mounted gate opener for low profile aluminum gate.
    d. Door/Gate Width
        1) 42 inches (1067 mm)

H. Call Stations: Provide flush, surface or door frame mounted landing call/send stations.
1. Call stations will be:
    a. Keyed (removable in on/off position)

I. Car Operation:
1. Car Operating Panel shall consist of constant pressure buttons, emergency stop/alarm button, on/off key switch (when applicable) and emergency LED light mounted on a removable stainless steel panel (Type 304 #4 Stainless Steel Finish).
2. Auxiliary lighting: The car shall be equipped with a battery operated LED light fixture. The battery shall be the rechargeable type with an automatic recharging system.
3. Telephone: The car shall be equipped with a
    a. ADA Hands free phone.

J. Pumping Unit and Control:
1. The pumping unit and control shall be enclosed in the tower. The controller and pump unit

shall be pre-wired and tested prior to shipment. The controller is to be relay logic based operation for ease of maintenance and service. Pump unit shall incorporate the following features:

a. Adjustable pressure relief valve.
b. Manually operable down valve to lower lift in the event of an emergency. This valve shall be activated from outside of the hoistway through a keyed box.
c. Pressure gauge isolating valve, manually operable.
d. Gate valve to isolate cylinder from pump unit.
e. Electrical solenoid for down direction control.
f. Emergency Operation - A manual lowering device shall be located outside the hoistway in a lockable box positioned at a lower landing.

K. Cylinder And Plunger:

1. The cylinder shall be constructed of steel pipe of sufficient thickness and suitable safety margin. The top of the cylinder shall be equipped with a cylinder head with an internal guide ring and self-adjusting packing.
2. The plunger shall be constructed of a steel shaft of proper diameter machined true and smooth. The plunger shall be provided with a stop electrically welded to the bottom to prevent the plunger from leaving the cylinder.

L. Roller Chains: Two No.50 roller chains with 5/8 inch (16 mm) pitch. Minimum breaking strength 6100 lb (2773 kg) each.

M. Leveling Device:

1. The lift shall be provided with an anti-creep device which will maintain the carriage level within 1/2 inch (12 mm) of each landing.
2. All limit switch and leveling device switches shall be located in a position to be inaccessible to unauthorized persons. They shall be located behind the mast wall and be accessible through removable panels.

N. Guide Yoke: The 2:1 guide yoke/sprocket assembly shall be supplied with idler sheaves, roller guide shoes, bearings and guards.

O. Terminal Stopping Devices: Normal terminal stopping devices shall be provided at top and bottom of runway to stop the car positively and automatically.

P. Guide Rails and Brackets: Steel 'C" guide rails and brackets shall be used to guide the platform and sling. Guide rails shall form part of the structural integrity of the unit and be integral to the mast enclosure, ensuring stability and minimum platform deflection when loaded.

Q. Car Sling: Car sling shall be fabricated from steel tubing 44 inches (1116 mm) high with adequate bracing to support the platform and car enclosure. Roller guide shoes shall be mounted on the top and bottom of the car sling to engage the guide rails. Guide shoes shall be roller type with 3 inches (76 mm) diameter wheels. Nylon guide shoes shall not be used for better ride quality and durability.

R. Wiring: All wiring and electrical connections shall comply with applicable codes. Insulated wiring shall have flame-retardant and moisture-proof outer covering and shall be run in conduit or electrical wire ways if located outside the unit enclosure. Quick disconnect harnesses shall be used when possible.

PART 3. EXECUTION

3.1 EXAMINATION

A. Do not begin installation until hoistway and machine room has been properly prepared.

B. Site dimensions shall be taken to verify that tolerances and clearances have been maintained and meet local regulations.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 ELEVATOR INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install the components of the elevator system that are required and that are required by jurisdictional authorities to license the elevator.

C. Trained employees of the elevator contractor shall perform installation work.

D. Adjust elevator for proper operation and clean unit thoroughly.

E. Instruct users in operating procedures and owner's maintenance person in trouble-shooting and maintenance procedures.

3.4 LIFT INSTALLATION

A. Install all the components of the lift system that are specified in this section to be provided, and that are required by jurisdictional authorities to license the lift.

B. Trained employees of the lift contractor shall perform all installation work of this section.

C. Adjust lift for proper operation and clean unit thoroughly.

D. Instruct users in operation procedures and Owner's maintenance person in trouble-shooting and maintenance procedures.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

PART 1- GENERAL

1.1 Related Section

.1 Section 01 11 00 – Summary of Work: Protection of openings; temporary power and lighting.

.2 Section 01 52 00 – Construction Facilities: Protection of openings; temporary power and lighting.

.3 Section 03 30 00 – Cast-in-Place Concrete: Elevator pit, elevator motor and pump foundation, and grouting thresholds

.4 Section 05 50 00 – Metal Fabrications: Divider beams, support for entrances and rails, hoisting beam at top of hoistway.

.5 Section 04 21 13 – Masonry: Masonry hoistway enclosure, building-in and grouting hoistway door frames, grouting thresholds.

.6 Section 05 50 00 – Metal Fabrications: Divider beams, support for entrances and rails, hoisting beam at top of hoistway.

.7 Division 26: Electrical service to elevator components.

1.2 Summary

.1 This specification is based on a 2500lb capacity, hydraulic double-sided elevator for a three storey building (min. 12m travel distance) with additional stop (4 stops).

.2 Acceptable Alternates: Elevators meeting or exceeding these base specifications by Otis Elevator Company, TKE, Thyssen, Kone, Delta Elevator, Southwestern Elevator or other providing they meet this specification and complete data is submitted to the Architect's office not later than 10 business days prior to close of Tender and approved and formally accepted in writing by the Consultant during the tender period.

.3 Tender price shall include the complete price for supply and install and the **2 year** maintenance contract specified

herein.

1.3 References

.1 ADAAG, Americans with Disabilities Act Accessibility Guidelines.

.2 ANSI/NFPA 70, National Electrical Code.

.3 ANSI/NFPA 80, Fire Doors and Windows.

.4 ANSI/UL 10B, Fire Tests of Door Assemblies.

.5 CAN/CSA C22.1, Canadian Electrical Code.

.6 CAN/CSA-B44, Safety Code for Elevators and Escalators.

.7 Model Building Codes.

.8 Ontario Building Codes and all other local applicable codes.

.9 American National Standards Institute (ANSI)

.1 ANSI/NEMA MG1-[1993], Motors and Generators.

.10 Canadian Standards Association (CSA)

.1 CAN/CSA-B44-[M94], Safety Code for Elevators.
.2 CAN/CSA-B651-[95], Barrier-Free Design – Public Safety.

.11 National Building Code (NBC)

1.4 System Description

.1 Performance Requirements for Elevators:

.1 Quantity & Elevator Numbers: 1 Elevator

.2 Type: Twin telescopic hydraulic cylinders without well holes

.3 Number of Stops: 4 Stops (three stories + Stage)

.4 Number of Openings: 2 (front and back)

.5 Rise: As per drawings

.6 Rated Capacity/Speed: 2500 pounds, 100/fpm (1361 kg, 0.50/m/sec.)

.7 Minimum Car Inside: Front Opening: Model 2500: 6' 8" wide x 4' 3" deep (2032 mm x 1295 mm)

.8 Inside Cab Height: 8'0" (2438 mm); Height Under Ceiling: 7' 4 ½" (2223 mm)

.9 Entrance Width & Type: Model 2500: Single-Slide Door 3' 6" x 7' 0" (1067 mm x 2134 mm)

.10 Main Power Supply: 208 Volts + or – 5% of normal, 3 Phase, with a separate equipment grounding conductor.

.11 Lighting Power Supply: 120 Volts, 1 Phase, 15 Amp, 60 Hz.

.12 Stopping Accuracy: ±1/4" (6.4mm)under any loading condition or direction of travel.

.13 Door Opening Time for 7ft. painted hoist way and car doors: Model 2500: 4.0 seconds – Single Slide 42" door.

.2 Simplex Collective Operation: Using a microprocessor-based controller, operation shall be automatic by means of the car and hall buttons. If all calls in the system have been answered, the car shall park at the last landing served.

.3 Provide microprocessor-based control system, which utilizes on-board diagnostics for servicing, trouble-shooting, and adjusting without requiring the use of an outside service tool. If an on-board diagnostic system is not provided, a handheld service tool (or laptop), owner's license, operation manual, and tool instructions must be provided in addition to the control system.

.4 Car Operating Features

.1 Full Collective Operation.
.2 Single Speed Fan.
.3 On/Off Light Switch.
.4 Solid State Starting
.5 Remote elevator monitoring REM® ready.
.6 Car-Stall Protection.
.7 Top of Car Inspection.

.5 Door Control Features:

.1 Closed Loop Door Operator is a closed loop, microprocessor based door operator system. The door operator will facilitate smooth operation under varying environmental influences such as, temperature,

wind, friction, and component variation. The processor will monitor the door's actual position and velocity compared to its desired position and velocity. If variations are detected in the profile the command will be automatically corrected. The Closed Loop Door Operator control system shall not require machine room door control equipment.

.2 Door noise not to exceed 58dBA.

.3 Door control to open doors automatically when car arrives at a landing in response to a normal hall or car call.

.4 Door control to open doors automatically when car arrives at a landing in response to a normal hall or car call.

.5 Elevator doors shall be provided with a reopening device that will stop and reopen the car door(s) and hoistway door(s) automatically should the door(s) become obstructed by an object or person.

.6 Primary door protection shall consist of a two dimensional, multi-beam array projecting across the car door opening. Under normal operation and for any door position, the system shall detect as a blockage an opaque object that is equal to or greater than 1/3 inches (33mm) in diameter when inserted between the car doors at vertical positions from within 1 inch (25mm) above the sill to 71 inches (1800mm) above the sill. Under degraded conditions (one or more blocked or failed beams), the primary protection shall detect opaque objects that are equal to or greater than 4" (100mm) in diameter for the same vertical coverage. If the system performance is degraded to the point that the 4" object cannot be detected, the system shall maintain the doors open or permit closing only under nudging force conditions.

.7 The door reopening device shall also include a secondary, three dimensional, triangular infrared multi-beam array projecting across the door opening and extending into the hoistway door zone. The door opening device will cause the doors to reopen when it detects a person(s) or object(s) entering or exiting the car in the area between the hoistway doors or the entryway area adjacent to the hoistway doors.

.8 The size of the secondary protection zone shall vary as the door positions vary during opening and closing. The width of the zone shall be approximately one-

third the size of the separation between the doors (or door and strike plate for single-slide doors) and shall be approximately centered in the door separation. In order to minimize detection of hallway passers-by who are not entering the elevator, the maximum zone penetration into the entryway shall not exceed 20" for any door separation. Normal penetration depth into the entryway from the car doors shall be -14" for a door separation of 42". The penetration shall reduce proportionally as the doors close. At door separations of 18" or less the secondary protection system may cease its normal operation since the depth of the zone recedes to where it is inside the hoistway doors. The vertical coverage of the secondary protection shall be -19" (480 mm) above the sill to -55" (1400 mm) above the sill (mid-thigh to shoulder of a typical adult).

.9 The secondary protection shall have an anti-nuisance feature which will ignore detection in the secondary zone after continual detection occurs for a significant time period in the secondary zone without corresponding detection in the primary protection zone; i.e. a person/object is in the entryway but does not enter. Normal secondary protection shall be re-enabled whenever detection occurs in the primary zone.

.10 The reaction time of the door detector sub-system shall not exceed 60 milliseconds when both primary and secondary protection capabilities are active; nor 40 milliseconds when the secondary protection is disabled.

.11 Door nudging operation to occur if doors are prevented from closing for an adjustable period of time.

.6 Provide equipment according to Seismic zone: zone 0

.7 Design and construct elevator in accordance with CAN/CSA-B44, local codes and regulations.

1.5 Submittals

.1 Product Data: Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.1 Signal and operating fixtures, operating panels and indicators.
.2 Cab design, dimensions and layout.

.3 Hoistway-door and frame details.
.4 Electrical characteristics and connection requirements.

.2 Shop Drawings: Submit in accordance with Section 01 33 00 - Submittal Procedures.
.1 Submit shop drawings to indicate project layout, including details and the following information:
.1 Car, guide rails, buffers and other components in hoistway.
.2 Maximum rail bracket spacing.
.3 Maximum loads imposed on guide rails requiring load transfer to building structure.
.4 Loads on hoisting beams.
.5 Clearances and travel of car.
.6 Clear inside hoistway and pit dimensions.
.7 Location and sizes of access doors, hoistway entrances and frames.
.2 Operation and Maintenance Data
.1 Provide 4 copies manufacturer's standard operations and maintenance manual.

1.6 Quality Assurance

.1 Manufacturer: Provide elevators manufactured by a firm with a minimum of 10 years experience in fabrication of elevators equivalent to those specified. Elevator manufacturer shall be ISO9002 certified.

.2 Installer: Elevators shall be installed by the manufacturer.

.3 Regulatory Requirements: Elevator system design and installation shall comply with the latest versions of CAN/CSA-B44 -00.
.1 Elevator shall be designed to meet to Americans with Disabilities Act Accessibility Guidelines (ADAAG)

.4 Permits and Inspections: Provide licenses and permits and perform required inspections and tests.

1.7 Delivery, Storage and Handling

.1 Manufacturer shall issue delivery schedule within 7 days of issuance of purchase order. Manufacturer shall maintain regular contact with the contractor and Consultant regarding expediting shop drawings and delivery.

.2 At least 3 weeks in advance of delivery, manufacturer's representative shall visit the site to discuss site

preparedness. Manufacturer's rep. shall make a second visit one week in advance of the delivery and again liaise with General Contractor and Consultant to ensure site preparation.

1.8 Waste Management and Disposal

.1 Deposit packaging materials in appropriate container on site for recycling or reuse.

.2 Avoid using landfill waste disposal procedures when recycling facilities are available.

.3 Collect and separate plastic, paper packaging and corrugated cardboard.

.4 Dispose of corrugated cardboard, polystyrene and plastic packaging material in appropriate on-site bin.

1.9 Warranty

.1 The elevator warranty shall cover defective functionality, programming, materials and workmanship for a period of One Year from the date of Substantial Completion of the contract. The guarantee includes ordinary wear but excludes improper use, vandalism, abuse, and misuse by the owner.

.2 Project Warranty: Refer to CCDC 2 for project warranty provisions.

1.10 Maintenance Service

.1 Included in the Tender price is the maintenance service consisting of regular examinations, adjustments and lubrication of the elevator equipment shall be provided by the elevator contractor for a period of three (3) years after the elevator has been turned over for the customer's use. This service shall not be subcontracted but shall be performed by the elevator contractor. All work shall be performed by competent employees during regular working hours of regular working days and shall include emergency 24-hour callback service. This service shall not cover adjustments, repairs or replacement of parts due to negligence, misuse, abuse or accidents caused by persons other than the elevator contractor. Only genuine parts and supplies as used in the manufacture and installation of the original equipment shall be provided.

PART 2- PRODUCTS

2.1 Materials

.1 Materials: As required to achieve specified performance criteria; functionally compatible with adjacent materials and components.

2.2 Acceptable Manufacturers

.1 This specification is based on a **Model 2500** hydraulic elevator as manufactured by Otis Elevator Company.

.2 Acceptable Alternates: Elevators meeting or exceeding these base specifications by Thyssen, Kone, Delta Elevator or Southwestern Elevator, **or Vertechs.**

2.3 Equipment:

.1 The hydraulic system shall be of compact design suitable for operation under the required pressure. The power component shall be mounted in the hydraulic-fluid storage tank. The control valve shall control flow for up and down directions hydraulically and shall include an integral check valve. A control section including control solenoids shall direct the main valve and control: up and down starting, acceleration, transition from full speed to leveling speed, up and down stops, pressure relief and manual lowering. All of these functions shall be fully adjustable for maximum smoothness and to meet contract conditions. System to be provided with a muffler, low-pressure switch and a shut-off valve.

.2 A microprocessor-based controller shall be provided, including necessary starting switches together with all relays, switches, solid-state components and hardware required for operation, including door operation, as described herein. A three (3) phase overload device shall be provided to protect the motor against overloading.

.3 A manual lowering feature shall permit lowering the elevator at slow speed in the event of power failure or for adjusting purposes.

.4 Pressure Switch

2.4 Equipment: Hoistway Components

.1 Plunger(s) and Cylinder(s): Each cylinder shall be constructed of steel pipe of sufficient thickness and suitable for the operating pressure. The top of each cylinder shall be equipped with a cylinder head with a drip ring to collect any oil seepage as well as an internal guide ring and self-adjusting packing. Each plunger shall be constructed of selected steel tubing or pipe of proper diameter machined true and smooth with a fine polished finish. Each plunger shall be provided with a stop ring electrically welded to it to prevent the plunger from leaving the cylinder. Each plunger and cylinder shall be installed plumb and shall operate freely with minimum friction.

.2 Car Guide Rails: Tee-section steel rails with brackets and fasteners.

.3 Spring Buffer: Helical coil spring type.

.4 Wiring: Wiring for hoistway electrical devices included in scope of the elevator system, hall panels, pit emergency stop switch, and the traveling cable for the elevator car, operating telephone handset call system in Cab.

.5 Hoistway Entrances

.1 Frames: Entrance frames shall be of bolted construction for complete one-piece unit assembly. All frames shall be securely fastened to fixing angles mounted in the hoistway and shall be of 14-gauge (2 mm) sheet steel. Additional sill angle support will be provided with 4'0" and 4'6" two speed opening door arrangements (4500 & 5000 lb. cars). Sills shall be extruded aluminum.

.2 Doors: Entrance doors shall be of hollow metal construction with vertical internal channel reinforcements.

.3 Fire Rating: Entrance and doors shall be UL fire rated for 1-1/2 hour.

.4 Entrance Finish: stainless steel. All doors & frames, stainless steel.

.5 Entrance Markings: Entrance jambs shall be marked with 4" x 4" (102 mm x 102 mm) plates having raised floor markings with Braille adjacent. Markings shall be provided on both sides of the entrance.

.6 Sight Guards: Black sight guards will be furnished with any metal finish door. Powder paint matching sight guards will be furnished with powder paint doors.

2.5 Equipment: Car Components

.1 Car Frame: A suitable car frame shall be provided with adequate bracing to support the platform and car enclosure. The buffer striking plate on the underside of the car-frame platform assembly must fully compress the spring buffer mounted in the pit before the plunger reaches its lower limit of travel.

.2 Platform, Heavy Loading Type: The car platform shall be arranged to accommodate one- piece loads weighing up to 25% of the rated capacity, such as wheeled food carts, stretchers, x-ray equipment, etc. The platform shall be recessed 5/16" for flooring by others.

.3 Cab walls to have attached vertical non-removable panels, laminated front and back with plastic laminate.

.4 Car Door Finish: Car front(s) and door finish can be independent elevators. Satin stainless steel.

.5 Car top to be of wood material clad on both sides with a natural finish aluminum panel.

.6 Ceiling Type:

.1 Aluminum Eggcrate [DC22E Ceiling] suspended ceiling shall consist of aluminum eggcrate diffusers set in frame of extruded aluminum with fluorescent lighting fixtures.

.7 Emergency Car Lighting: An emergency power unit employing a 6 volt, sealed rechargeable battery and totally static circuits shall be provided to illuminate the elevator car and provide current to the emergency siren in the event of building power failure.

.8 Emergency Pulsating Siren: Siren mounted on top of the car that is activated when the Alarm button in the car operating panel is engaged. Siren shall have a rated sound pressure level of 80 dba at a distance of 3.0 m from the device. Siren shall respond with a delay of not more than 1 second after the switch or push button has been pressed.

.9 Exhaust Fan: An exhaust fan shall be mounted on the car top.

.10 Utility Outlet: A 125V 15 amperes utility outlet with ground-fault circuit-interrupter protection shall be furnished on top of the cab.

.11 Handrail:

.1 Rectangular Tubular Metal Bar DH50 Handrails 1/2" (13

mm) x 1-1/2" (38 mm) in stainless steel.

.12 Threshold: aluminum.

2.6 Equipment: Signal Devices and Fixtures

.1 Car-Operating Panel: A panel shall be provided which contains all push buttons, key switches, and message indicators for elevator operation. Raised markings Braille markings shall be provided for each push-button.

.2 Car Fixture Finish: satin stainless steel.

.1 [Series 2 Fixtures] Applied car operating panel shall be furnished. It shall contain a bank of round mechanical illuminated buttons marked to correspond to the landings served, an emergency call button, door open and door close buttons, and switches for lights, inspection and the exhaust fan. The emergency call button shall be connected to a bell that serves as an emergency signal. All buttons to have both raised and Braille markings. LED (red) button illumination with 1/8" projecting target. All buttons to be stain stainless steel.

.3 Car Position Indicator: A 16-segment, digital, vacuum fluorescent car position indicator shall be integral to the car operating panel.

.4 An ADA compliant communication device shall be provided which has been designed in response to ADAAG requirements integral with the car operating panel.

.5 Car Lantern and Chime: A directional lantern visible from the corridor shall be provided in the car entrance. When the car stops and the doors are opening, the lantern shall indicate the direction in which the car is to travel and a chime will sound.

.6 Hall Fixtures: Hall fixtures shall be provided with necessary push buttons and key switches for elevator operation. Raised markings shall be provided for each push-button. Otis series 5.

.7 Fixture Finish: **satin stainless steel.**

.8 Landing Passing Signal: A chime bell shall sound in the car to tell a passenger that the car is either stopping at or passing a floor served by the elevator.

.9 Security Lockout Key switches to disable activation of hall

buttons.

PART 3- EXECUTION

3.1 Manufacturer's Instructions

.1 Compliance: Comply with manufacturer=s written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions, and data sheet.

3.2 Preparation

.1 Take field dimensions and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Do not proceed with work until unsatisfactory conditions are corrected.

3.3 Installation

.1 Installation of all elevator components except as specifically provided for elsewhere by others.

3.4 Site Tests

.1 Perform and meet tests required by CAN/CSA-B44.

.2 Supply instruments and execute specific tests.

.3 Furnish test and approval certificates issued by jurisdictional authorities.

3.5 Cleaning

.1 Remove protective coverings from finished surfaces and components.

.2 Clean surfaces and components ready for inspection.

3.6 Adjustments

.1 The elevator contractor shall make a final check of each elevator operation with the Owner or Owner's representative

present prior to turning each elevator over for use. The elevator contractor shall determine that control systems and operating devices are functioning properly.

.2 Adjust door opening and closing times to suit handicapped users in accordance with Engineer's instructions.

.3 Adjust control system to cause elevators to answer hall calls during working day within performance criteria specified.

.4 Adjust for smooth acceleration and deceleration of car as so not to cause passenger discomfort.

.5 Adjust automatic floor levelling feature at each floor.

END OF SECTION

KING'S ROAD PS
ACCESSIBILITY UPGRADES

660 GREENWOOD DRIVE,

BURLINGTON, ONTARIO L7T 3P3

GENERAL NOTES:

1. MAKE GOOD: RESTORE ALL SURFACES, FINISHES, AND BUILDING ELEMENTS DISTURBED OR DAMAGED BY THE WORK TO MATCH ADJACENT EXISTING CONDITIONS, UNLESS OTHERWISE SPECIFIED. WORK SHALL INCLUDE PATCHING, REPAIRING, REPLACING, AND REFINISHING MATERIALS TO ACHIEVE A UNIFORM AND SEAMLESS APPEARANCE.
2. VERIFY ALL DIMENSIONS AND EXISTING SITE CONDITIONS. REPORT ANY DISCREPANCIES TO ARCHITECT BEFORE PROCEEDING WITH THE WORK.
3. REPORT TO ARCHITECT AT LEAST THREE WORKING DAYS PRIOR TO CONSTRUCTION ALL DISCREPANCIES, OMISSIONS, ERRORS, DEPARTURES FROM BUILDING BY-LAWS, O.B.C., OR GOOD PRACTICE AND POINTS CONSIDERED TO BE OF AMBIGUOUS INTENT, SO THAT THE ARCHITECT MAY, IF NECESSARY, ISSUE INSTRUCTIONS BY ADDENDA. THE ARCHITECT WILL NOT BE RESPONSIBLE FOR ORAL INSTRUCTIONS.
4. DO NOT SCALE DRAWINGS.
5. EXTEND, MAKE GOOD, REPAIR AND CLEAN EXISTING SUBSTRATES, FINISHES, AND COMPONENTS AS REQUIRED TO MATCH EXISTING. PROVIDE ADDITIONAL MATERIALS AND COMPONENTS AS REQUIRED. MAINTAIN CONTINUITY TO EXISTING WORK, FLUSH, PLUMB AND IN ALIGNMENT, AND WITHOUT DETRIMENTS TO VISUAL APPEARANCE. MATCH EXISTING MATERIALS AND METHODS. VARIATIONS WILL BE ACCEPTED BY ARCHITECT'S WRITTEN AUTHORIZATION ONLY, AND WHERE AUTHORIZED MUST MEET OR EXCEED QUALITY AND PERFORMANCE OF EXISTING.
6. PROTECT EXISTING WORK AND ASSEMBLIES TO REMAIN. SHORE AND BRACE AS REQUIRED. BE RESPONSIBLE FOR REPAIRS, MAKING GOOD AND CLEANING IN EVENT PROTECTION IS NOT ADEQUATE.
7. PROTECT PUBLIC AND OTHER PRIVATE PROPERTY BEYOND IMMEDIATE WORK AREA. CONTRACTOR TO HOLD OWNER HARMLESS AGAINST ALL CLAIMS ASSOCIATED WITH THIS WORK.
8. MAINTAIN CONTINUITY OF ALL EXISTING FIRE SEPARATIONS, ASSEMBLIES, AND PROTECTIVE CLADDING.
9. ALL WORK IS TO BE PROVIDED AS COMPLETE, OPERATING SYSTEMS EXCEPT AS NOTED.
10. PREPARE ALL EXISTING SUBSTRATES TO RECEIVE NEW FINISHES AS REQUIRED ACCORDING TO RECOMMENDATIONS OF MANUFACTURER OF NEW FINISH MATERIALS.
11. PROVIDE PURPOSE-MADE ALUMINUM REDUCING STRIPS AT ALL DISSIMILAR FLOOR FINISH MATERIALS, INCLUDING JUNCTION OF EXISTING MATERIALS TO NEW MATERIALS. SUBMIT SAMPLES TO ARCHITECT FOR APPROVAL.
12. MOVE MATERIALS AND DEBRIS FROM IMMEDIATE WORK AREA TO EXTERIOR RUBBISH BINS IN CLOSED DUST-TIGHT CONTAINERS. LOCATE BINS TO APPROVAL OF OWNER.
13. CO-ORDINATE AND PAY FOR ALL CHARGES AND FEES ASSOCIATED WITH THE WORK TO BE PERFORMED AS LEVIED BY THE AUTHORITIES HAVING JURISDICTION. PROCURE ALL ENCROACHMENT AGREEMENTS AS REQUIRED TO PERMIT WORK TO BE PERFORMED.
14. PROVIDE DUST-TIGHT CONSTRUCTION HOARDING TO ISOLATE WORK AREA. SUBMIT SHOP DRAWINGS.
15. PERFORM ALL SITE PREPARATIONS AND DEMOLITIONS AS REQUIRED TO PERMIT WORK TO COMMENCE AND BE ACCOMMODATED.
16. THE SCHEDULE AND SEQUENCE OF THE WORK WILL BE SUBJECT TO THE APPROVAL OF THE OWNER. THE OWNER INTENDS TO OCCUPY AND OPERATE IN THE PREMISES DURING CONSTRUCTION.
17. PROVIDE ACCESS TO ALL CONTROL DEVICES AND MAINTAIN ACCESS TO ALL EXISTING CONTROL DEVICES WHICH ARE COVERED BY FINISHES. PROVIDE PRE-MANUFACTURED ACCESS PANELS TO SUIT. SUBMIT SAMPLES TO ARCHITECT FOR APPROVAL.
18. REMOVE ALL EXISTING INACTIVE AND ABANDONED MECHANICAL AND ELECTRICAL SERVICE LINES. MAKE GOOD.
19. CONFORM TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
20. MAINTAIN ACCESS TO EXITS AT ALL TIMES. PROVIDE ALTERNATE EXITS IN CONSULTATION WITH AND AT APPROVAL OF BUILDING OFFICIAL. PROVIDE TEMPORARY EXIT SIGNS AND ADJUST EXISTING EXIT SIGNS AS REQUIRED. AT COMPLETION OF WORK, REMOVE TEMPORARY SIGNS AND RESTORE SIGNAGE. MAKE GOOD.
21. ACCESS CEILING, WALL AND FLOOR ASSEMBLIES AS REQUIRED TO PERFORM WORK. MAKE GOOD TO MATCH EXISTING OR REMOVE ASSEMBLY AND REPLACE TO APPROVAL OF CONSULTANT.

1 — GENERAL NOTES N.T.S.

GRADING NOTES:

1. SLOPE FINISHED GRADE AWAY FROM BUILDING MINIMUM 2% UNLESS OTHERWISE NOTED. GRADE IS NOT TO SLOPE TOWARDS BUILDING UNDER ANY CIRCUMSTANCE.

2. CAREFULLY AND PROPERLY CUT AND TERMINATE EXISTING SITE FINISHES AS REQUIRED TO ACCOMMODATE WORK. SAWCUT ALL HARD FINISHES. MAKE GOOD SITE FINISHES TO MATCH EXISTING. SAWCUT WHERE EXISTING ASPHALT REQUIRES ADJUSTMENT. AT AREAS TO RECEIVE ASPHALT, EXCAVATE TO REMOVE ALL ORGANIC MATERIAL TO UNDISTURBED SOIL. PROOF ROLL EXISTING FILL ONLY AS DIRECTED BY SOILS REPORT

3. BLEND GRADING GENTLY BETWEEN WORK AND EXISTING SITE FINISHES TO SUIT CONDITIONS. SLOPE SODDED AREAS 1:3 MAXIMUM.

4. REVIEW GRADING PRIOR TO COMMENCEMENT OF WORK AND BRING TO ATTENTION OF CONSULTANT ANY DISCREPANCIES ENCOUNTERED.

5. UNLESS OTHERWISE NOTED, PROVIDE SOD ON TOPSOIL FOR SITE FINISH.

6. REMOVE FROM SITE AND LEGALLY DISPOSE OF ALL EXCESS EXCAVATED MATERIAL.

7. WHERE SUPPLEMENTAL MATERIAL IS REQUIRED TO ACHIEVE FINISHED GRADES AS SPECIFIED, USE COMPACTED GRANULAR MATERIAL IN ACCORDANCE WITH SPECIFICATIONS AND SOILS REPORT.

8. MAINTAIN EXISTING DRAINAGE PATTERN.

9. IN BUILDING FOOTPRINT AND BENEATH ALL SLABS ON GRADE AND HARD SITE FINISHES REMOVE ALL EXISTING SITE FINISHES, ORGANIC MATERIAL AND FILL TO UNDISTURBED SOIL. WHERE PERMITTED AS INDICATED IN GEOTECHNICAL REPORT, PROOF-ROLL EXPOSED SUBGRADE FILL WITH HEAVY SHEEP FOOT ROLLER. SUB-EXCAVATE SOFT AREAS AS ENCOUNTERED. PROVIDE SUBGRADE UPFILL OF APPROVED SUITABLE SELECTED ONSITE MATERIALS OR IMPORTED GRANULAR MATERIAL COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR MAXIMUM DRY DENSITY. REFER TO CHEMICAL ANALYSIS REPORT. GEOTECHNICAL ENGINEER TO MONITOR REMOVAL OF UNSUITABLE MATERIAL, PROOF-ROLLING OF SUBGRADE, AND UPFILLING OPERATION OF SUBGRADE.

TEMPORARY CONSTRUCTION EXITS:

BARRICADE AND PROVIDE DUST TIGHT HOARDING TO EXISTING BUILDING. ESTABLISH ALTERNATE EXITS DURING CONSTRUCTION THROUGH EXISTING DOORS TO EXTERIOR. PROVIDE EXIT SIGNS AS REQUIRED AND REMOVE AND MAKE GOOD AT COMPLETION OF WORK. MASK EXISTING SIGNS AS REQUIRED FOR TEMPORARY EXITS. REVIEW EXITING DURING CONSTRUCTION WITH LOCAL BUILDING DEPARTMENT PRIOR TO COMMENCEMENT OF CONSTRUCTION.

INFORMATION FOR THIS SITE PLAN TAKEN FROM DOCUMENTS PROVIDED BY THE HALTON DISTRICT SCHOOL BOARD

2 — SITE PLAN NOTES N.T.S.

Revisions

Ref.	No.	Description	Date	Initial
△		50% SUBMISSION	2026/02/20	
△		CONSULTANTS COORDINATION	2026/03/09	
△		CONSULTANTS COORDINATION	2026/03/27	
△		95% SUBMISSION	2026/04/23	
△		ISSUED FOR PERMIT & TENDER	2026/06/10	

Project:

KING'S ROAD PS
ACCESSIBILITY UPGRADES
660 GREENWOOD DRIVE
BURLINGTON, ON L7T 3P3

liu lim Architects inc.

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Vaughan, Ontario, Canada L4K 5K7
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ONTARIO ASSOCIATION OF ARCHITECTS
10-06-2026
MINGPENG LIU
LICENCE 9826

Consultant:

Title:

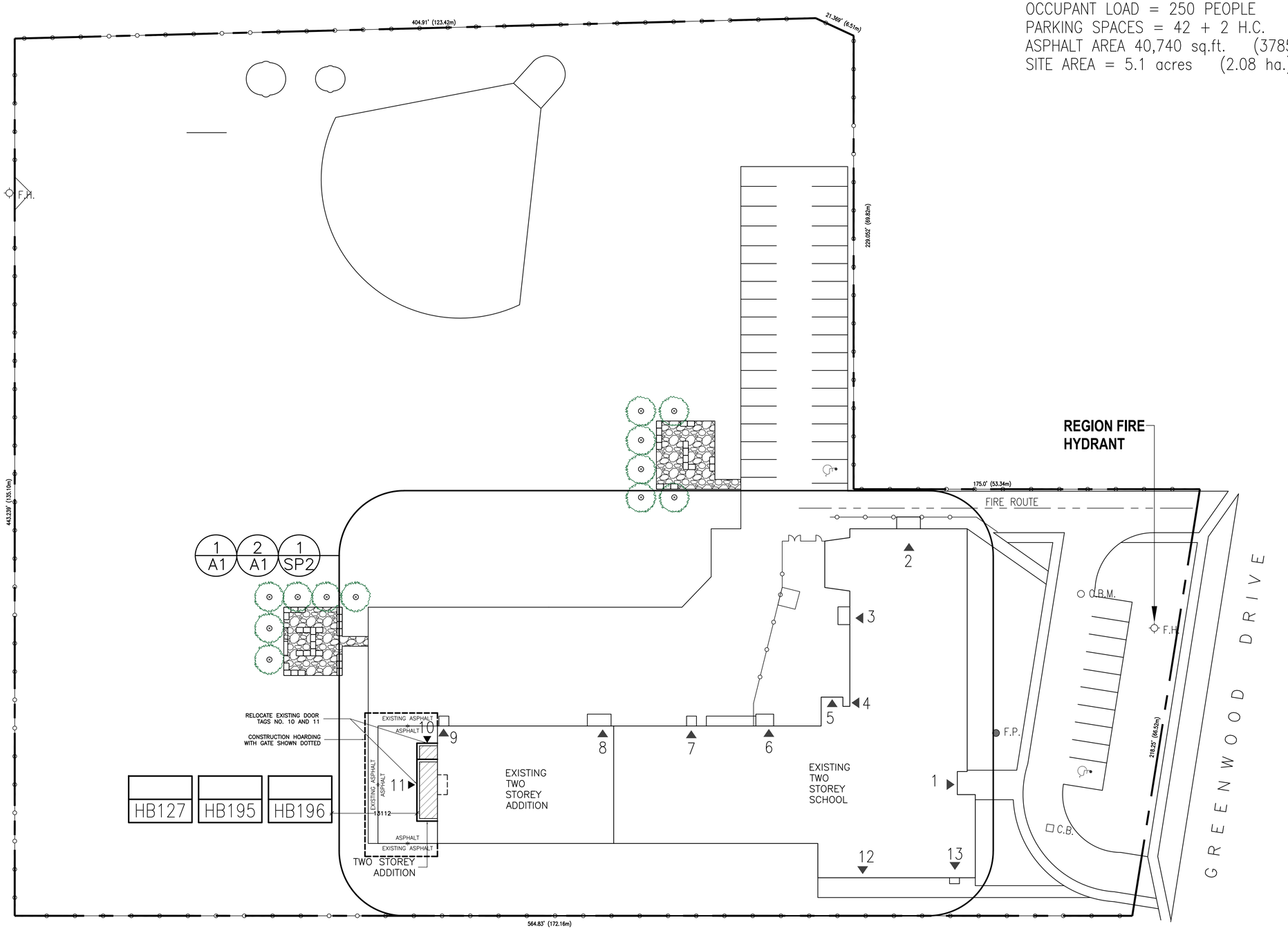
TITLE SHEET, GENERAL NOTES, SITE PLAN NOTES

Drawn by: C.C.	Date: OCTOBER 2025
Checked by: P.L.	Plotted:
Scale: AS SHOWN	Issued:
Job No.: 25115	Drawing No.: A0
Set No.:	of:

NOTE: SITE PLAN IS ROTATED

LEGAL DESCRIPTION: CON BF PT LOT 1, City of Burlington

OCCUPANT LOAD = 250 PEOPLE
PARKING SPACES = 42 + 2 H.C.
ASPHALT AREA 40,740 sq.ft. (3785m)
SITE AREA = 5.1 acres (2.08 ha.)



1 SITE PLAN

1:300

Revisions

Ref.	No.	Description	Date	Initial
△		CONSULTANTS COORDINATION	2025/11/24	
△		CLIENTS REVIEW	2025/11/24	
△		CLIENTS REVIEW	2026/01/20	
△		CONSULTANTS COORDINATION	2026/01/21	
△		50% SUBMISSION	2026/02/20	
△		CONSULTANTS COORDINATION	2026/03/09	
△		CONSULTANTS COORDINATION	2026/03/27	
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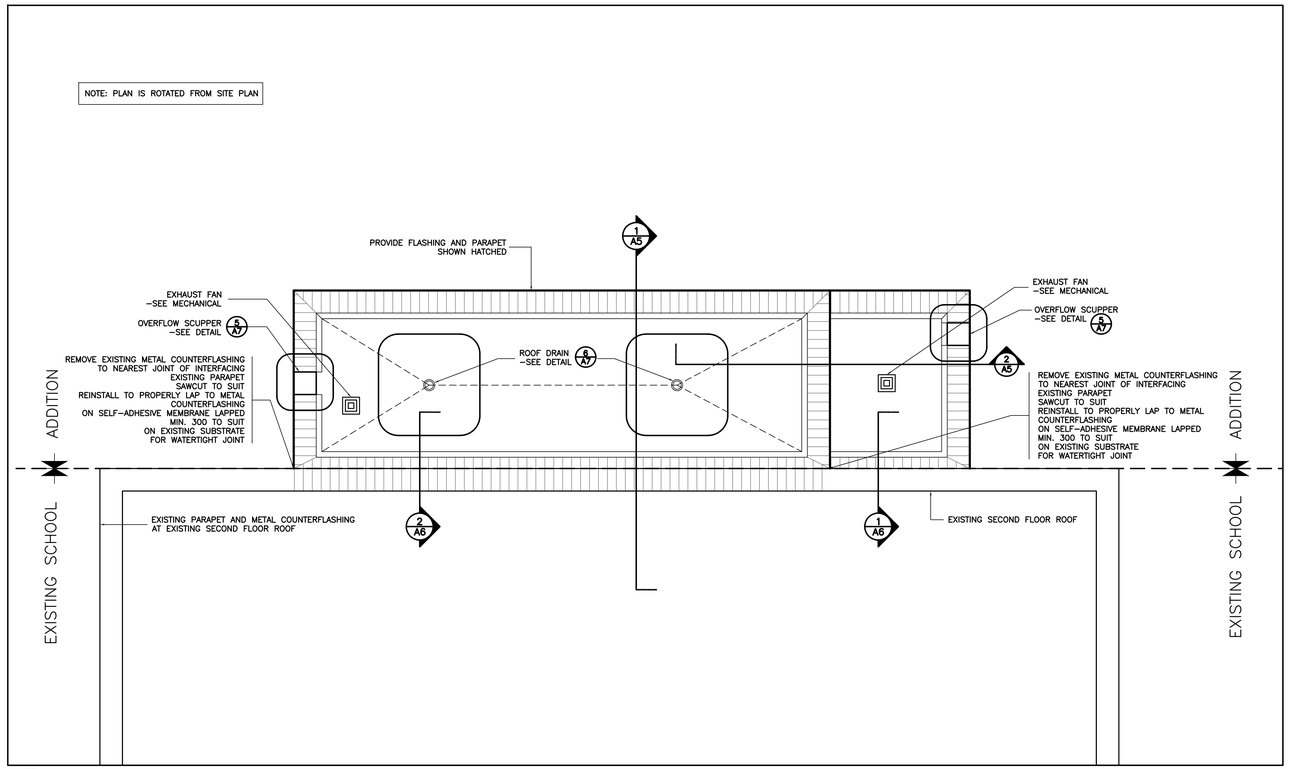
ONTARIO ASSOCIATION OF ARCHITECTS
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Consultant:

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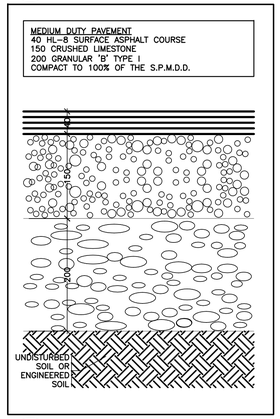
SITE PLAN

Drawn by: C.C.	Date: OCTOBER 2025
Checked by: P.L.	Plotted:
Scale: 1:300	Issued:
Job No.: 25115	Drawing No.: SP1
Set No.:	of:



1 SP1 ROOF PLAN

1:50



2 SP1 ASPHALT DETAIL

1:5

Revisions

Ref.	No.	Description	Date	Initial
△		50% SUBMISSION	2026/02/20	
△		CONSULTANTS COORDINATION	2026/03/09	
△		CONSULTANTS COORDINATION	2026/03/27	
△		95% SUBMISSION	2026/04/23	
△		ISSUED FOR PERMIT & TENDER	2026/06/10	

Project:

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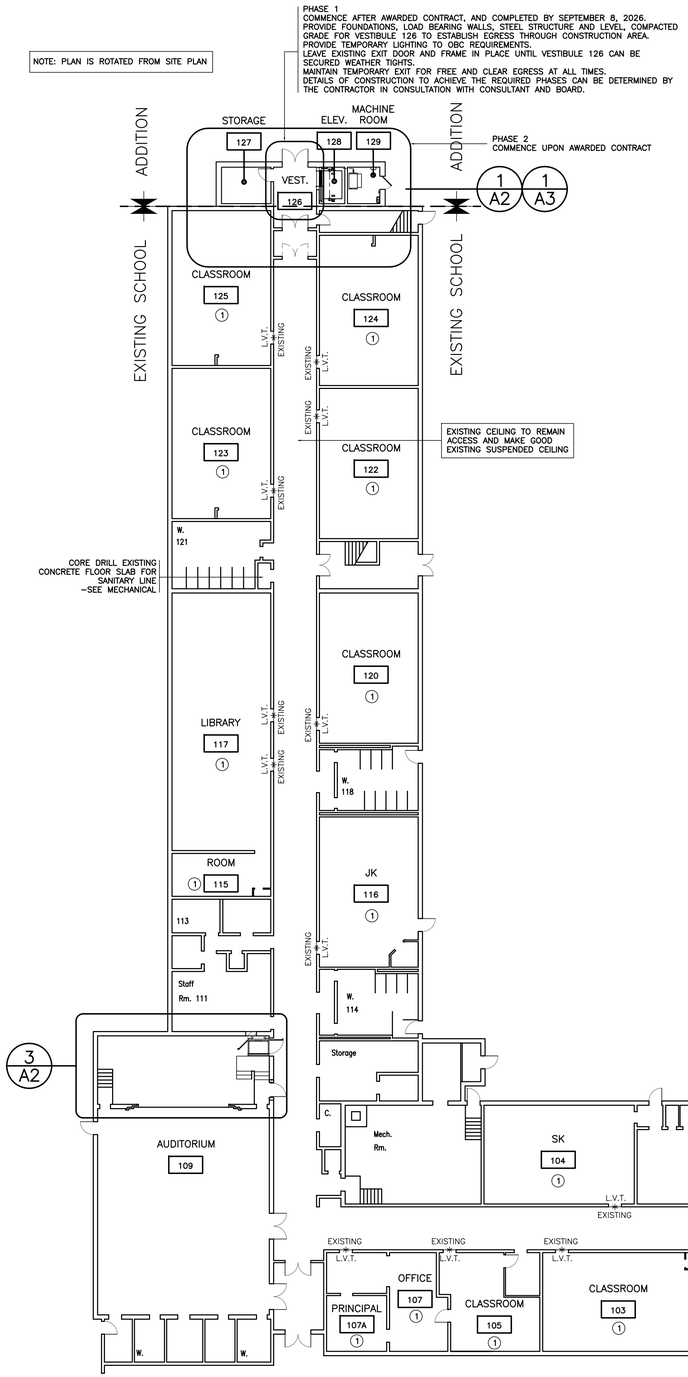
ONTARIO ASSOCIATION OF ARCHITECTS
10-06-2026
MINGPENG LIU
LICENCE
9826

Consultant:

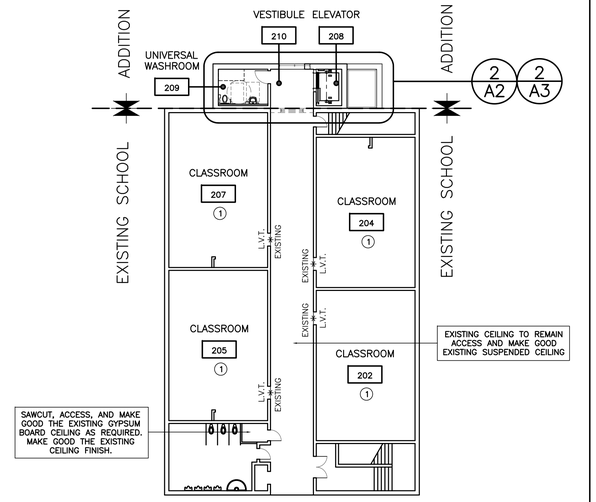
Title:

ROOF PLAN, SITE DETAIL

Drawn by:	Date:
C.C.	OCTOBER 2025
Checked by: P.L.	Plotted:
Scale: AS SHOWN	Issued:
Job No.: 25115	Drawing No.: SP2
Set No.:	of:



1 SP1 GROUND FLOOR KEY PLAN 1:200



2 SP1 SECOND FLOOR KEY PLAN 1:200

WALL TYPES:

EXISTING TO REMAIN

DEMOLISH EXISTING WALL AS SHOWN DOTTED. MAKE GOOD.
RELOCATE EXISTING SERVICES AS REQUIRED.
CAP AND MAKE SAFE ALL SERVICE LINES.
SEE MECHANICAL AND ELECTRICAL.

EXTERIOR WALL TYPE E1
90 FACE BRICK
25 AIR SPACE
75 RIGID INSULATION
AIR/V.B. MEMBRANE
190 CONCRETE BLOCK

INTERIOR WALL TYPE P1
190 CONCRETE BLOCK
WITH 2HR FIRE RATING

INTERIOR WALL TYPE P2
190 CONCRETE BLOCK
WITH 1HR FIRE RATING

FURRING WALL TYPE F1:
16 IMPACT RESISTANT GYPSUM BOARD
ON 89 METAL STUDS @ 400 O.C. MAX.
ON MASONRY WALL
FROM FLOOR TO 150 ABOVE EXISTING CEILING
PROVIDE WOOD BLOCKING BEHIND ALL LOCATIONS AS REQUIRED

AT EXISTING PARTITION TO BE DEMOLISHED:

SAWCUT AND MAKE GOOD AT TERMINATIONS WITH MIN. 200 CAP OF SIMILAR MATERIAL TO MATCH EXISTING
MAKE GOOD EXISTING CEILING, FLOOR AND WALL BASE TO MATCH EXISTING

AT PERPENDICULAR WALL JUNCTIONS, GRIND SMOOTH AS REQUIRED
REMOVE METAL TIES AS REQUIRED AND MAKE GOOD
PAINT ENTIRE AFFECTED WALL PLANES

REMOVE EXISTING WALL MOUNTED EQUIPMENT
RELOCATE AS DIRECTED ON SITE OR TURN OVER TO SCHOOL

LEGEND:

XX MILLWORK TYPE
XXX DOOR NO. XXX
XXX ROOM NO. XXX
PARTITION TYPE XXX
ELEV. ELEVATION A, ELEVATION B, ELEVATION C, ELEVATION D, DRAWING NO. XXX
DETAIL DETAIL NO. XXX/REFERENCE DRAWING YYY
SECTION SECTION NO. XX/REFERENCE DRAWING YYY
LIMIT OF FLOOR FINISH

3 — LEGEND NTS

1 REMOVE AND DEMOLISH EXISTING FLOORING AND WALL BASE
CLEAN AND STRIP SUBSTRATE OF RESIDUAL SEALANT
PROVIDE L.V.T. FLOORING AND RUBBER BASE

4 — NOTES LEGEND N.T.S.

Revisions

Ref.	No.	Description	Date	Initial
1		CONSULTANTS COORDINATION	2025/11/24	
2		CLIENTS REVIEW	2025/11/24	
3		CLIENTS REVIEW	2026/01/20	
4		CONSULTANTS COORDINATION	2026/01/21	
5		50% SUBMISSION	2026/02/20	
6		CONSULTANTS COORDINATION	2026/03/09	
7		CONSULTANTS COORDINATION	2026/03/27	
8		95% SUBMISSION	2026/04/23	
9		ISSUED FOR PERMIT & TENDER	2026/06/10	

Project:

KING'S ROAD PS
ACCESSIBILITY UPGRADES
660 GREENWOOD DRIVE
BURLINGTON, ON L7T 3P3

Liu Lim Architects inc.
82 Bellagio Crescent
Vaughan, Ontario, Canada L4K 5K7
Tel:(905)303-6606 Fax:(905)303-6636

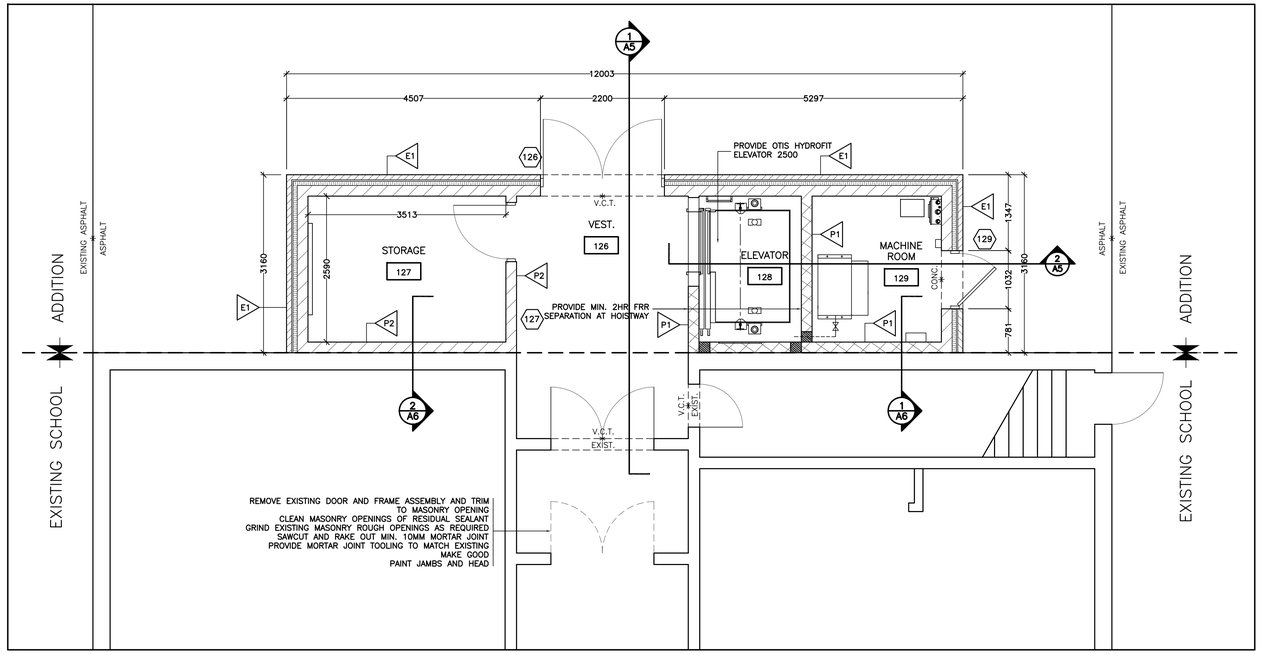
ONTARIO ASSOCIATION OF ARCHITECTS
10-06-2026
MINGPENG LIU
LICENCE
9826

Consultant:

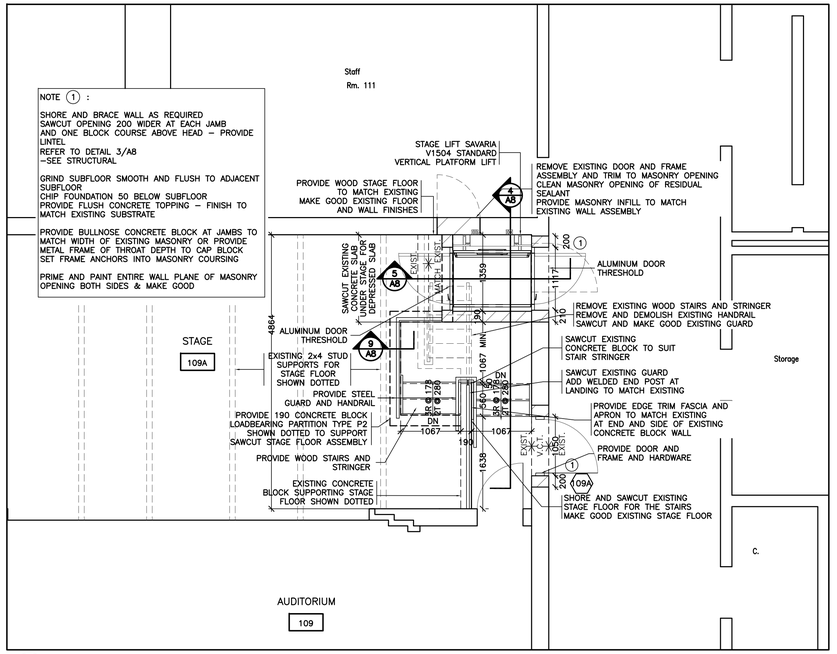
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GROUND & SECOND FLOOR KEY PLANS, LEGENDS

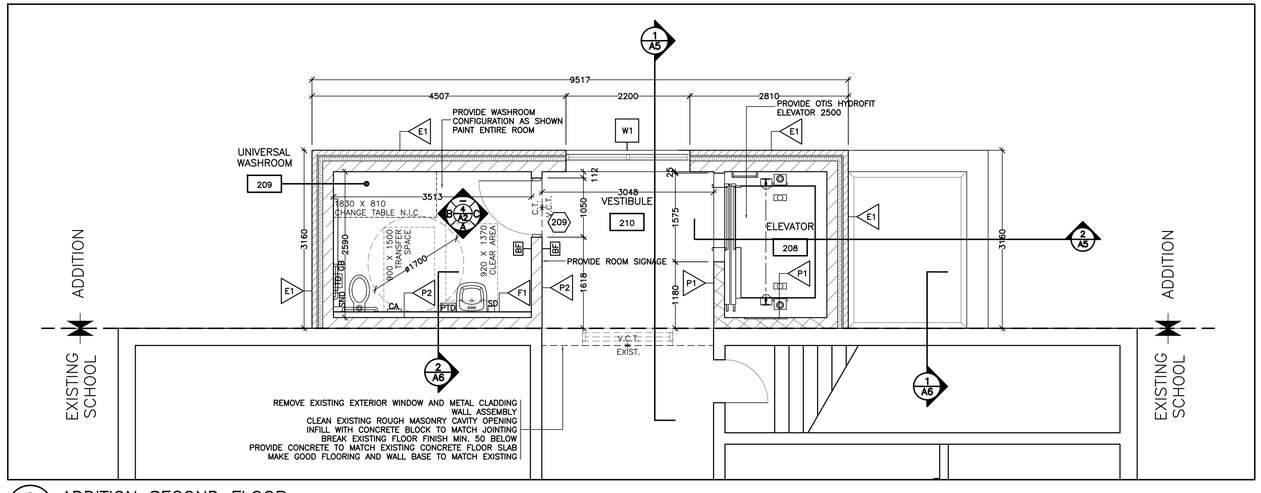
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Checked by: P.L.	Plotted:
Scale: 1:200	Issued:
Job No.: 25115	Drawing No.: A1
Set No.:	of:



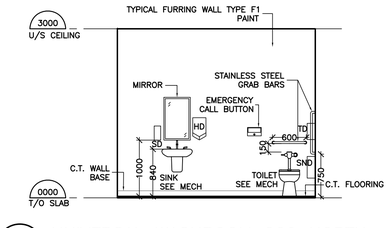
1 A1 ADDITION GROUND FLOOR ENLARGED PLAN 1:50



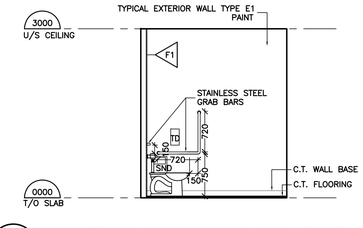
3 A1 STAGE LIFT ENLARGED PLAN 1:50



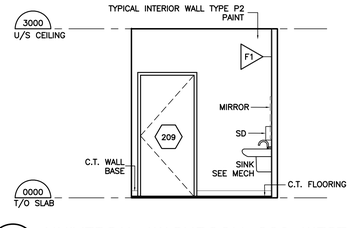
2 A1 ADDITION SECOND FLOOR ENLARGED PLAN 1:50



A – UNIVERSAL WASHROOM 209 NORTH ELEVATION 1:50



B – UNIVERSAL WASHROOM 209 EAST ELEVATION 1:50



C – UNIVERSAL WASHROOM 209 WEST ELEVATION 1:50

4 A2 UNIVERSAL WASHROOM 209 INTERIOR ELEVATIONS 1:50

Revisions

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△		CLIENTS REVIEW	2026/01/20	
△		CONSULTANTS COORDINATION	2026/01/21	
△		50% SUBMISSION	2026/02/20	
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△		CONSULTANTS COORDINATION	2026/03/27	
△		CONSULTANTS COORDINATION	2026/04/07	
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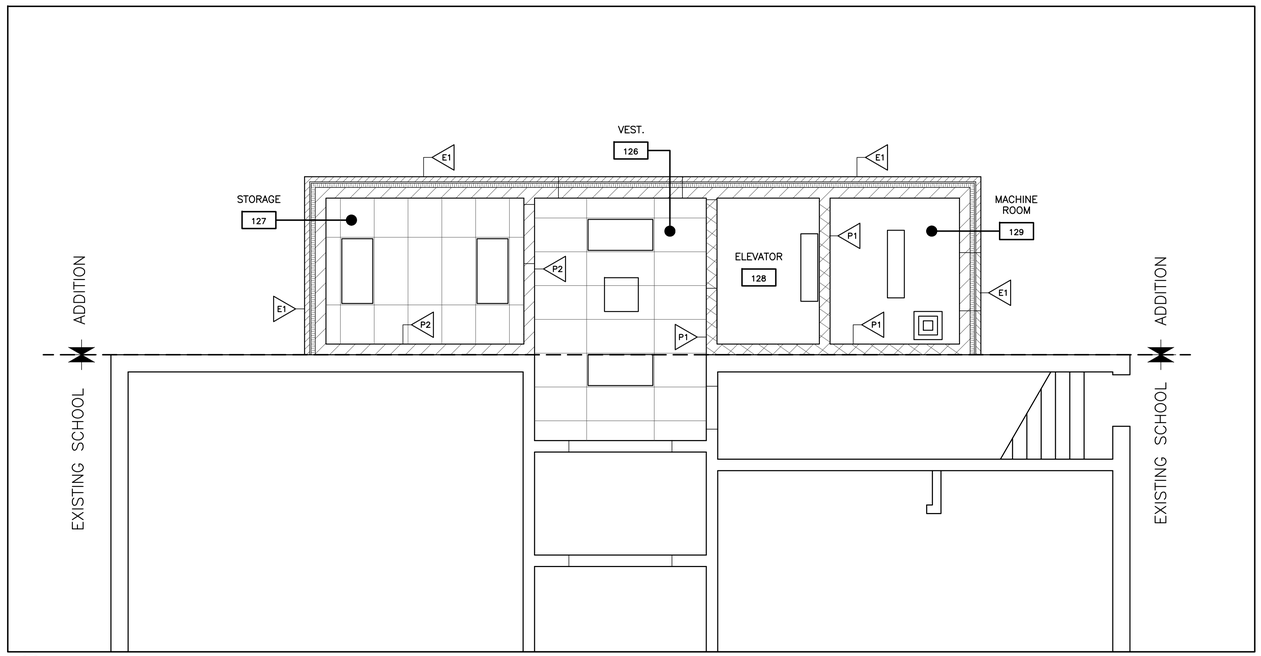
ONTARIO ASSOCIATION OF ARCHITECTS
10-06-2026
MINGPENG LIU
LICENCE 9826

Consultant:

Title:

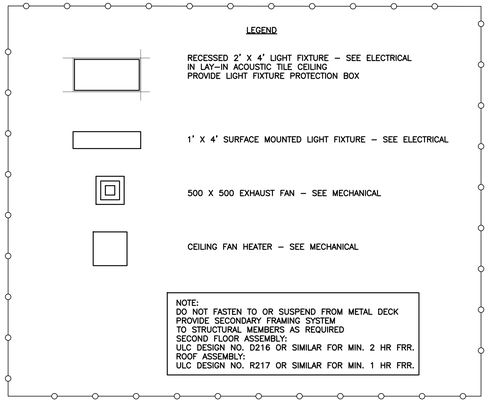
ENLARGED GROUND FLOOR AND SECOND FLOOR PLANS AND INTERIOR ELEVATIONS

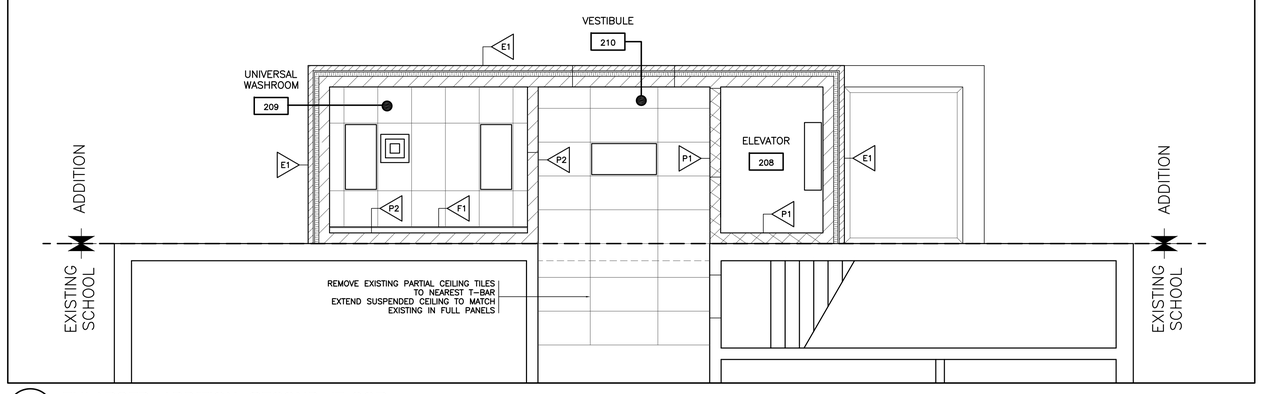
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Checked by: P.L.	Plotted:
Scale: 1:50	Issued:
Job No.: 25115	Drawing No.: A2
Set No.:	of:



1 A1 ENLARGED ADDITION GROUND FLOOR REFLECTED CEILING PLAN

1:50





2 A1 ENLARGED ADDITION SECOND FLOOR REFLECTED CEILING PLAN

1:50

Revisions

Ref.	No.	Description	Date	Initial
△		CONSULTANTS COORDINATION	2026/01/21	
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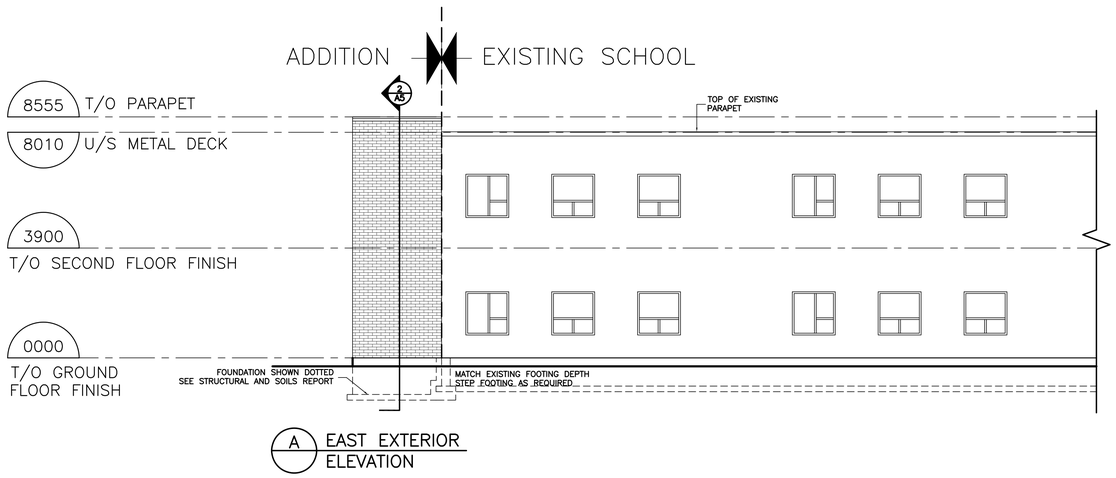
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10-06-2026
MINGPENG LIU
LICENCE
9826

Consultant:

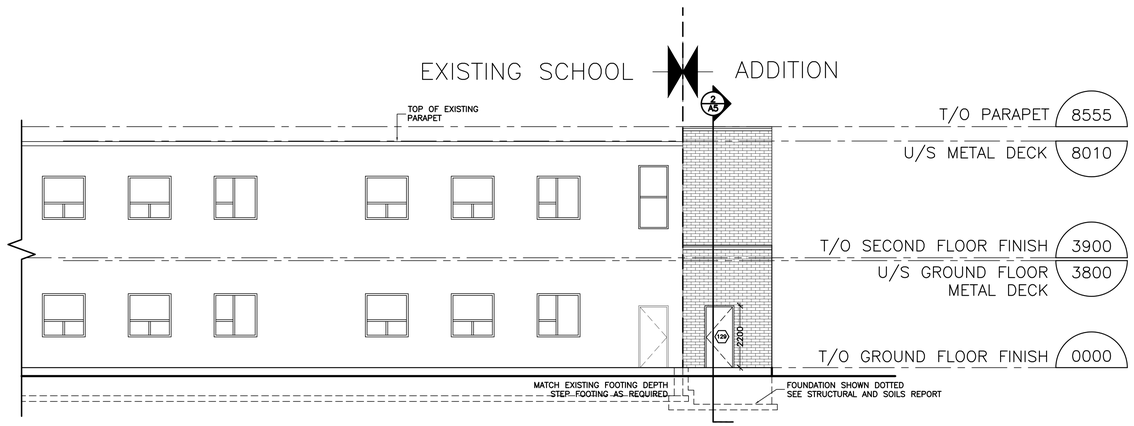
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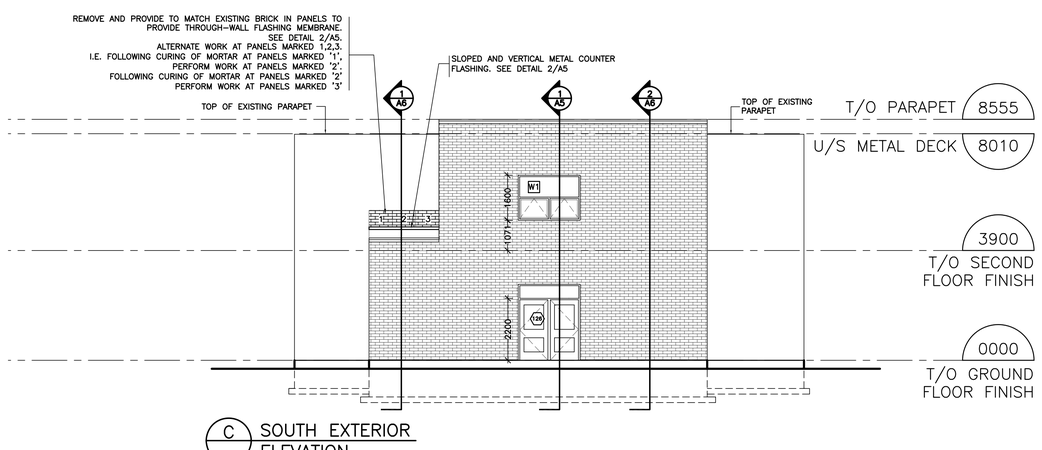
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C.C.	OCTOBER 2025
Checked by: P.L.	Plotted:
Scale: 1:50	Issued:
Job No.: 25115	Drawing No.: A3
Set No.:	of:



A EAST EXTERIOR ELEVATION



B WEST EXTERIOR ELEVATION



C SOUTH EXTERIOR ELEVATION

1 / A2 EXTERIOR ELEVATIONS

1:100

Revisions

Ref.	No.	Description	Date	Initial
△		50% SUBMISSION	2026/02/20	
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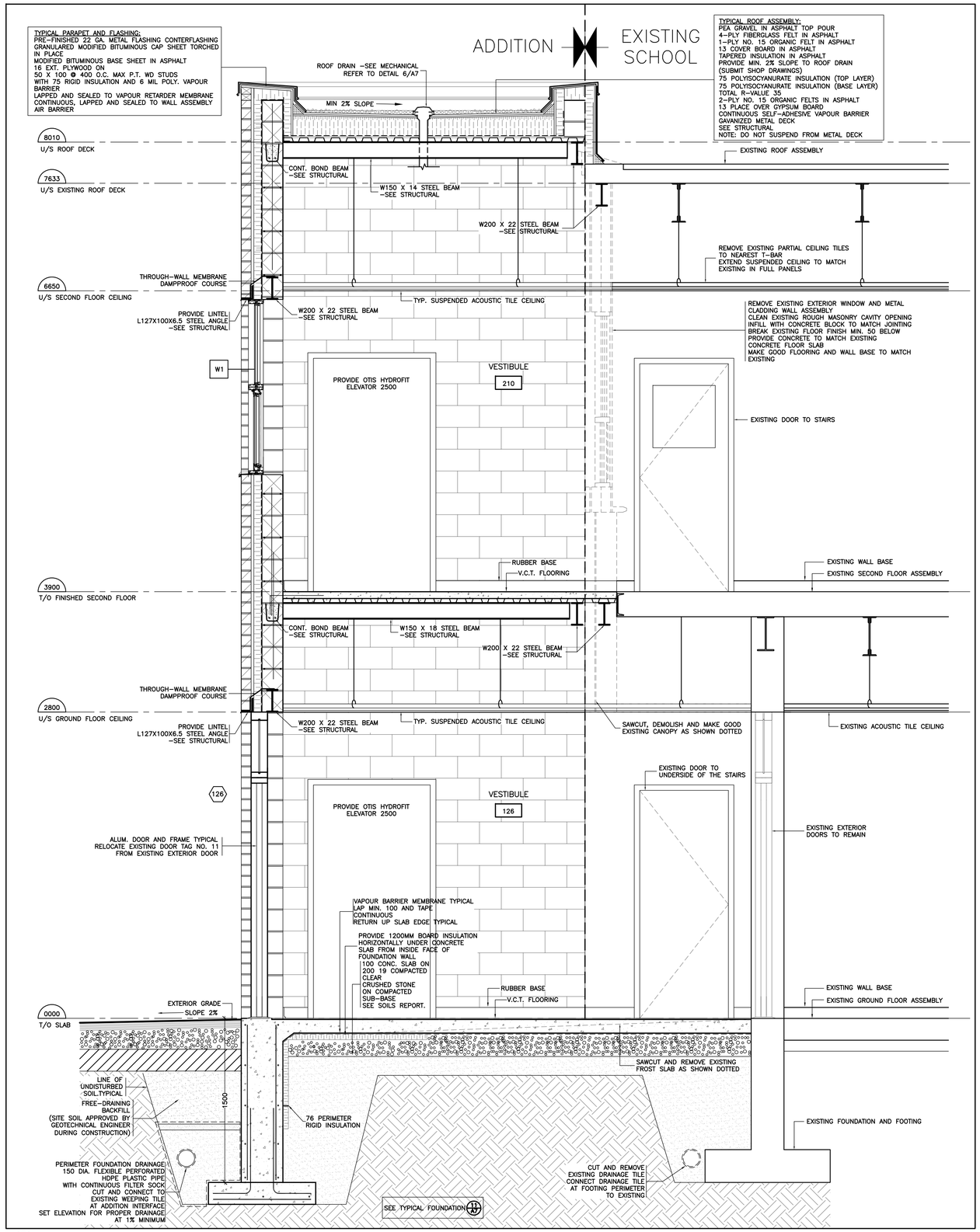
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MINGPENG LIU
LICENCE
9826

Consultant:

Title:

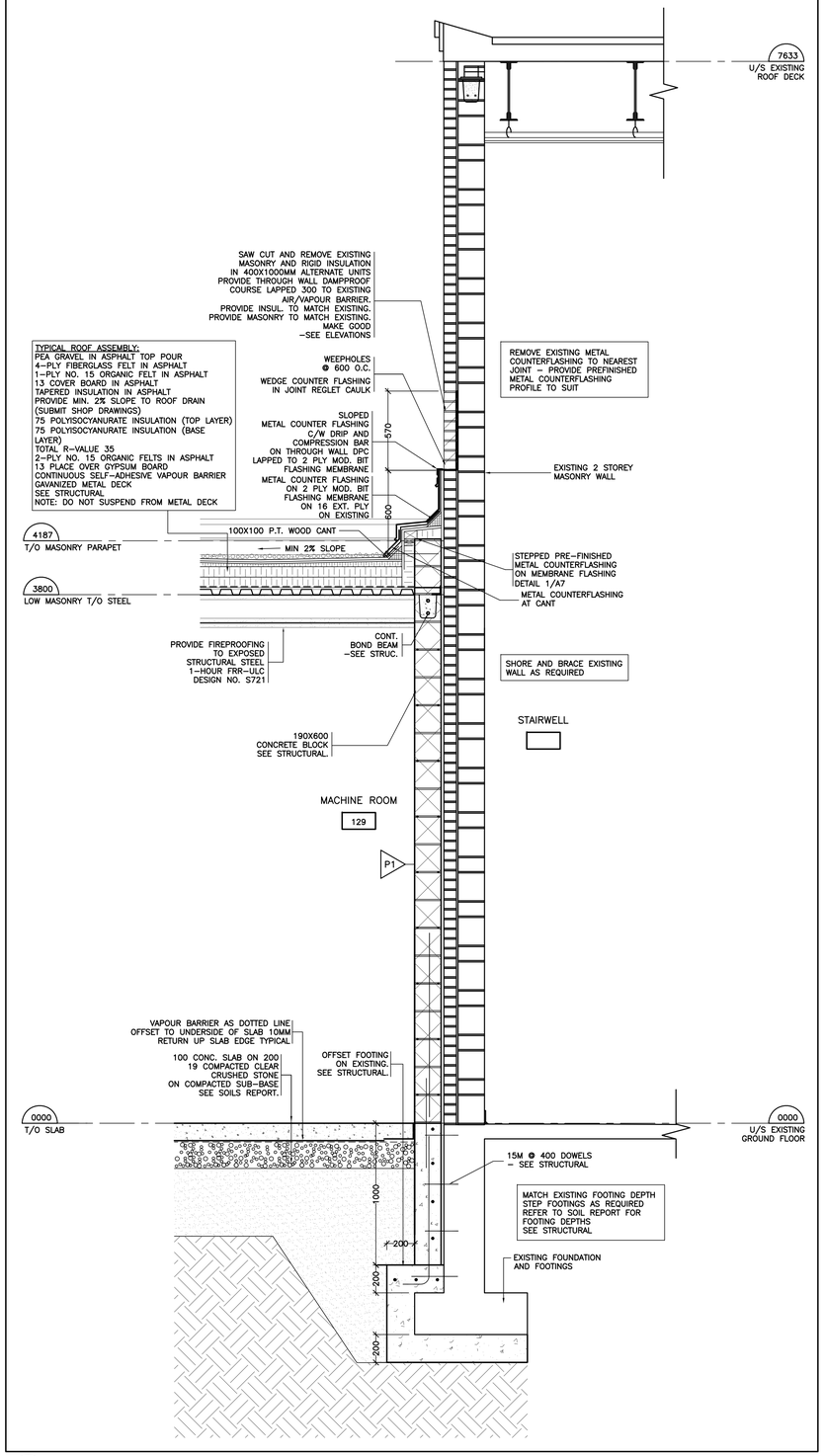
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Checked by: P.L.	Plotted:
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Job No.: 25115	Drawing No.: A4
Set No.:	of:



1 A2 VESTIBULE 126 & 210 AT EXISTING SOUTH ENTRANCE SECTION

1:20



2 A2 WALL TO EXISTING WALL SECTION

1:20

Revisions

Ref.	No.	Description	Date	Initial
△		50% SUBMISSION	2026/02/20	
△		CONSULTANTS COORDINATION	2026/03/09	
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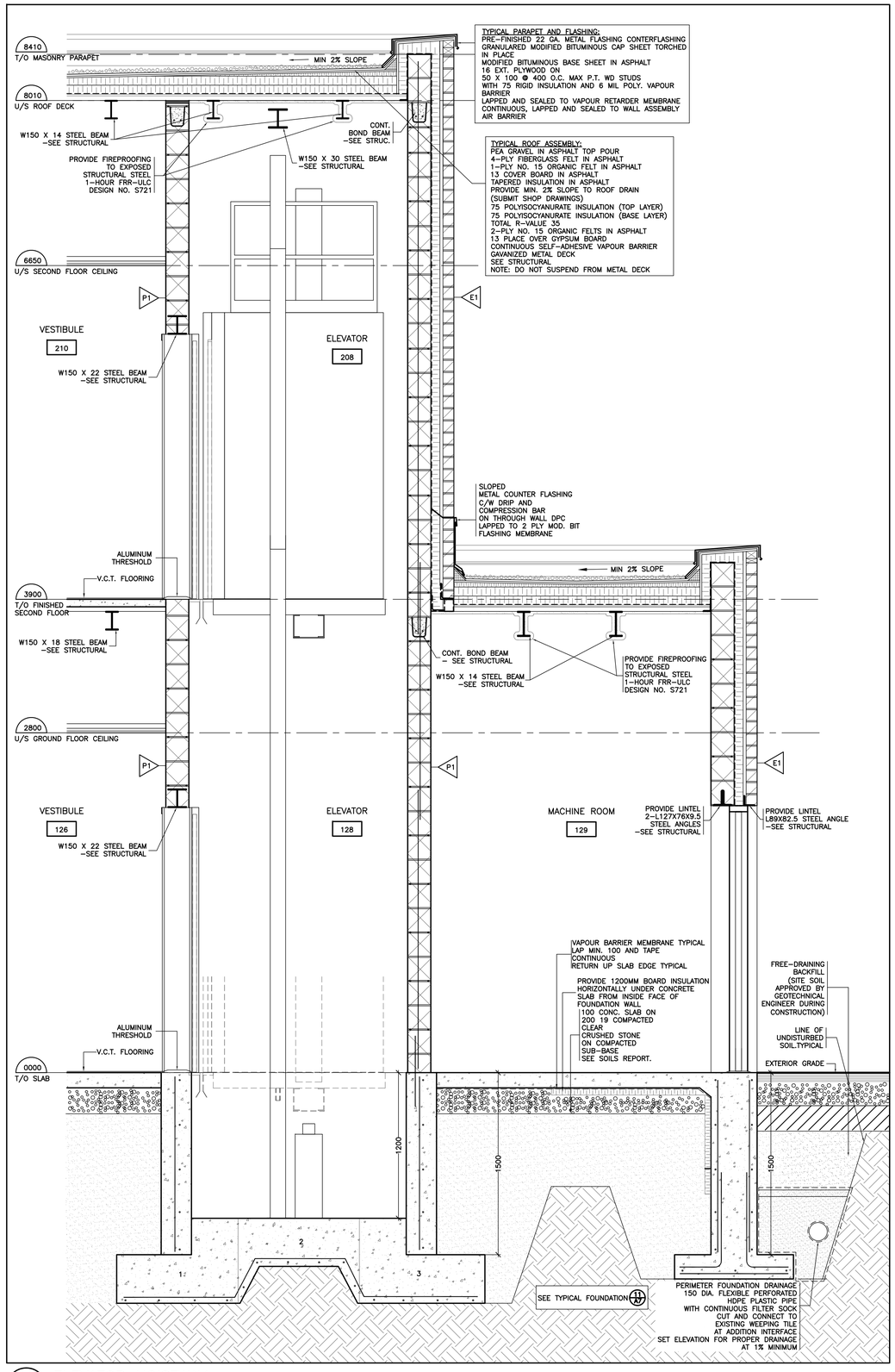
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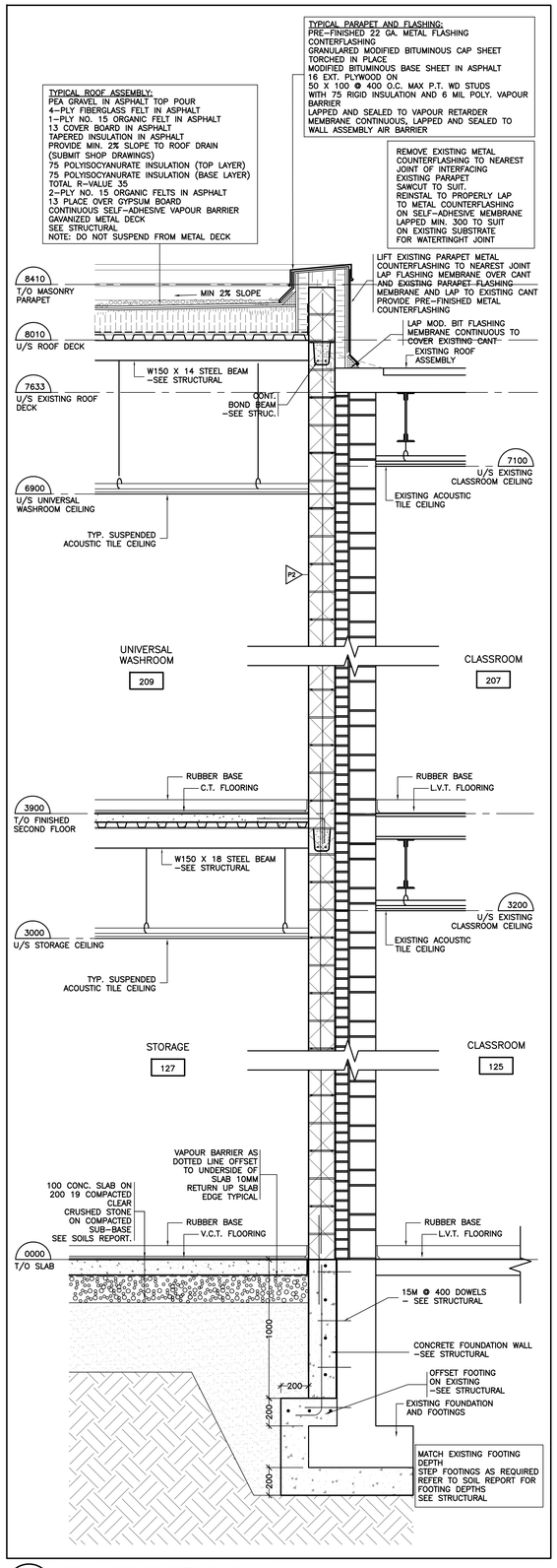
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SECTIONS AND DETAILS

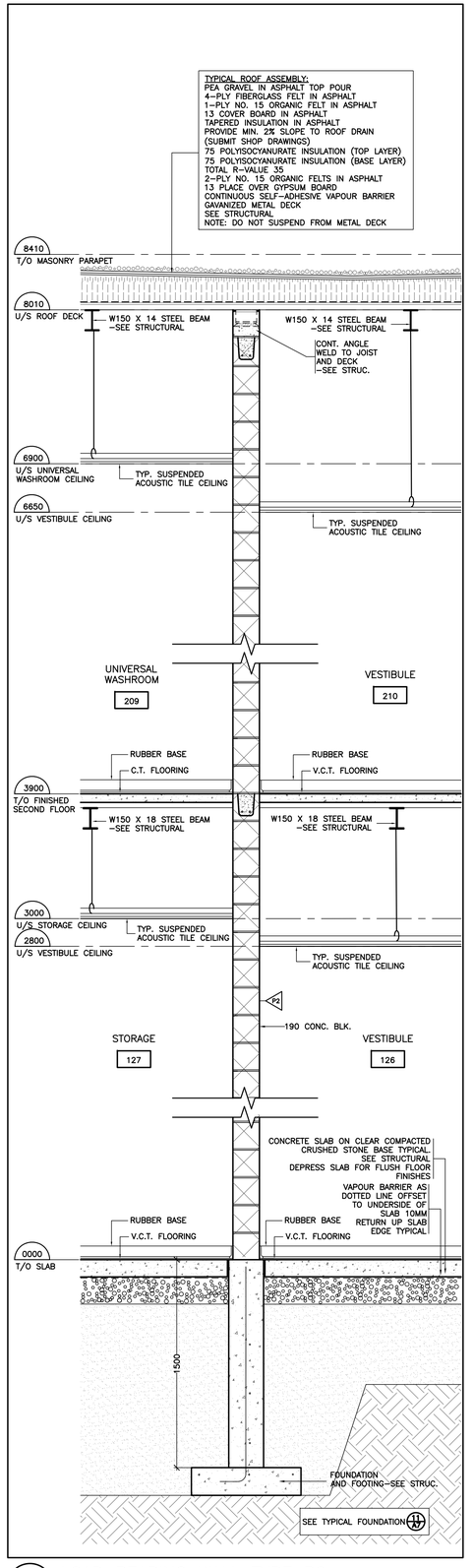
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Checked by: P.L.	Plotted:
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Job No.: 25115	Drawing No.: A5
Set No.:	of:



1 / A2 ELEVATOR HOISTWAY SECTION 1:20



2 / A1 WALL TO EXISTING WALL SECTION 1:20



3 / A2 LOAD BEARING WALL TYPE P2 TYPICAL SECTION 1:20

Revisions

Ref.	No.	Description	Date	Initial
△		50% SUBMISSION	2026/02/20	
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△		CONSULTANTS COORDINATION	2026/03/27	
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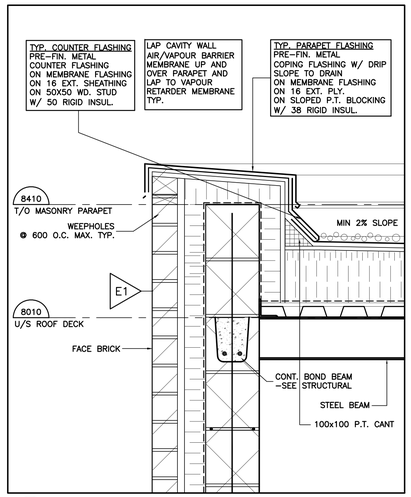
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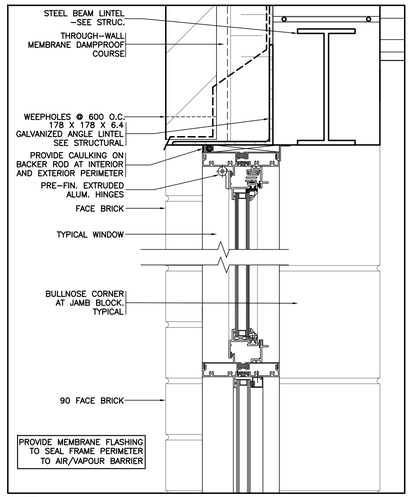
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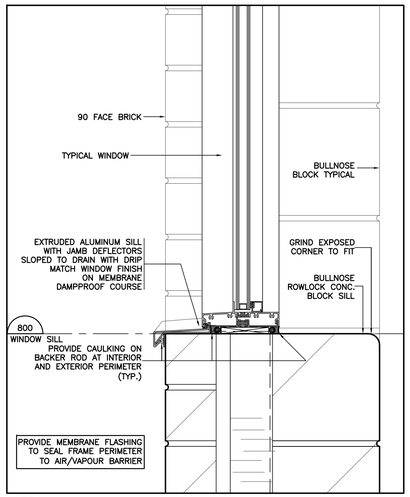
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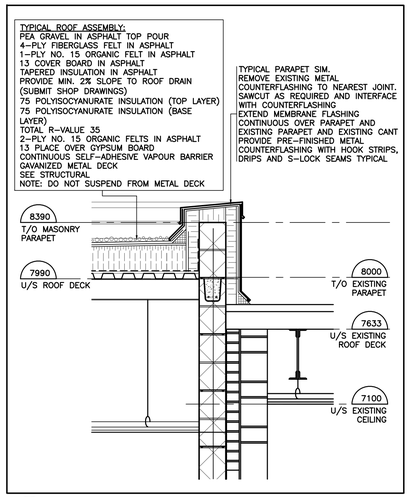
1 — TYPICAL PARAPET SECTION DETAIL 1:10



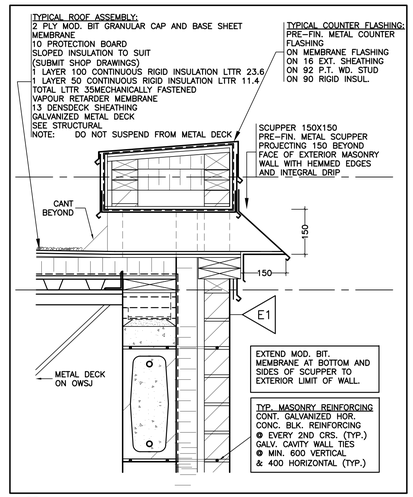
2 — TYPICAL WINDOW AT MASONRY SECTION DETAIL 1:5



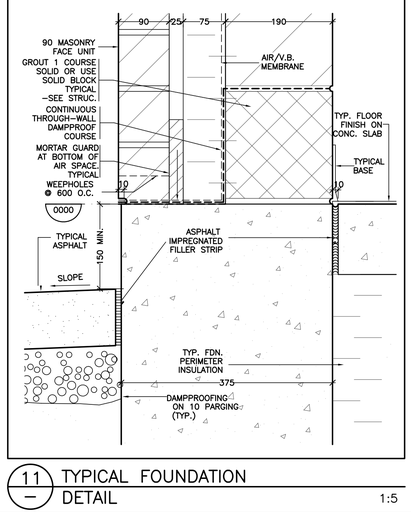
3 — TYPICAL WINDOW SILL AT MASONRY SECTION DETAIL 1:5



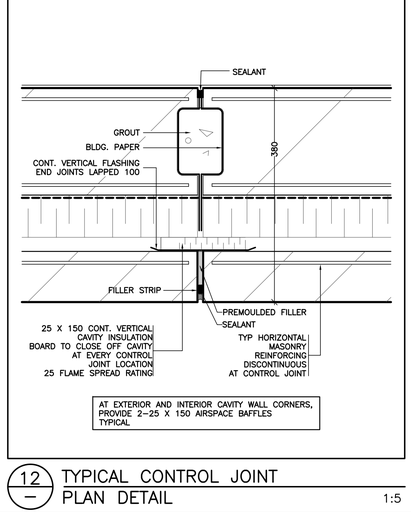
4 A1 — WALL TO EXISTING WALL PARAPET SECTION 1:20



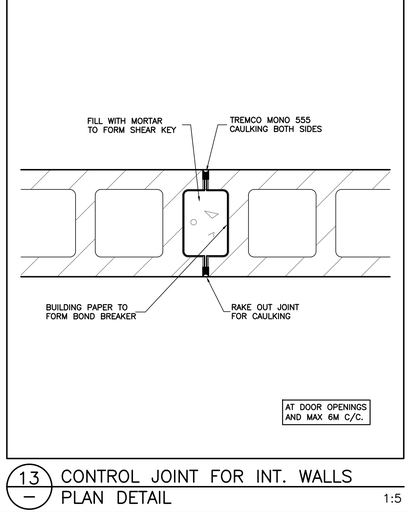
5 — TYPICAL SCUPPER DETAIL 1:10



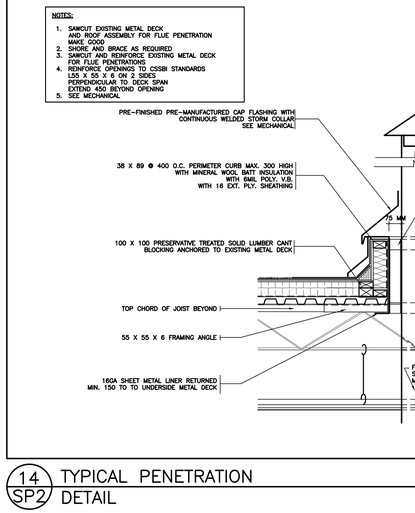
6 — TYPICAL ROOF DRAIN DETAIL 1:5



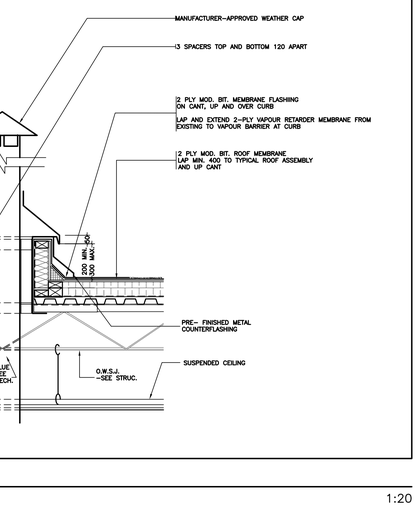
7 — TYPICAL INTERIOR DOOR HEAD SECTION 1:5



8 — TYPICAL EXTERIOR THRESHOLD SECTION 1:5



9 — DOOR JAMB AT CAVITY WALL PLAN DETAIL 1:5

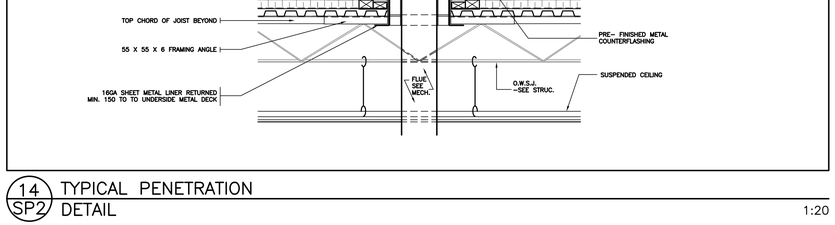


10 — WINDOW JAMB AT MASONRY PLAN DETAIL 1:5

11 — TYPICAL FOUNDATION DETAIL 1:5

12 — TYPICAL CONTROL JOINT PLAN DETAIL 1:5

13 — CONTROL JOINT FOR INT. WALLS PLAN DETAIL 1:5



14 SP2 — TYPICAL PENETRATION DETAIL 1:20

Revisions

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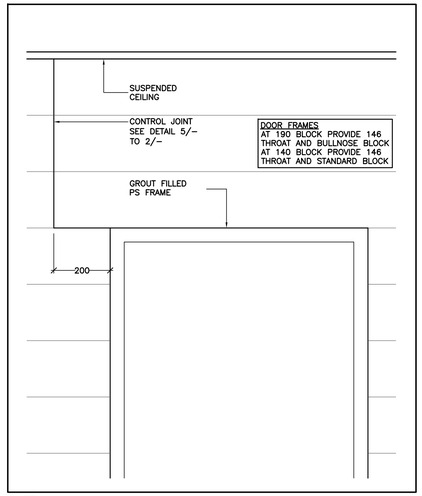
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10-06-2026
MINGPENG LIU
LICENCE
9826

Consultant:

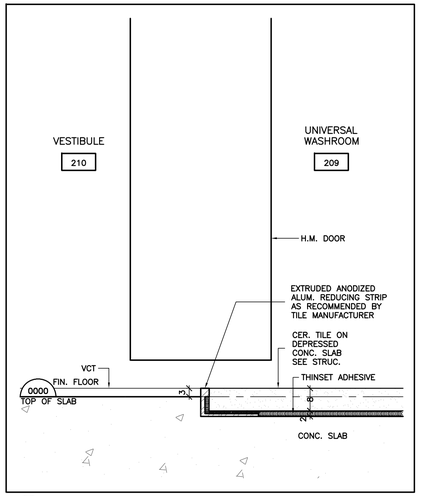
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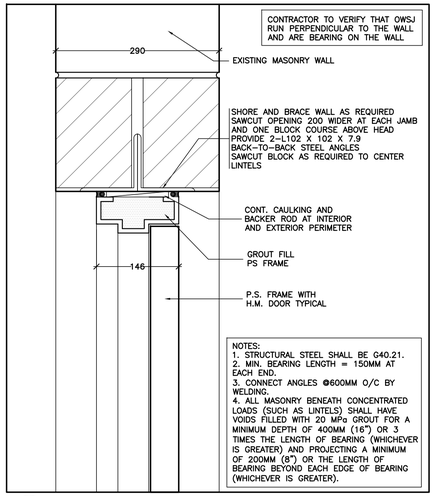
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Set No.:	of:



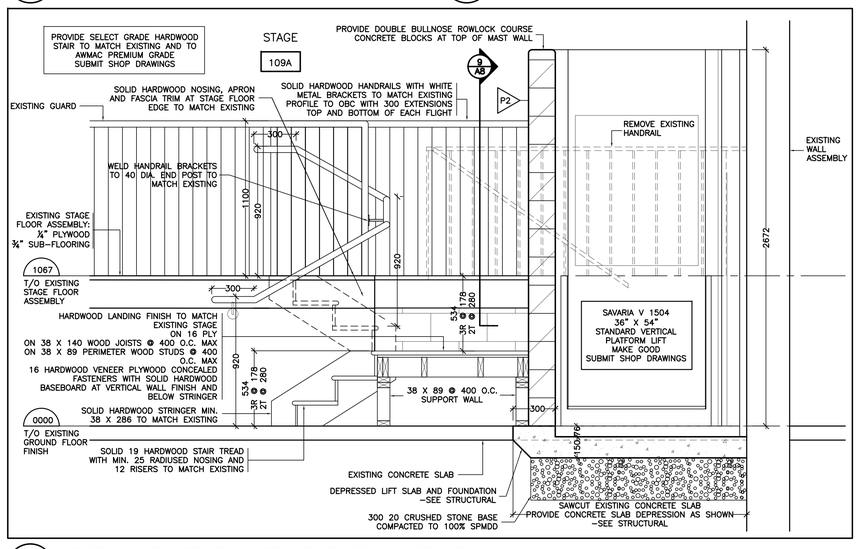
1 – INT. WALL CONTROL JOINT AT DOOR. TYPICAL 1:10



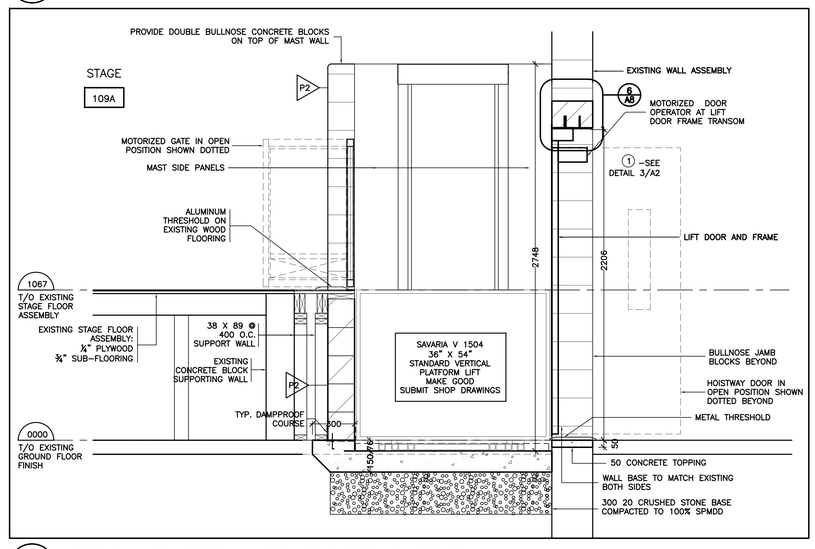
2 – CT/VCT FLOOR JOINT TYPICAL 1:1



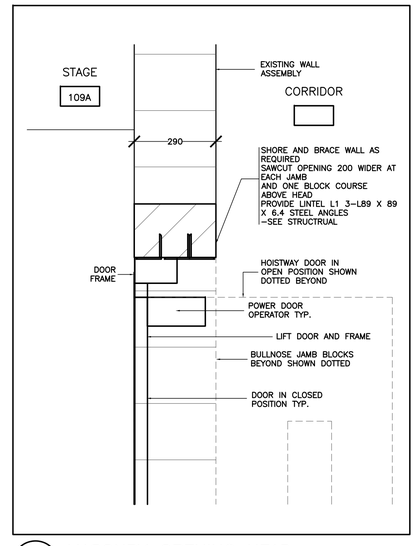
3 A2 MASONRY OPENING DOOR HEAD SECTION 1:5



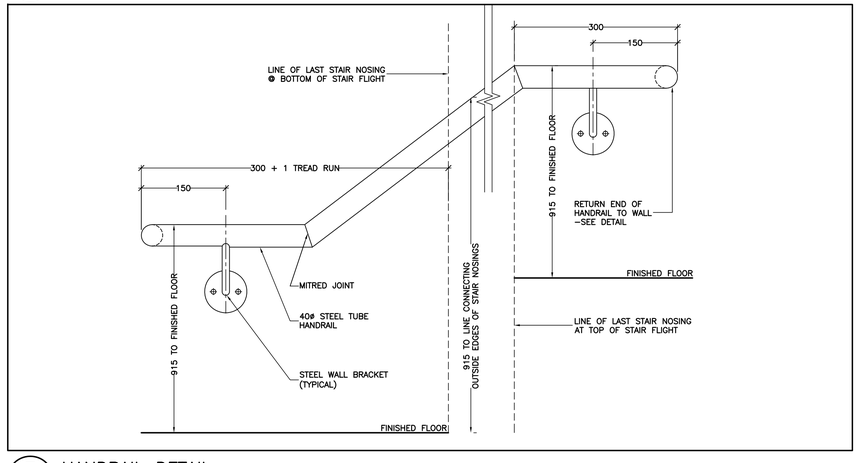
4 A2 VERTICAL PLATFORM LIFT AT EXISTING STAGE SECTION 1:20



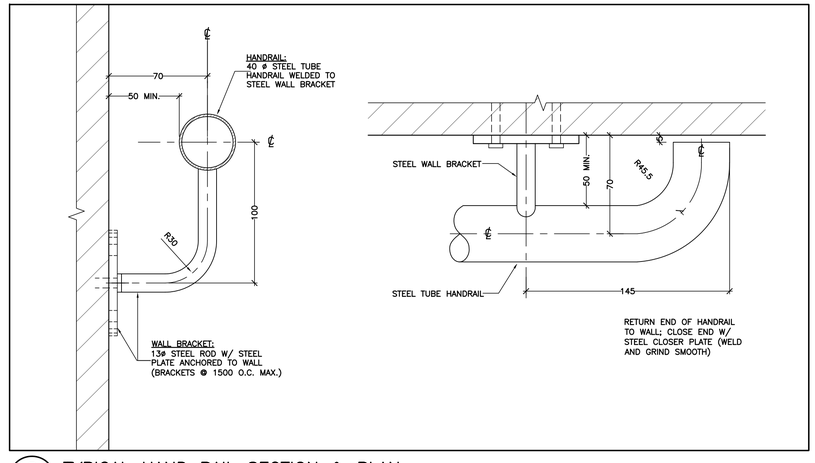
5 A2 VERTICAL PLATFORM LIFT AT EXISTING STAGE SECTION 1:20



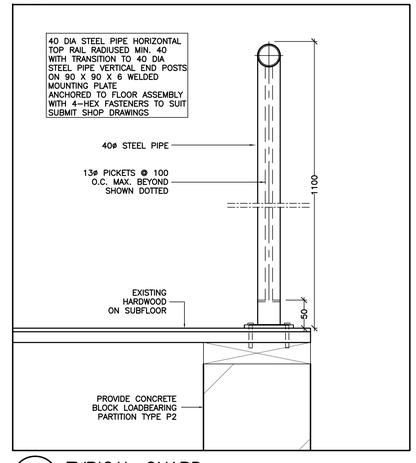
6 – MASONRY OPENING HEAD SECTION 1:10



7 – HANDRAIL DETAIL ELEVATION 1:5



8 – TYPICAL HAND RAIL SECTION & PLAN DETAIL 1:2



9 – TYPICAL GUARD SECTION 1:5

Revisions

Ref.	No.	Description	Date	Initial
△		CLIENTS REVIEW	2026/01/20	
△		CONSULTANTS COORDINATION	2026/01/21	
△		50% SUBMISSION	2026/02/20	
△		CONSULTANTS COORDINATION	2026/03/09	
△		CONSULTANTS COORDINATION	2026/03/27	
△		CONSULTANTS COORDINATION	2026/04/07	
△		95% SUBMISSION	2026/04/23	
△		ISSUED FOR PERMIT & TENDER	2026/06/10	

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SECTIONS AND DETAILS

Drawn by:	Date:
C.C.	OCTOBER 2025
Checked by: P.L.	Plotted:
Scale: AS SHOWN	Issued:
Job No.: 25115	Drawing No.: A8
Set No.:	of:

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GENERAL NOTES
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6/9/2026 5:17:58 PM Author

N01 GENERAL NOTES

1. CONFORM TO THE REQUIREMENTS OF THE LATEST ONTARIO BUILDING CODE (OBC) INCLUDING ALL THE LATEST STANDARDS REFERENCED THEREIN, AND ANY APPLICABLE ACTS OF AUTHORITY HAVING JURISDICTION. THE LATEST VERSION OF ALL STANDARDS AND CODES LISTED BELOW SHALL BE USED.
2. READ STRUCTURAL DRAWINGS IN CONJUNCTION WITH ALL OTHER SPECIFICATIONS AND CONTRACT DOCUMENTS.
3. WHERE DISCREPANCIES EXIST BETWEEN CONTRACT DOCUMENTS, INCLUDING DRAWINGS AND APPLICABLE CODES AND ACTS, THE MOST STRINGENT SHALL GOVERN. CONTRACTOR SHALL CHECK ALL DIMENSIONS ON WORKING DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
4. THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.
5. THE USE OF THESE DRAWINGS IS LIMITED TO THAT IDENTIFIED IN THE REVISION COLUMN. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED 'ISSUED FOR CONSTRUCTION' BY MTE CONSULTANTS.
6. UNDER NO CIRCUMSTANCES ARE THESE DRAWINGS TO BE SCALED, INCLUDING FOR PREPARATION OF SHOP DRAWINGS, CONSTRUCTION LAYOUT, OR BIDDING PURPOSES. ERRORS MADE BY PERSONS SCALING THESE DRAWINGS SHALL NOT BE THE RESPONSIBILITY OF MTE CONSULTANTS.
7. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS AND SIZES OF PITS, BASES, HOUSE KEEPING PADS, SUMPS, TRENCHES, DEPRESSIONS, GROOVES, CURBS, CHAMFERS AND SLOPES NOT SHOWN ON STRUCTURAL DRAWINGS.
8. BEFORE PROCEEDING WITH WORK, THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIARIZED WITH ALL CHARACTERISTICS AFFECTING NEW AND EXISTING CONSTRUCTION. ANY CHANGES, ALTERATIONS OR REVISIONS MUST BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
9. SUBSTITUTIONS FROM SPECIFIED PRODUCTS AND MATERIALS MUST BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO ORDERING OF MATERIALS. THE CONTRACTOR SHALL REIMBURSE ALL CONSULTANTS FOR ADDITIONAL COSTS INCURRED AS A RESULT OF REVIEWING ANY CHANGES MADE TO THE CONTRACT DOCUMENTS.
10. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS - O.REG. 213/91.
11. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN ALL SHORING AND TEMPORARY BRACING AS PER O.REG 213/91 AND THE CONTRACTOR SHALL RETAIN AN ENGINEER AS REQUIRED.
12. THE CONTRACTOR SHALL RETAIN AN INDEPENDENT INSPECTION AND TESTING COMPANY TO ENSURE THAT ALL WORK IS DONE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS. REQUIRED TESTING SHALL BE AS PER THE TESTING AND INSPECTION TABLE BELOW.
13. MTE CONSULTANTS WILL PROVIDE GENERAL REVIEW OF CONSTRUCTION IN ACCORDANCE WITH THE PERFORMANCE STANDARDS OF THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ONTARIO BY MEANS OF A RATIONAL SAMPLING PROCEDURE TO DETERMINE WHETHER THE CONSTRUCTION OF THAT WORK SHOWN ON THE MTE DRAWINGS IS IN GENERAL CONFORMITY WITH THE PLANS, SKETCHES, DRAWINGS, AND SPECIFICATIONS FORMING PART OF THE CONTRACT DOCUMENTS PREPARED BY "MTE". THE CONTRACTOR IS SOLELY RESPONSIBLE FOR QUALITY CONTROL AND THE PERFORMANCE OF THE WORK IN ACCORDANCE WITH THE CONTRACT. "MTE" SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUB-CONTRACTOR, OR ANY OTHER PERSON PERFORMING ANY OF THE WORK OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
14. IT IS THE RESPONSIBILITY OF BOTH THE OWNER AND THE CONTRACTOR TO NOTIFY THE ENGINEER OF CONSTRUCTION PROGRESS SO THE ENGINEER CAN COMPLETE GENERAL REVIEWS. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A CONSTRUCTION SCHEDULE PRIOR TO STARTING THE WORK. GENERALLY, REVIEWS BY THE ENGINEER WILL BE REQUIRED FOR REBAR PRIOR TO CONCRETE PLACEMENT, FOOTING AND FOUNDATIONS PRIOR TO BACKFILLING, AND ABOVE GRADE FRAMING PRIOR TO INSTALLATION OF INTERIOR FINISHES.

N02 TESTING AND INSPECTION

THE FOLLOWING ITEMS REQUIRE TESTING OR INSPECTION BY A CERTIFIED INDEPENDENT TESTING OR INSPECTION AGENCY UNLESS NOTED OTHERWISE. THE AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.

ITEM	REQ'D	COMMENTS
SOIL BEARING CAPACITY	YES	BY SOILS ENGINEER
SOIL COMPACTION	YES	BY SOILS ENGINEER
REINFORCING STEEL PLACMENT	YES	INSPECT FINAL PLACEMENT
CONC. COMPRESSIVE TESTS	YES	MIN. 2 SETS PER 100 CUBIC METRES
CONCRETE SLUMP	YES	
STRUCTURAL STEEL BOLTING	YES	
STRUCTURAL STEEL WELDING	YES	INSPECT ALL FIELD WELDS
MORTAR CUBES	YES	

N03 REQUIRED SUBMITTALS

THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

ITEM	REQ'D SUBMITTAL?	ENGINEER'S STAMP REQ'D?	NOTES
REBAR SHOP DRAWINGS	YES	NO	INCL. CONC BLOCK REINF
CONCRETE MIX DESIGNS	YES	NO	
MASONRY GROUT MIX DESIGN	YES	NO	
BLOCK MILL REPORT	YES	NO	
STRUCTURAL STEEL SHOP DRAWINGS	YES	YES	FOR CONNECTIONS ONLY
MISCELLANEOUS STEEL SHOP DRAWINGS	YES	YES	STAMP FOR STAIRS, LADDERS AND GUARDS
STEEL DECK SHOP DRAWINGS	YES	YES	
COLD FORMED STEEL FRAMING SHOP DWGS.	NO	NO	
FALL ARREST ANCHORS	NO	NO	

N04 PROJECT DESIGN DATA TABLE

BUILDING IMPORTANCE CATEGORY	HIGH	
FLOOR AND ROOF DESIGN LOADS AS NOTED ON FRAMING PLANS		
SPECIFIED WIND LOADS		
HOURLY WIND PRESSURE (1/50) DESIGN DATA	0.46 kPa	
WIND DESIGN CATEGORY	CATEGORY 2	
TERRAIN	'OPEN'	
SPECIFIED SNOW LOADS		
BASIC ROOF SNOW LOAD	S	1.47 kPa
SNOW AND RAIN LOADING (1/50) DESIGN DATA	Ss	1.1 kPa
	Sr	0.4 kPa
	24HR RAIN	103 mm
FACTORS USED FOR BASIC ROOF SNOW LOAD	Cb	0.8
	Cw	1.0
	Cs	1.0
	Ca	1.0
ADDITIONAL SNOW ACCUMULATION AROUND OBSTRUCTIONS AND ADJACENT TO HIGHER ROOF LEVELS OR WALLS IS INDICATED ON THE DRAWINGS.		
SPECIFIED EARTHQUAKE LOADS		
SEISMIC LOADING DESIGN DATA	Sa (0.2,X_4)	0.398
	Sa (0.5,X_4)	0.321
	Sa (1.0,X_4)	0.18
	Sa (2.0,X_4)	0.0825
	Sa (5.0,X_4)	0.0212
	Sa (10.0,X_4)	0.00653
	PGA(X_4)	0.251
	PGV(X_4)	0.209
SITE CLASS (ASSUMED)	SITE CLASS ('S' IN Xs)	'D' (ASSUMED)
SEISMIC FORCE MODIFICATION FACTORS FOR SEISMIC FORCE RESISTING SYSTEM	Rd	1.5
	Ro	1.5
SEISMIC CATEGORY	SC3	
STRUCTURAL IRREGULARITIES: NONE		
SFRS - CONVENTIONAL CONSTRUCTION MASONRY SHEAR WALLS		
EQUIVALENT STATIC SEISMIC BASE SHEAR EQ_X = 304 kN EQUIVALENT STATIC SEISMIC BASE SHEAR EQ_Y = 304 kN		
Ie = 1.3 Ta_X = 0.24 s Ta_Y = 0.24 s		



KEY PLAN

NOTES:
1. ALL LOADS AND ANALYSIS CONFORM TO THE 2024 OBC DIV B PART 4 AND THE USER'S GUIDE - NBC 2020 STRUCTURAL COMMENTARIES.
2. ALL DESIGN DATA ABOVE IS FROM THE 2024 OBC SUPPLEMENTARY STANDARD SB-1 TABLE 2 EXCEPT THAT SEISMIC DATA HAS BEEN OBTAINED FROM THE 2020 NBC SEISMIC HAZARD ONLINE TOOL.
3. WIND LOADING IS BASED ON THE STATIC PROCEDURE.
4. SEISMIC LOADING IS BASED ON STATIC ANALYSIS.
5. THE STRUCTURE HAS NOT BEEN DESIGNED FOR ANY FUTURE EXTENSION UNLESS NOTED.
6. THE FOUNDATION WALLS HAVE BEEN DESIGNED ASSUMING THAT THEY ARE NOT SUBJECT TO HYDROSTATIC PRESSURE. ENSURE PROVISIONS HAVE BEEN MADE FOR THE APPROPRIATE DRAINAGE OF GROUND WATER.

N05 FOUNDATION

1. NO SOIL INVESTIGATION WAS UNDERTAKEN FOR THIS SITE AS OF THE LATEST DATE OF THIS DRAWING. THE ALLOWABLE SOIL BEARING CAPACITY HAS BEEN ASSUMED AS PER NOTE #2 BELOW. CONTRACTOR TO RETAIN A GEOTECHNICAL ENGINEER TO CONFIRM THE MINIMUM BEARING CAPACITY. ALL DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
2. ALL COLUMN AND WALL FOOTINGS SHALL BEAR DIRECTLY ON NATIVE SOILS WITH A MINIMUM SOIL BEARING CAPACITY OF 100 kPa (SLS) AND 150 kPa (ULS) AT THE DEPTHS INDICATED ON THE DRAWINGS. EXISTING FILL MAY BE ENCOUNTERED. USE OF THIS FILL MUST BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION OF FOOTINGS.
3. NO FOUNDATION MAY BE POURED BEFORE THE BEARING MATERIAL HAS BEEN APPROVED BY THE GEOTECHNICAL ENGINEER. NOTIFY THE GEOTECHNICAL ENGINEER A MINIMUM OF 24 HOURS BEFORE THE INTENDED CONCRETE POUR.
4. REMOVE ALL TOPSOIL, ORGANIC LOOSE FILL AND OTHER DELETERIOUS MATERIAL FROM BUILDING AREA BEFORE STARTING CONSTRUCTION.
5. WHERE APPROVED, GRANULAR FILL UNDER ALL FOOTINGS ON GRADE SHALL BE COMPACTED IN 150 mm (6") LAYERS TO 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
6. FOUND NEW FOOTINGS WHICH ARE LOCATED ADJACENT TO EXISTING FOOTINGS, AT THE SAME ELEVATION AS THE EXISTING FOOTINGS, UNLESS NOTED OTHERWISE. ANY NECESSARY PRECAUTIONS SHALL BE TAKEN TO ENSURE THAT EXISTING FOOTINGS ARE NOT DISTURBED OR UNDERMINED IN ANY WAY DURING EXCAVATION.
7. FOUND ALL FOOTINGS BELOW THE LEVEL AT WHICH POTENTIAL DAMAGE RESULTING FROM FROST ACTION CAN OCCUR FOR THE FINISHED STRUCTURE, BUT A MINIMUM 1500 (5'-0") BELOW FINISHED EXTERIOR GRADE, UNLESS NOTED OTHERWISE. UNDER NO CIRCUMSTANCES SHOULD DEPTH BE LESS THAN LOCAL FROST PENETRATION REQUIREMENTS.
8. PROTECT ALL SOIL FROM FREEZING ADJACENT TO AND BELOW ALL FOUNDATIONS DURING CONSTRUCTION.
9. INSULATION IS SHOWN WHERE REQUIRED FOR PROTECTION OF THE FOUNDATIONS FROM DAMAGE DUE TO FROST ACTION ONLY. REFER TO ARCHITECTURAL DRAWINGS FOR FOUNDATION INSULATION NOT SHOWN ON THE STRUCTURAL DRAWINGS.

N05 FOUNDATION (CONT.)

10. SLABS ON GRADE:
    A. PLACE SLABS ON GRADE ON MATERIAL CAPABLE OF SAFELY SUPPORTING 25 kPa WITHOUT SETTLEMENT RELATIVE TO THE BUILDING FOUNDATIONS.
    B. PROOF-ROLL EXISTING FILL MATERIAL. REMOVE ANY LOOSE OR SOFTENED AREAS BENEATH SLAB ON GRADE BEFORE PLACING GRANULAR FILL.
    C. APPROVED GRANULAR FILL UNDER ALL FLOOR SLABS ON GRADE SHALL BE COMPACTED IN 150 mm (6") LAYERS TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
    D. BEFORE CASTING THE SLAB PLACE MINIMUM 200 mm (8") OF 19 mm (3/4") CLEAR CRUSHED STONE OVER THE SUB-BASE AND THOROUGHLY ROLL AND CONSOLIDATE TO THE LEVELS REQUIRED.
    E. WHERE THE SLAB ON GRADE IS USED TO LATERALLY RESTRAIN THE TOP OF AN EARTH-RETAINING WALL, ADEQUATELY SHORE THE WALL UNTIL THE SLAB HAS BEEN CAST AND ATTAINED 70% OF ITS SPECIFIED STRENGTH.
    F. PROVIDE 25 mm (1") RIGID STYROFOAM INSULATION BENEATH FLOOR SLABS IN UNHEATED AREAS.
11. CARRY OUT BACKFILLING AGAINST FOUNDATION WALLS WHERE THERE IS GRADE ON BOTH SIDES IN SUCH A MANNER THAT THE LEVEL OF BACKFILLING ON ONE SIDE OF THE WALL IS NEVER MORE THAN 500 mm (20") DIFFERENT FROM THE LEVEL ON THE OTHER SIDE OF THE WALL, EXCEPT WHERE TEMPORARY SHORING FOR THE WALL IS PROVIDED.
12. DO NOT PLACE BACKFILL AGAINST WALLS RETAINING EARTH (OTHER THAN CANTILEVERED RETAINING WALLS) UNTIL THE WALLS AND THE FLOOR CONSTRUCTIONS AT THE TOP AND BOTTOM OF THE WALLS HAVE BEEN CAST AND HAVE ATTAINED 100% OF THEIR DESIGN STRENGTH.
13. IN NO CASE SHALL HORIZONTAL CONTROL JOINTS BE ALLOWED IN ANY VERTICALLY SPANNING CONCRETE WALLS WITHOUT THE CONSENT OF THE ENGINEER.

N06 CONCRETE AND REINFORCING

1. ALL CONCRETE WORK TO CONFORM TO THE LATEST REQUIREMENTS OF CSA STANDARDS A23.1, A23.2 & A23.3.
2. REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF CAN/CSA G30.18 GRADE 400W FOR REINFORCING STEEL AND BE DEFORMED HI-BOND HARD GRADE WITH MINIMUM YIELD STRENGTH OF Fy = 400 MPa.
3. WELDED WIRE MESH AND WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF CAN/CSA G30.5 WITH A MINIMUM YIELD STRENGTH OF Fy = 450 MPa. ALL WELDED WIRE PRODUCTS ARE TO BE SUPPLIED AS FLAT SHEETS AND SHALL BE LAPPED A MINIMUM OF 150mm (6") AT JOINTS (U.N.O.).
4. DETAILING AND PLACING OF ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE REINFORCING STEEL INSTITUTE OF CANADA "MANUAL OF STANDARD PRACTICE".
5. ALL REINFORCING STEEL SHALL BE SHOP FABRICATED TO INCLUDE HOOKS AND BENDS AS REQUIRED.
6. ALL REINFORCING LAP SPLICES SHALL CONFORM TO THE LATEST CSA STANDARD A23.3 AND ALL BAR SPLICES SHALL BE CLASS 'B' TENSION SPLICES (U.N.O.).
   a. NO BAR SPLICES SHALL BE LESS THAN IN THE TABLE BELOW.
   b. INCREASE HORIZONTAL SPLICE LENGTHS IN THE TABLE BY 1.3 WHERE MORE THAN 300MM (12") OF FRESH CONCRETE IS CAST BELOW THE SPLICE.

CONCRETE / REBAR SIZE	TENSION SPLICE 25 MPa	TENSION SPLICE 30 MPa	TENSION SPLICE 35 MPa	COMPRESSION SPLICE
10M	400 (16")	400 (16")	400 (16")	450 (18")
15M	600 (24")	600 (24")	600 (24")	450 (18")
20M	800 (32")	800 (32")	800 (32")	600 (24")
25M	1200 (48")	1100 (44")	1000 (40")	750 (30")
30M	1400 (56")	1300 (52")	1200 (48")	900 (36")
35M	1650 (66")	1500 (60")	1400 (56")	1050 (42")

7. ALL DOWEL EMBEDMENT SHALL MATCH THE ABOVE TENSION SPLICE LENGTH, UNLESS NOTED OTHERWISE.
8. ALL REINFORCING STEEL FABRICATION AND PLACEMENT DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW BEFORE FABRICATION.
9. PLACE REINFORCING BARS SYMMETRICALLY OVER SUPPORTS AND SYMMETRICALLY IN SPANS, UNLESS NOTED OTHERWISE.
10. REINFORCING BARS, DOWELS AND ANCHOR BOLTS SHALL BE SECURELY TIED IN PLACE SO AS TO MAINTAIN THEIR EXACT POSITION BEFORE AND DURING PLACEMENT OF CONCRETE. BAR SUPPORTS SHALL ONLY BE MADE OF PRECAST CONCRETE BLOCKS, PLASTIC OR WIRE.
11. ALL OIL, GREASE, MUD AND DEBRIS SHALL BE ENTIRELY REMOVED FROM THE REINFORCING STEEL AND ANCHOR BOLTS PRIOR TO THE PLACEMENT OF CONCRETE. REBAR SHALL BE STORED ON SITE IN A MANNER TO BE KEPT CLEAN AND FREE FROM DELETERIOUS MATERIALS.
12. WELDING OF REINFORCING STEEL SHALL NOT BE PERMITTED UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
13. CONFORM TO THE CONCRETE COVER REQUIREMENTS OF CSA A23.1 AND THE FOLLOWING, UNLESS NOTED OTHERWISE:
    a. CONCRETE CAST AGAINST EARTH: 75 mm (3")
    b. PIERS AND WALL: 40 mm (1.5")
    c. EXPOSED TO DE-ICING CHEMICALS: 60 mm (2.5")
    d. INTERIOR BEAMS: 30 mm
    e. INTERIOR SLABS: 25 mm (1")
    f. 2-HR FRR WALL: 50 mm (2")
14. CONCRETE PROPERTIES:
    a. ALL CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 35 MPa UNLESS OTHERWISE SPECIFIED.
    b. CONCRETE MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO USE AT JOB SITE.
15. WHEN SUPER-PLASTICIZERS ARE USED, THE SLUMP MAY BE INCREASED BEYOND THE VALUES GIVEN, BUT SHALL BE BELOW THE POINT WHERE SEGREGATION WILL OCCUR. THE COST OF SUPER-PLASTICIZERS SHALL BE INCLUDED IN THE COST OF CONCRETE.
16. DO NOT ADD WATER TO CONCRETE UNLESS WRITTEN APPROVAL GIVEN BY THE ENGINEER. IF HIGHER SLUMP CONCRETE IS DESIRED, CONCRETE SUPPLIER SHALL DESIGN AND SUPPLY ACCORDINGLY.
17. HOT AND COLD WEATHER CONCRETING SHALL COMPLY WITH ALL REQUIREMENTS OF CSA STANDARD A23.1. CALCIUM CHLORIDE ADDITIVES WILL NOT BE PERMITTED.
18. ALL CONCRETE FORMWORK TOLERANCES AND SURFACE FINISHES SHALL COMPLY WITH CSA STANDARD A23.1 UNLESS NOTED OTHERWISE ON THE ARCHITECTURAL DRAWINGS.
19. ALL CONCRETE FORMS TO BE WET THOROUGHLY BEFORE POURING CONCRETE.
20. WATER CURING OF CONCRETE IS RECOMMENDED. CURE AND PROTECT ALL CONCRETE IN ACCORDANCE WITH CSA A23.1 SECTION 7.4.
21. ALL CONCRETE EXCEPT SLABS ON GRADE 150mm (6") THICK OR LESS SHALL BE MECHANICALLY VIBRATED SO AS TO COMPLETELY FILL THE FORM WITHOUT CAUSING UNDUE SEGREGATION. ANY DEFECTS IN THE HARDENED CONCRETE SHALL BE SATISFACTORILY REPAIRED OR SHALL BE REPLACED.
22. CONTROL JOINTS IN SLABS ON GRADE SHALL BE ¼ THE THICKNESS OF THE SLAB. SPACING OF CONTROL JOINTS IN CONCRETE SLABS-ON-GRADE SHALL NOT EXCEED THE GREATER OF 25 TIMES THE THICKNESS OF THE SLAB OR 3000 MM (10'-0") UNLESS NOTED ON THE DRAWINGS.
23. WHERE STEEL BEARING PLATES ARE SHOWN ON THE DRAWINGS, THEY SHALL BE ANCHORED WITH A MINIMUM OF TWO 12 mm DIA X 450MM LONG + 50 mm (1/2" DIA x 18" LONG + 2") HOOKED ANCHOR RODS WELDED TO THE PLATES AND EMBEDDED INTO THE CONCRETE.

N06 CONCRETE AND REINFORCING (CONT.)

CONCRETE MIX PROPERTIES TABLE

CONCRETE	MIN.28 DAYS STRENGTH (MPa) U.N.O.	SLUMP mm(in)	AIR CONTENT (%)	MAX AGGREGATE SIZE (in)	EXPOSURE CLASS
EXTERIOR FOUNDATION WALLS, RETAINING WALLS	25	80 (±30")	4-7	3/4"	F-2
INTERIOR PIERS / WALLS/FOOTINGS	25	80 (±30")	0	3/4"	N
INT. S.O.G.	25	80 (±30")	0	3/4"	N
FREEZE THAW EXPOSURE	25	80 (±30")	4-7	3/4"	F-2
EXTERIOR SLAB (UNREINFORCED)	32	80 (±30")	5-8	3/4"	C-2
EXTERIOR SLAB (REINFORCED)	35	80 (±30")	5-8	3/4"	C-1
NON-SHRINKABLE GROUT	30	AS PER MANUF. RECOMEN.	0	-	N
LEAN MIX CONCRETE	8	80 (±30")	0	-	N
EXTERIOR FOOTINGS	25	80 (±30")	4-7	3/4"	F-2

24. CHECK ALL STRUCTURAL, ARCHITECTURAL, MECHANICAL, ELECTRICAL, CIVIL, LANDSCAPE AND ALL OTHER RELEVANT DRAWINGS FOR LOCATIONS AND SIZES OF BOLTS, SLEEVES AND OPENINGS.
25. SUPPLY AND SET ANCHOR BOLTS, SLEEVES, PIPE HANGERS, JOISTS AND OTHER INSERTS AND OPENINGS AS INDICATED OR SPECIFIED ELSEWHERE.
    FOR BEAMS AND COLUMNS: NO SLEEVES, DUCTS, PIPES OR OTHER OPENINGS SHALL PASS VERTICALLY OR HORIZONTALLY EXCEPT WHERE EXPLICITLY DETAILED ON STRUCTURAL DRAWINGS OR WHERE APPROVED IN ADVANCE BY ENGINEER.
    FOR SLABS AND WALLS: ALL SLEEVES AND OPENINGS GREATER THAN 100 mm (4") IN ANY DIMENSION OR REQUIRING THE CUTTING OF ANY REINFORCEMENT, AND NOT INDICATED ON STRUCTURAL DRAWINGS, MUST BE APPROVED BY THE ENGINEER.
    FOR MULTIPLE OPENINGS OR SLEEVES: IF WITHIN 600 mm (24") OF EACH OTHER CONSULT ENGINEER FOR DIRECTION.
26. CAST IN ANCHOR BOLTS SHALL CONFORM TO THE LATEST CSA STANDARD G40.21 OR ASTM F1554 WITH A MINIMUM YIELD STRENGTH OF 250 MPa AND SHALL BE SET TRUE AS O LOCATION, ELEVATION AND PROJECTION TO THE FOLLOWING TOLERANCES:
    ANCHOR BOLT LOCATION = ± 3mm (1/8").
    ANCHOR BOLT PROJECTION = ± 6mm (1/4").
27. CONSTRUCTION JOINTS FOR WALLS ARE BASED UPON VERTICAL JOINTS AT A MAXIMUM SPACING OF 10000 mm (30'-0"). UNLESS CONTROL JOINTS ARE PROVIDED AS PER TYPICAL DETAIL. TOTAL LENGTH OF POUR TO BE DISCUSSED WITH ENGINEER PRIOR TO PROCEEDING.
28. CONSTRUCTION JOINTS FOR WALLS, SLABS, AND BEAMS NOT SHOWN ON THE DRAWINGS SHALL BE APPROVED BY THE STRUCTURAL CONSULTANT BEFORE CONSTRUCTION. GENERALLY JOINTS IN SLABS SHALL BE AT RIGHT ANGLES TO THE SPANS, AT MID SPAN IF POSSIBLE AND BE CLEAR OF SUPPORTS AND POINT LOADS..
29. INSERTS, FRAME-OUTS, SLEEVES, BRACKETS, CONDUITS AND FASTENING DEVICES, SHALL BE INSTALLED AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS IN A MANNER THAT SHALL NOT IMPAIR THE STRUCTURAL STRENGTH OF THE SYSTEM, BE SO INSTALLED THAT HEY SHALL NO REQUIRE THE CUTTING, BENDING, OR DISPLACEMENT OF THE REINFORCING OTHER THAN AS SHOWN ON THE TYPICAL DETAILS.
30. ELECTRICAL CONDUITS SHALL NOT PASS THROUGH A COLUMN, SHALL NOT BE LARGER IN OUTSIDE DIAMETER THAN 1/3 SLAB THICKNESS OR WALL OR BEAM WHICH IT IS EMBEDDED, SHALL NOT BE SPACED CLOSER THAN 3 DIAMETERS ON CENTER UNLESS APPROVED AND HAVE A MINIMUM CONCRETE COVER OF 25 mm (1") AND UNLESS SPECIFICALLY PERMITTED OTHERWISE, SHALL NOT RUN HORIZONTALLY IN A CONCRETE WALL.
31. TYPE 'S' CONCRETE TO BE USED FOR ALL ELEMENTS.

N08 STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL AND CONNECTIONS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST CSA STANDARD S16
2. STRUCTURAL STEEL SHALL CONFORM TO CAN/CSA-G40.21 GRADE 350W FOR GENERAL REQUIREMENTS, AND CAN/CSA-G40.21 FOR QUALITY
   a. GRADE 350W CLASS C FOR H.S.S.
   b. GRADE 350W FOR W SHAPES, S SHAPES, AND TEES.
   c. ALL OTHER MISCELLANEOUS METAL SHALL BE MINIMUM GRADE 300W (U.N.O.)
3. BOLTED CONNECTIONS SHALL USE ASTM A325 BOLTS. ALL BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 EXCEPT THAT ANCHOR BOLTS SHALL BE FABRICATED FROM STEEL ROD CONFORMING TO CSA STANDARD G40.21 OR ASTM F1554 WITH A MINIMUM YIELD STRENGTH OF 250 MPa.
4. STEEL COATINGS - UNLESS NOTED OTHERWISE ALL STRUCTURAL STEEL SHALL BE CLEANED AND PREPARED TO A MINIMUM LEVEL OF SSPC SP-3 AND IN ACCORDANCE WITH CSA STANDARD S16:
   a. ALL INTERIOR STEEL THAT IS TO BE PROTECTED BY A SPRAY APPLIED CEMENTIOUS FIRE PROOFING SHALL BE CLEANED AND REMAIN UNCOATED STEEL.
   b. ALL OTHER INTERIOR STRUCTURAL STEEL SHALL BE SHOP PRIME PAINTED AS PER CSA/CAN-S-16. SHOP PRIMER SHALL CONFORM TO CISC/CPMA 1-73A.
   c. ALL STEEL EXPOSED TO WEATHER IS TO BE HOT DIP GALVANIZED IN ACCORDANCE TO CAN/CSA-G164. TOUCH UP OF WELDS, CUTS OR SCRATCHES TO GALVANIZING SHALL BE DONE WITH A MINIMUM OF 3 COATS OF ZINC RICH PAINT.
5. WELDING OF STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF CSA STANDARD W59 AND SHALL BE UNDERTAKEN BY A FABRICATOR AND ERECTOR FULLY APPROVED BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF CSA STANDARD W47, DIVISION 1 AND DIVISION 2. FABRICATOR TO SUPPLY CERTIFICATION OF FUSION WELDING, AND WELDING MAY ONLY BE CARRIED OUT IN ACCORDANCE WITH OWNER'S SAFETY REGULATIONS REGARDING WELDING.
6. FABRICATOR SHALL DESIGN CONNECTIONS AND THE LIKE IN ACCORDANCE WITH THE 2012 OBC FOR THE FORCES SHOWN ON THE DRAWINGS. WHERE FORCES ARE NOT NOTED ON THE DRAWINGS, BEAM REACTIONS SHALL BE TAKEN AS ONE-HALF OF THE TOTAL UNIFORMLY DISTRIBUTED FACTORED LOADS NOTED ON THE BEAM LOAD TABLES OF PART FIVE OF CISC'S HANDBOOK OF STEEL CONSTRUCTION, LATEST EDITION, PROVIDED NO POINT LOADS ACT ON THE BEAM. ALL WELDS SHALL BE 5 mm (3/16") MIN. FILLET. ALL BOLTS SHALL BE MIN. M20 (3/4") DIAMETER AND PROVIDE MIN. (2) BOLTS PER CONNECTION.
7. WHERE MOMENT CONNECTIONS ARE CALLED FOR BUT VALUES ARE NOT INDICATED, DESIGN CONNECTIONS FOR FULL MOMENT CAPACITY OF THE SMALLER MEMBER JOINED.
8. SPLICES SHALL BE DESIGNED TO DEVELOP THE FULL CAPACITY OF THE MEMBER AT THE POINT OF THE SPLICE. MEMBERS SHALL NOT BE SPLICED AT POINTS OF MAXIMUM STRESS. NO SPLICES SHALL BE MADE UNLESS SHOWN ON THE DRAWINGS OR REVIEWED AND APPROVED BY THE ENGINEER.
9. MOMENT FRAME AND X-BRACE CONNECTIONS SHALL HAVE ASTM A325 FRICTION TYPE M20 (3/4") MINIMUM DIAMETER BOLTS (U.N.O.).
10. SHAPE AND SIZE GUSSET PLATES TO CLEAR ARCHITECTURAL FINISHES AND MECHANICAL DUCTS AND PIPES AND ELEVATOR SHAFTS.
11. SHOP DRAWINGS OF STRUCTURAL STEEL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW BEFORE FABRICATION.
12. ALL BEAMS CANTILEVERED OR CONTINUOUS OVER A COLUMN OR OTHER SUPPORT, AND BEAMS SUPPORTING POINTS OF CONCENTRATED LOAD, SHALL HAVE A MIN. OF 2-10 mm (3/8") STIFFENERS EACH SIDE OF WEB UNLESS OTHERWISE NOTED.
13. TOP OF COLUMNS WHICH ARE NOT BRACED BY JOISTS OR BEAMS SHALL BE BRACED DIAGONALLY TO THE ROOF OR FLOOR BY A MINIMUM OF 4-L76 x 76 x 6.4 mm (L3 x 3 x 1/4") ANGLES FOR INTERIOR COLUMNS; A MINIMUM 2-L76 x 76 x 6.4 mm (L3 x 3 x 1/4") ANGLES FOR EXTERIOR COLUMNS. BRACING SHALL BE BETWEEN TOP OF COLUMN AND TOP CHORD OF JOISTS.
14. COLUMN BASE PLATES AND BEAM BEARING PLATES SHALL BE GROUTED WITH 40 mm (1.5") NON-SHRINK 40 MPa GROUT.

N08 STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL AND CONNECTIONS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST CSA STANDARD S16
2. STRUCTURAL STEEL SHALL CONFORM TO CAN/CSA-G40.20 FOR GENERAL REQUIREMENTS, AND CAN/CSA-G40.21 FOR QUALITY
   a. GRADE 350W CLASS C FOR H.S.S.
   b. GRADE 350W FOR W SHAPES, S SHAPES, AND TEES.
   c. ALL OTHER MISCELLANEOUS METAL SHALL BE MINIMUM GRADE 300W (U.N.O.)
3. BOLTED CONNECTIONS SHALL USE ASTM A325 BOLTS. ALL BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 EXCEPT THAT ANCHOR BOLTS SHALL BE FABRICATED FROM STEEL ROD CONFORMING TO CSA STANDARD G40.21 OR ASTM F1554 WITH A MINIMUM YIELD STRENGTH OF 250 MPa.
4. STEEL COATINGS - U

N14 SERVICEABILITY CRITERIA

1. TYPICAL HORIZONTAL ELEMENTS (NOT SUPPORTING CLADDING) HAVE BEEN DESIGNED SO THAT THE THEORETICAL DEFLECTIONS WILL NOT EXCEED THE FOLLOWING VALUES:

TYPE OF MEMBER	DEFLECTION TO BE CONSIDERED	DEFLECTION LIMIT
REINFORCED CONCRETE MEMBERS		
FLAT ROOFS NOT SUPPORTING NON-STRUCTURAL ELEMENTS LIKELY TO BE DAMAGED BY LARGE DEFLECTIONS	IMMEDIATE DEFLECTION DUE TO SPECIFIED LIVE LOAD, L	L/180
FLOORS NOT SUPPORTING NON-STRUCTURAL ELEMENTS LIKELY TO BE DAMAGED BY LARGE DEFLECTIONS	IMMEDIATE DEFLECTION DUE TO SPECIFIED LIVE LOAD, L	L/360
ROOF OR FLOOR CONSTRUCTION SUPPORTING NON-STRUCTURAL ELEMENTS LIKELY TO BE DAMAGED BY LARGE DEFLECTIONS	THAT PART OF THE TOTAL DEFLECTION OCCURRING AFTER ATTACHMENT OF NONSTRUCTURAL ELEMENTS	L/480
ROOF OR FLOOR CONSTRUCTION SUPPORTING NON-STRUCTURAL ELEMENTS NOT LIKELY TO BE DAMAGED BY LARGE DEFLECTIONS	SUM OF THE LONG-TERM DEFLECTIONS DUE TO ALL SUSTAINED LOADS AND THE IMMEDIATE DEFLECTION DUE TO ANY ADDITIONAL LIVE LOAD	L/240
STRUCTURAL STEEL MEMBERS		
SIMPLE SPAN MEMBERS OF FLOORS AND ROOFS SUPPORTING CONSTRUCTION AND FINISHES NOT SUSCEPTIBLE TO CRACKING	LIVE	L/300
SIMPLE SPAN MEMBERS OF FLOORS AND ROOFS SUPPORTING CONSTRUCTION AND FINISHES SUSCEPTIBLE TO CRACKING	LIVE	L/360

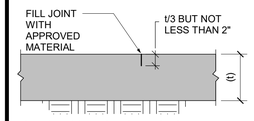
2. NON -STRUCTURAL ELEMENTS SUCH AS CLADDING, MECHANICAL AND ELECTRICAL SERVICES AND SUPPORTS, MUST BE DESIGNED AND DETAILED TO ACCOMMODATE THE ANTICIPATED DEFLECTIONS IN THE TABLE ABOVE.
3. PERIMETER OR SPANDREL ELEMENTS (SUPPORTING CLADDING, PRECAST, MASONRY WALLS AND THE LIKE) HAVE BEEN DESIGNED FOR AN ALLOWABLE DEFLECTION AS NOTED IN THE TABLE ABOVE, BUT NOT MORE THAN 12mm (0.5 INCHES) RELATIVE MOVEMENT BETWEEN ADJACENT FLOORS.
4. THE STRUCTURE HAS BEEN DESIGNED TO LIMIT THE MAXIMUM INTERSTOREY DRIFT UNDER SERVICEABILITY LIMIT STATE (SLS) AVERAGE HOURLY WIND PRESSURE TO 'H/500',WHERE 'H' IS THE FLOOR TO FLOOR HEIGHT BETWEEN TWO ADJACENT FLOORS. UNDER SEISMIC LOADS, THE INTERSTOREY DRIFT HAS BEEN LIMITED TO '0.025Hs' WHERE 'Hs' IS THE HEIGHT OF THE STOREY.
5. THE STRUCTURE HAS BEEN DESIGNED ASSUMING THAT THE INSTALLATION OF NONSTRUCTURAL ELEMENTS SUCH AS CLADDING, MECHANICAL AND ELECTRICAL SERVICES WILL NOT COMMENCE UNTIL AT LEAST ONE MONTH AFTER THE REINFORCED CONCRETE SLAB SUPPORTING THE NONSTRUCTURAL ELEMENTS HAS BEEN POURED AND THE RESHORES HAVE BEEN REMOVED.

N15 STRUCTURAL ABBREVIATIONS

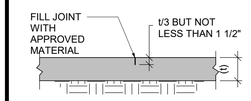
A.B	ANCHOR BOLT
ALT.	ALTERNATE
ALUM.	ALUMINUM
ANCH'S	ANCHORS
APPROX.	APPROXIMATELY
ARCH.	ARCHITECTURAL
B/F	BOTTOM FACE
B.PL	BASE PLATE
BLK.	BLOCK
BM.	BEAM
BOT.	BOTTOM
BRG.	BEARING
BT.PL.	BENT PLATE
C/W	COMPLETE WITH
C/C	CENTRE TO CENTRE
C.J.	CONTROL JOINT
CLG.	CEILING
COL.	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION
CONSTRN	CONSTRUCTION
CONT.	CONTINUOUS
DEMO.	DEMOLITION
DET.	DETAIL
DIA.	DIAMETER
DIM.	DIMENSION
DO	DIDO
DP.	DEEP
DWG.	DRAWING
DWL.	DOWEL
E.F.	EACH FACE
E.J.	EXPANSION JOINT
ELEC.	ELECTRICAL
E.S.	EACH SIDE
E.W.	EACH WAY
EA.	EACH
EL.	ELEVATION
EQ.	EQUAL
EXIST.	EXISTING
F.F	FACE TO FACE
FIN.	FINISHED
FL.	FLOOR
FNDN.	FOUNDATION
FTG.	FOOTING
Ga.	GAUGE
GALV.	GALVANIZED
GRD.	GRADE
HORIZ.	HORIZONTAL
H.D.	HEAVY DUTY
H.D.G.	HOT DIPPED GALVANIZED
H.E.F.	HORIZONTAL EACH FACE
H.P.	HIGH POINT
HSS	HOLLOW STRUCTURAL STEEL
I.D.	INSIDE DIAMETER
kN.	KILONEWTON
kPa	KILOPASCAL
L	ANGLE
L.L.H.	LONG LEG HORIZONTAL
L.L.V.	LONG LEG VERTICAL
L.P.	LOW POINT
LG.	LONG
MAX.	MAXIMUM
MECH	MECHANICAL
MET'L	METAL
MIN.	MINIMUM
MISC.	MISCELLANEOUS
m	METRE
mm	MILLIMETRE
MPa	MEGAPASCAL
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
No.	NUMBER
O.C.	ON CENTRE
O.D.	OUTSIDE DIAMETER
O.H.	OVERHEAD
OWSJ	OWEN WEB STEEL JOIST
OPNG.	OPENING
PART'N	PARTITION
PL.	PLATE
R.C.	REINFORCED CONCRETE
R.D.	ROOF DRAIN
R.O.	ROUGH OPENING
REF.	REFERENCE
REINF.	REINFORCED
REQ'D	REQUIRED
S.C.	SAWCUT
SECT.	SECTION
S.L.H	SHORT LEG HORIZONTAL
S.L.V.	SHORT LEG VERTICAL
S.O.G.	SLAB ON GRADE
S.S.	STAINLESS STEEL
STL.	STEEL
STIFF.	STIFFENER
STRUCT.	STRUCTURAL
T/O	TOP OF
T.L.L	TOP LOWER LAYER
T.U.L.	TOP UPPER LAYER
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE
VERT.	VERTICAL
V.E.F.	VERTICAL EACH FACE
V.I.F.	VERTICAL INSIDE FACE
V.O.F.	VERTICAL OUTSIDE FACE
W.P.	WORKING POINT
W.W.M.	WELDED WIRE MECH @ SPACED AT

C10 SLAB ON GRADE DETAILS (N.T.S.)

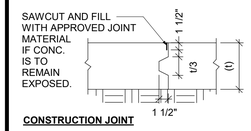
S.O.G. REINFORCED WITH SYNTHETIC FIBRES



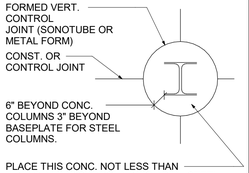
SAWCUT CONTROL JOINT FOR SLAB t GREATER THAN 150mm



SAWCUT CONTROL JOINT FOR SLAB t UP TO 150mm

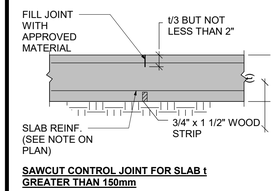


CONSTRUCTION JOINT

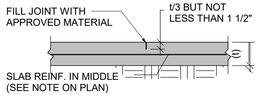


PLAN AT COLUMNS

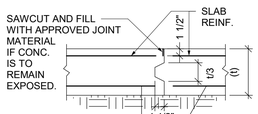
S.O.G. REINFORCED WITH WELDED WIRE FABRIC OR DEFORMED BARS



SAWCUT CONTROL JOINT FOR SLAB t GREATER THAN 150mm

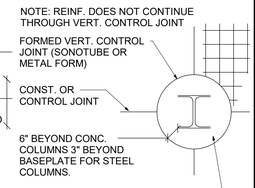


SAWCUT CONTROL JOINT FOR SLAB t UP TO 150mm



NOTE: REINFORCEMENT DOES NOT CONTINUE THROUGH JOINT

CONSTRUCTION JOINT



PLAN AT COLUMNS

NOTES:

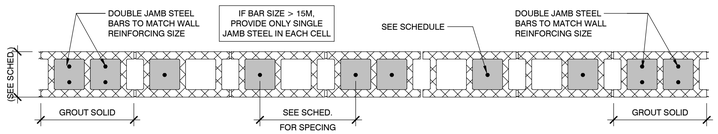
1. SAWCUTTING TO BE DONE AS SOON AS POSSIBLE AFTER SLAB IS PLACED.(MAX. 24 HOURS).
2. JOINTS TO BE AT MAX. 10'-0" o/c U.N.O. OR APPROVED.

CONCRETE BLOCK WALL SCHEDULE

MARK / LEVEL	WALL SIZE and REINFORCING W1	W2
2ND FLOOR	- 190 CONCRETE BLOCK - BLOCK COMP. STRENGTH = 20 MPa - 20M @ 600 VERT. - 4.8mm Ø "HEAVY DUTY" LADDER JOINT REINFORCEMENT @ EVERY COURSE	- 190 CONCRETE BLOCK (FULLY GROUTED) - BLOCK COMP. STRENGTH = 20 MPa - 20M @ 600 VERT. - 4.8mm Ø "HEAVY DUTY" LADDER JOINT REINFORCEMENT @ EVERY COURSE
GROUND FLOOR	- 190 CONCRETE BLOCK - BLOCK COMP. STRENGTH = 20 MPa - 25M @ 600 VERT. - 4.8mm Ø "HEAVY DUTY" LADDER JOINT REINFORCEMENT @ EVERY COURSE	- 190 CONCRETE BLOCK **(FULLY GROUTED)** - BLOCK COMP. STRENGTH = 20 MPa - 25M @ 600 VERT. - 4.8mm Ø "HEAVY DUTY" LADDER JOINT REINFORCEMENT @ EVERY COURSE

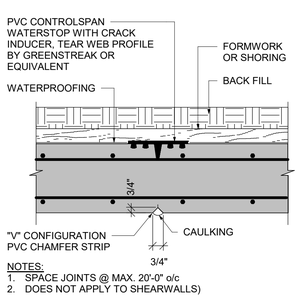
NOTES:

1. ALL MASONRY CORES WITH REINFORCEMENT TO BE FULLY GROUTED.
2. ALL WALLS NOTED FULLY GROUTED ARE TO BE 100% FILLED WITH GROUT.
3. CO-ORDINATE ALL WALL OPENINGS WITH ARCHITECTURAL DRAWINGS AND MECHANICAL CONTRACTOR.
4. PROVIDE ADDITIONAL JAMB STEEL MATCHING WALL REINFORCING SIZE FULL HEIGHT @ ALL WALL ENDS, INTERSECTIONS AND OPENINGS UNLESS OTHERWISE NOTED ON DRAWINGS.
5. PROVIDE STANDARD TENSION SPLICES FOR ALL HORIZONTAL AND VERTICAL WALL REINFORCEMENT.
6. ALL BARS CONNECTING BETWEEN FLOORS TO BE TIED TOGETHER WITH SPLICED DOWELS (REFER TO SECTION DETAILS).
7. SOLID FILLED VOIDS TO BE MADE WITH 20MPa FLOWABLE GROUT (MORTAR FILL NOT PERMITTED).
8. PROVIDE DOWELS FROM THE FOOTING TO WALLS ABOVE TO MATCH VERTICAL WALL REINFORCEMENT.
9. ALL WALLS SHALL CONTAIN 4.8mm (3/16") Ø "HEAVY DUTY" LADDER/TRUSS JOINT REINFORCEMENT AT EVERY COURSE.



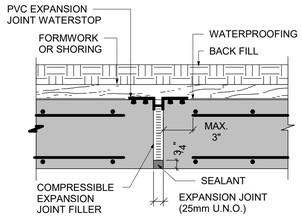
TYPICAL WALL SINGLE LAYER REINFORCING DIAGRAM

C13 JOINTS IN EXTERIOR FOUNDATION WALLS (N.T.S.)

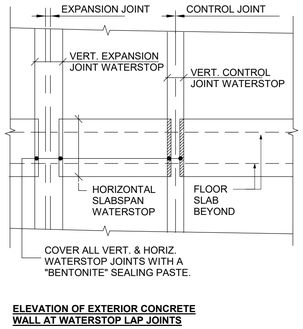


NOTES:
1. SPACE JOINTS @ MAX. 20'-0" o/c
2. DOES NOT APPLY TO SHEARWALLS)

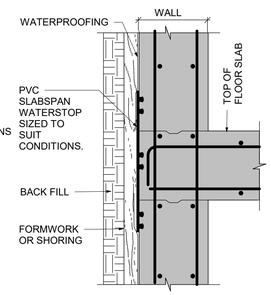
VERTICAL CONTROL JOINT AT EXTERIOR CONCRETE WALL



VERTICAL EXPANSION JOINT AT EXTERIOR CONCRETE WALL



ELEVATION OF EXTERIOR CONCRETE WALL AT WATERSTOP LAP JOINTS

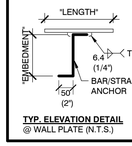


HORIZONTAL CONSTRUCTION JOINT AT EXTERIOR CONC. WALL & SLAB

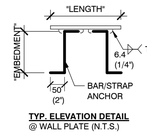
MASONRY WALL PLATE SCHEDULE

	PLATE SIZE THK.xLG.xWD.	ANCHORAGE
WPL.1	9.5 x 175 x 200 mm	2 - 12.7mm Ø ROD (300mm EMBEDMENT, 50mm HOOK)
WPL.2	9.5 x 200 x 175 mm	2 - 12.7mm Ø ROD (300mm EMBEDMENT, 50mm HOOK)

NOTES:
1. PLATE DIMENSION NOTED AS "LENGTH" TO BE PARALLEL WITH BEAM WEB.
2. FIELD WELD BEAM TO BEARING PLATE w/ (2) 6.4mm x 38mm (1/4" x 1-1/2") LG. FILLET WELDS (EACH SIDE)
3. FILL MIN THREE COURSES SOLID WITH GROUT BELOW WALL PLATE IN MASONRY WALLS. (SEE TYPICAL DETAIL)



TYP. ELEVATION DETAIL @ WALL PLATE (N.T.S.)

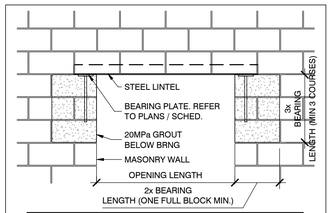


TYP. ELEVATION DETAIL @ WALL PLATE (N.T.S.)

MASONRY VENEER LINTEL SCHED.

MAX. CLEAR SPAN	SIZE	REMARKS
7'-0"	L3 1/2"x3 1/4" (LLH)	
9'-0"	L5x4x1/4"	
10'-0"	L5x3 1/2"x5/16" (LLV)	
11'-0"	L5x3 1/2"x3/8" (LLV)	
12'-0"	L6x4x3/8" (LLV)	
13'-0"	L6x4x3/8" (LLV)	
14'-0"	L7x4x7/16" (LLV)	
15'-0"	L8x4x7/16" (LLV)	

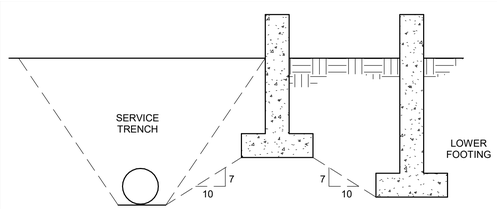
NOTES:
1. LINTEL BEARING LENGTH TO BE MIN. 6".
2. ALL STRUCTURAL STEEL MEMBERS TO BE HOT DIPPED GALVANIZED.
3. SEE ARCHITECTURAL DRAWINGS FOR SPANS.



NOTES:
1. REFER TO SCHEDULES FOR LINTEL SIZES
2. BACK-TO-BACK ANGLE LINTELS SHALL BE STITCH WELDED TOGETHER AT 300mm O/C MAX.

TYPICAL MASONRY LINTEL WITH BEARING PLATE

C36 TYP. FOOTING EXCAVATIONS DETAIL



NOTE TO CONTRACTOR:

DO NOT SCALE DRAWINGS.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.

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ISSUED FOR 75% COORDINAITON	2	FEB. 25, 2026
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LICENCE PROFESSIONAL ENGINEER
D. FINELLI
Jun 09, 2026
PROVINCE OF ONTARIO

CLIENT
W.K. LIM & M.P. LIU ARCHITECTS INC.

PROJECT
KING'S ROAD PUBLIC SCHOOL
660 GREENWOOD DRIVE. BURLINGTON, ON

DRAWING
GENERAL NOTES & TYPICAL DETAILS

Project Manager: JDD	Start Date: MAY 2024
Design By: DRL	Project No.: 64332_001
Drawn By: DRL/JDG	Drawing No.: S1.1
Scale: AS NOTED	

FOUNDATION WALL SCHEDULE

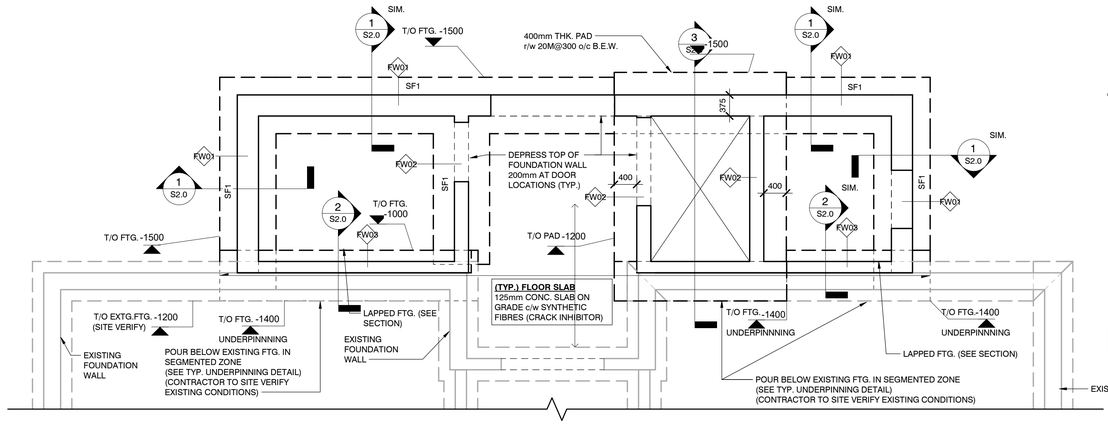
TYPE	WIDTH	REINFORCING
FW01	375	15M@300 VEF, 15M@400 HEF
FW02	250	15M@300 V&H (CENTER IN WALL)
FW03	200	15M@300 V&H (CENTER IN WALL)

1. VEF = VERTICAL EACH FACE, HEF = HORIZONTAL EACH FACE
2. ALL FOUNDATION WALLS TO HAVE MINIMUM CONT. 2-15M HORIZ. TOP & BOTTOM U.N.O.
3. FOR FOUNDATION WALLS BELOW SHEAR WALLS, SEE WALL ELEVATIONS

STRIP FOOTING SCHEDULE

TYPE	WIDTH	THICKNESS	REINFORCING
SF1	<varies>	300	3-15M CONT. BLD & 15M@300 BSD

1. STRIP FOOTINGS ARE CENETERED BELOW WALLS U.N.O.
2. PROVIDE REINFORCING IN STRIP FOOTINGS PER THE ABOVE SCHEDULE U.N.O.
3. REBAR MARKED "ADD ____ " SHALL BE PROVIDED IN ADDITION TO THE REINFORCING IN THE SCHEDULE ABOVE.
4. PROVIDE HOOKED DOWELS INTO FOOTING MATCHING VERTICAL REINFORCING FROM WALL ABOVE
5. BSD = BOTTOM SHORT DIRECTION, BLD = BOTTOM LONG DIRECTION
6. FOR ALL STRIP FOOTINGS, BOTTOM LOWER LAYER BARS SHALL BE PLACED IN THE SHORTER (TRANSVERSE) DIRECTION



FOUNDATION PLAN

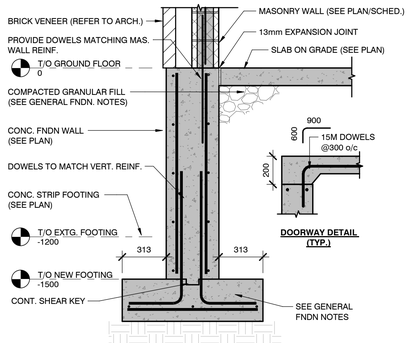
1 : 50

NOTES:

1. T/O GROUND FLOOR SLAB ELEVATION = 0 mm (REF. TO ARCH. DWGS)
2. T/O FOOTING ELEVATION = (MATCH EXISTING, MIN 1200mm BELOW GRADE)
3. REF. TO ARCH. DWGS. FOR DIMENSIONS, OPENINGS, DEPRESSIONS AND SLOPES NOT SHOWN ON THIS DRAWING.
4. THE PROJECT SUPERINTENDANT MUST CONTACT MTE 24hrs PRIOR TO PLACING STRUCTURAL CONCRETE FOR A REVIEW OF THE PREPARATIONS.
5. FOR SYNTHETIC FIBRES IN SLAB-ON-GRADE, CONTRACTOR TO PROVIDE MANUFACTURER'S SPECIFICATIONS TO MTE CONSULTANTS FOR REVIEW. FIBRE DOSAGE BY SUPPLIER.
6. PROVIDE 25 mm CHAMFER ON ALL EXPOSED EDGES OF COLUMNS, WALLS, BEAMS, AND DROPS.
7. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN ALL SHORING AND TEMPORARY BRACING AS PER O.REG 213/91 AND THE CONTRACTOR SHALL RETAIN AN ENGINEER AS REQURIED.

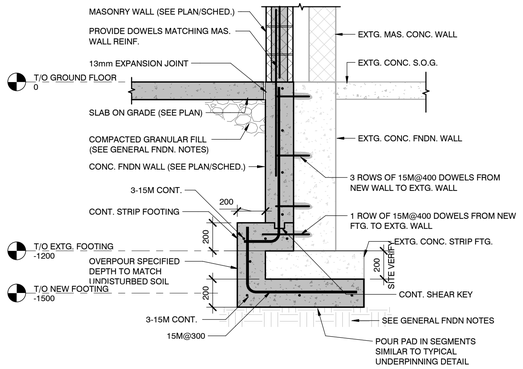
LEGEND:

DENOTES LOCATION OF ROUGH OPENING. REFER TO ARCH. DWGS. FOR DIMENSIONS AND LOCATIONS.



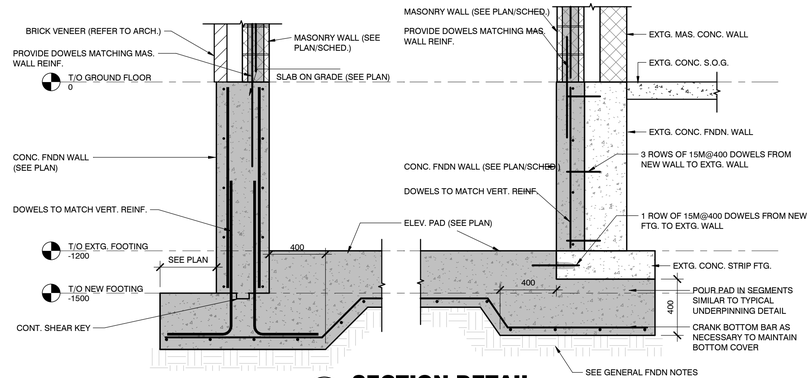
1 S2.0 SECTION DETAIL

1 : 20



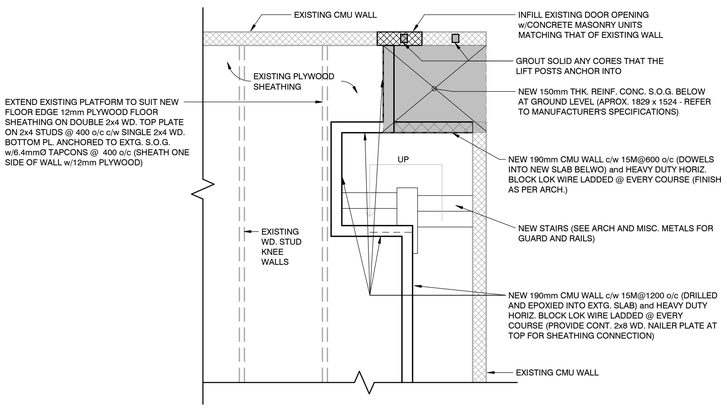
2 S2.0 SECTION DETAIL

1 : 20



3 S2.0 SECTION DETAIL

1 : 20



PARTIAL STAGE FRAMING PLAN

1 : 50

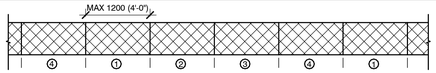
NOTES:

1. T/O PLATFORM ELEVATION = 0 mm (REF. TO ARCH. DWGS)
2. REF. TO ARCH. DWGS. FOR DIMENSIONS, OPENINGS, DEPRESSIONS AND SLOPES NOT SHOWN ON THIS DRAWING.

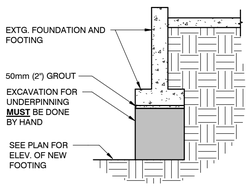
LEGEND:

DENOTES LOCATION OF ROUGH OPENING. REFER TO ARCH. DWGS. FOR DIMENSIONS AND LOCATIONS.

TYPICAL UNDERPINNING

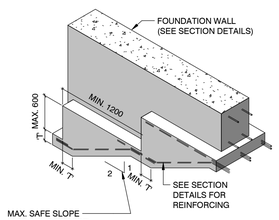


UNDERPINNING PLAN



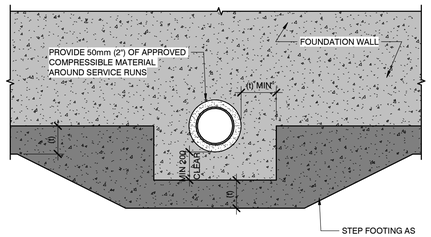
UNDERPINNING SECTION

1. UNDERPINNING TO BE PLACED USING 30MPa CONCRETE AT 28 DAYS. MINIMUM STRENGTH AT 3 DAYS TO BE 25MPa.
2. UNDERPINNING SECTIONS IN 1200mm MAX. WIDTHS IN ORDER 1, 2, 3, 4 AS SHOWN ON PLAN.
3. ALL SECTIONS (1) MUST BE COMPLETE PRIOR TO STARTING ON SECTIONS (2) AND SO FORTH. ALLOW A MINIMUM OF 24 HRS AFTER PLACING GROUT BEFORE STARTING AN ADJACENT SECTION.
4. RAM PACK 50mm (2") OF NON-SHRINK GROUT OR 1:3 CEMENT/SAND GROUT BETWEEN UNDERSIDE OF EXISTING FOOTING AND TOP OF UNDERPINNING NO SOONER THAN 24 HRS. AFTER PLACING UNDERPINNING CONCRETE.
5. UNDERPINNING IS TO BE PLACED DIRECTLY AGAINST EXISTING UNDISTURBED SOIL. ENSURE ALL VOIDS NOT FILLED WITH CONCRETE.
6. ENSURE AGAINST LOSS OF MATERIAL FROM BENEATH EXISTING BUILDING.
7. **CONTRACTOR RESPONSIBLE TO PROVIDE ALL NECESSARY SHORING AND NEEDLING IN ORDER TO SAFELY CARRY OUT THIS WORK AND TO PREVENT DISTRESS IN THE EXISTING BUILDING.**
8. DETAILS SHOWN ARE FOR ASSUMED CONDITIONS. ANY VARIATIONS MUST BE REPORTED TO THE STRUCTURAL CONSULTANT BEFORE PROCEEDING.



TYP. ISOMETRIC DETAIL

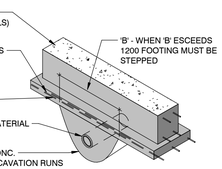
AT STEPPED FOOTING (N.T.S.)



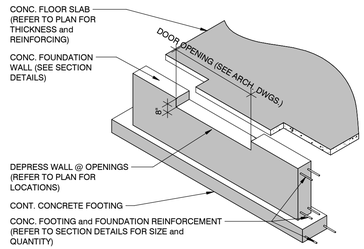
TYP. SECTION DETAIL

SERVICES THROUGH FOUNDATION WALL (N.T.S.)

TYPICAL PIPES BENEATH WALL FOOTINGS DETAIL



TYPICAL DOOR OPENING IN FOUNDATION WALL DETAIL



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PROJECT

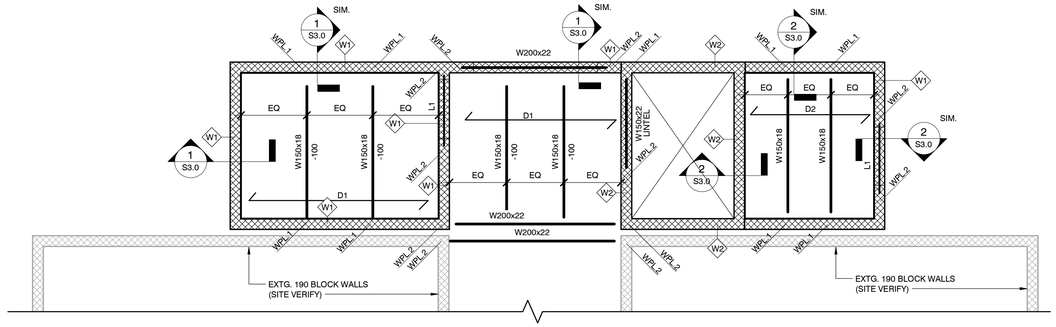
KING'S ROAD PUBLIC SCHOOL

660 GREENWOOD DRIVE. BURLINGTON, ON

DRAWING

FOUNDATION PLAN AND STAGE FLOOR FRAMING PLAN

Project Manager:	JDD	Start Date:	MAY 2024
Design By:	DRL	Project No.:	64332_001
Drawn By:	DRL/JDG	Drawing No.:	S2.0
Scale:	AS NOTED		



SECOND FLOOR FRAMING PLAN

1 : 50

FLOOR PLAN NOTES:

1. T/O FLOOR SLAB ELEVATION = (REF. TO ARCH. DWGS)
2. REF. TO ARCH. DWGS. FOR DIMENSIONS, OPENINGS, DEPRESSIONS AND SLOPES NOT SHOWN ON THIS DRAWING.
3. T/O STEEL EL. ARE REFERENCED FROM T/O SLAB EL.
4. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN ALL SHORING AND TEMPORARY BRACING AS PER O.REG 213/91 AND THE CONTRACTOR SHALL RETAIN AN ENGINEER AS REQURIED.

LEGEND:

D1..... 64mm CONCRETE ON 38 x 0.76mm THK. LZC METAL DECK (3 SPAN CONT.) w/ 152x152 MW9.1/MW9.1 W.W.M.
- TRANSVERSE WELDS: 19mm PUDDLE WELD @ 914/4
- SIDE LAP CONNECTION: BOTTOM PUNCH @ 300mm
- PERIMETER WELDS: 19mm PUDDLE WELD @ 300mm

D2..... 38 mm x 0.76 mm THK. LZC METAL DECK (3 SPAN CONT.)
- TRANSVERSE WELDS: 19mm PUDDLE WELD @ 914/4
- SIDE LAP CONNECTION: BOTTOM PUNCH @ 300mm
- PERIMETER WELDS: 19mm PUDDLE WELD @ 300mm

W1..... (SEE SCHEDULE)
W2..... (SEE SCHEDULE)

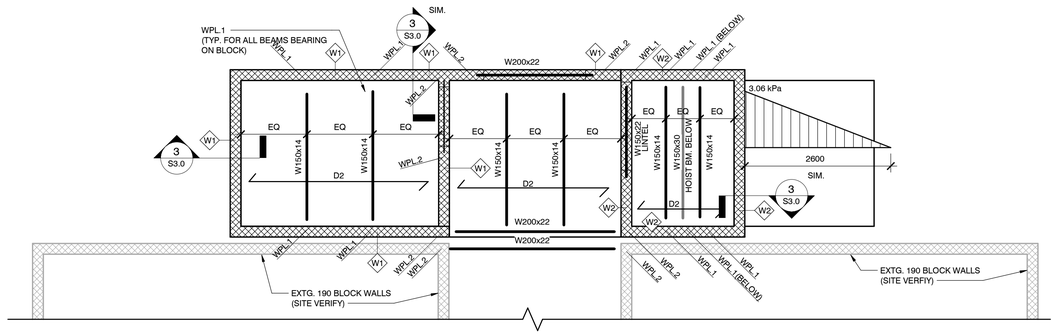
L1..... DOORWAY LINTEL - 2 - L127x76x9.5 (LLV) BACK-TO-BACK ANGLES

DENOTES LOCATION OF ROUGH OPENING. REFER TO ARCH. DWGS. FOR DIMENSIONS AND LOCATIONS.

LOADING:

DEAD LOADS:
- COMPOSITE DECK.....2.5 kPa
- SUPERIMPOSED.....2.0 kPa

LIVE LOADS:
- CORRIDORS.....4.8 kPa
- WASHROOMS.....2.4 kPa
- ROOFS.....1.0 kPa



ROOF FRAMING PLAN

1 : 50

FLOOR PLAN NOTES:

1. U/S DECK ELEVATION = (REF. TO ARCH. DWGS)
2. REF. TO ARCH. DWGS. FOR DIMENSIONS, OPENINGS, DEPRESSIONS AND SLOPES NOT SHOWN ON THIS DRAWING.
3. T/O STEEL EL. ARE REFERENCED FROM T/O SLAB EL.
4. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN ALL SHORING AND TEMPORARY BRACING AS PER O.REG 213/91 AND THE CONTRACTOR SHALL RETAIN AN ENGINEER AS REQUIRED.

LEGEND:

D2..... 38 mm x 0.76 mm THK. LZC METAL DECK (3 SPAN CONT.)
- TRANSVERSE WELDS: 19mm PUDDLE WELD @ 914/4
- SIDE LAP CONNECTION: BOTTOM PUNCH @ 300mm
- PERIMETER WELDS: 19mm PUDDLE WELD @ 300mm

W1..... (SEE SCHEDULE)
W2..... (SEE SCHEDULE)

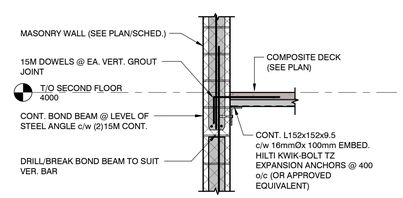
DENOTES LOCATION OF ROUGH OPENING. REFER TO ARCH. DWGS. FOR DIMENSIONS AND LOCATIONS.

LOADING:

DEAD LOADS:
- ROOF DECK.....0.1 kPa
- SUPERIMPOSED.....2.0 kPa

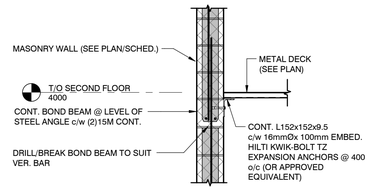
LIVE LOADS:
- ROOFS.....1.0 kPa

SNOW LOADS (BURLINGTON,ON):
- BASIC.....1.47 kPa
- DRIFT.....(SEE PLAN)



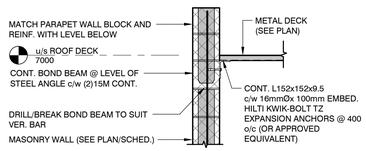
1 S3.0 **SECTION DETAIL**

1 : 20



2 S3.0 **LOW ROOF DECK AT BLOCK**

1 : 20



3 S3.0 **BLOCK PARAPET**

1 : 20

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PROJECT

KING'S ROAD PUBLIC SCHOOL

660 GREENWOOD DRIVE. BURLINGTON, ON

DRAWING

2ND FLOOR AND ROOF FRAMING PLAN

Project Manager: JDD	Start Date: MAY 2024
Design By: DRL	Project No.: 64332_001
Drawn By: DRL/JDG	Drawing No.: S3.0
Scale: AS NOTED	

LEGEND – PLUMBING

ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RECIRC. PIPING
-V-	VENT PIPING
	SANITARY PIPING ABOVE FLOOR
	SANITARY PIPING BELOW GRADE OR FLOOR
	PIPING TO BE REMOVED
	HEAT TRACED PIPING
E	CONNECTION OF NEW AND EXISTING PIPING
	CAPPED PIPE
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
HD	HUB DRAIN
RD	ROOF DRAIN
RD	ROOF DRAIN ABOVE
CO	CLEANOUT IN FLOOR
CO	CLEANOUT IN LINE OR STACK
M	WATER METER
	ISOLATION VALVE
	CIRCUIT BALANCING VALVE
	CHECK VALVE
	STRAINER
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
	3-WAY VALVE
	TEMPERATURE & PRESSURE RELIEF VALVE
CTE	CONNECT TO EXISTING
	UNION
PG	PRESSURE GAUGE
T	THERMOMETER
	PUMP
	PIPE DOWN
	PIPE UP
	PIPE UP & DOWN
	PIPE TEE
E	DENOTES EXISTING
E	EXISTING PIPING
FEX	FIRE EXTINGUISHER – SURFACE MOUNTED

LEGEND – HVAC

ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
E(NAME)	EXISTING PIPING TO REMAIN
	POSITIVE PRESSURE (SUPPLY) DUCT UP
	POSITIVE PRESSURE (SUPPLY) DUCT UP
	NEGATIVE PRESSURE (RETURN) DUCT UP
	POSITIVE PRESSURE (SUPPLY) DUCT DOWN
	POSITIVE PRESSURE (SUPPLY) DUCT DOWN
	NEGATIVE PRESSURE (RETURN) DUCT DOWN
	EXISTING DUCTWORK TO BE REMOVED
	EXISTING DUCTWORK TO REMAIN
	NEW DUCTWORK
	SUPPLY AIR DIFFUSER (SQUARE)
	SUPPLY AIR DIFFUSER (ROUND)
	SIDEWALL GRILLE
	RETURN/EXHAUST GRILLE
	FULL RADIUS DUCT CONNECTION
	TAP-IN DUCT CONNECTION
	ROUND DUCT CONNECTION
	TURNING VANES
FD	FIRE DAMPER
EXFD	EXISTING FIRE DAMPER
MD	MOTORIZED DAMPER
EXMD	EXISTING MOTORIZED DAMPER
AD	ACCESS DOOR
BD	BALANCING DAMPER
OBBD	OPPOSED BLADE BALANCING DAMPER
OED	OPEN ENDED DUCT
T	THERMOSTAT
RAT	REVERSE ACTING THERMOSTAT
CAP	CAP

MECHANICAL DRAWING LIST

M1.0	LEGENDS, GENERAL NOTES, EQUIPMENT SCHEDULE
M1.1	MECHANICAL KEY PLANS
M2.0	PROPOSED DRAINAGE PLAN
M2.1	PROPOSED PLUMBING PLAN
M2.2	PROPOSED HVAC PLAN
M3.0	MECHANICAL SPECIFICATIONS AND DETAILS

GENERAL NOTES

REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR COORDINATION OF GRILLES, DIFFUSERS AND OTHER ELEMENTS.

IN ALL INSTANCES THE NEED FOR ACCESS DOORS IN GWB CEILINGS SHOULD BE AVOIDED IF POSSIBLE. WHERE INSTALLATION OF COMPONENTS WHICH REQUIRE ACCESS CANNOT BE AVOIDED, SUBMIT (DIMENSIONED) LAYOUT ON ARCHITECTURAL REFLECTED CEILING PLANS TO CONSULTANTS FOR APPROVAL PRIOR TO INSTALLATION OF COMPONENT.

EXISTING ITEMS TO BE REMOVED REMAIN THE PROPERTY OF THE OWNER AND SHALL BE DELIVERED TO A LOCATION ON SITE DESIGNATED BY THE OWNER. IF THE OWNER DECLARES NO INTEREST IN THE REMOVED ITEMS, ASSUME OWNERSHIP AND REMOVE THE ITEMS FROM THE SITE.

REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR PHASING AND STAGING.

PLUMBING NOTES

1. CONTRACTOR IS TO VERIFY CONNECTION POINTS TO SERVICES WITH OTHER TRADES ON SITE.
2. CONTRACTOR IS TO CLEAR DUCTWORK WHEN INSTALLING NEW PIPING. CLEARANCES TO BE VERIFIED ON SITE.
3. PROVIDE A CLEANOUT AT THE BOTTOM OF EVERY SOIL AND WASTE STACK THAT CONNECTS TO A HORIZONTAL DRAINAGE PIPE.
4. PROVIDE A CLEANOUT FROM EACH PLUMBING FIXTURE WHERE REQUIRED BY BUILDING CODE, PART 7 – PLUMBING.
5. CHECK AND VERIFY LOCATION OF ALL PIPES, DUCTS AND EQUIPMENT WITH ALL OTHER TRADES TO PREVENT INTERFERENCE. REMOVAL OR RELOCATION OF ANY SUCH WORK INTERFERING WITH WORK OF OTHER TRADES IS THE RESPONSIBILITY OF THE MECHANICAL TRADE CONCERNED UNLESS OTHERWISE APPROVED IN WRITING.
6. ALL PLUMBING FIXTURES INCLUDING FLOOR DRAINS (HUB, FUNNEL FLOOR DRAINS, TRENCH DRAINS) TO BE TRAPPED AND VENTED AS REQUIRED BY BUILDING CODE, PART 7 – PLUMBING.
7. FOR MOUNTING HEIGHT OF ALL PLUMBING FIXTURES REFER TO ARCHITECTURAL DRAWINGS.
8. PROVIDE ACCESS DOOR FOR ALL VALVES LOCATED ABOVE DRY WALL CEILING.
9. PROVIDE ACCESS DOOR FOR ALL CLEANOUTS LOCATED ABOVE DRY WALL CEILING.
10. IN ALL INSTANCES THE NEED FOR ACCESS DOOR IN GWB CEILINGS SHOULD BE AVOIDED IF POSSIBLE. WHERE INSTALLATION OF COMPONENTS WHICH REQUIRE ACCESS CANNOT BE AVOIDED, SUBMIT (DIMENSIONED) LAYOUT ON ARCHITECTURAL REFLECTED CEILING PLANS TO CONSULTANTS FOR APPROVAL PRIOR TO INSTALLATION OF COMPONENT.
11. ALL DISTURBED SERVICES AFTER PIPE REMOVAL OR REROUTING TO BE FILLED-IN WITH APPROPRIATE MATERIAL TO MAINTAIN FIRE SEPARATION AND PATCHED TO MATCH EXISTING OR NEW FINISHES.
12. CONTRACTOR IS TO REMOVE ALL OBSOLETE PIPING WHEREVER POSSIBLE.
13. CONTRACTOR IS TO ENSURE THAT ALL EXISTING PIPING SERVING EXISTING AREAS REMAIN IN SERVICE UNTIL THESE AREAS ARE RECONNECTED TO NEW SERVICES. ONLY THEN OBSOLETE PIPING IS TO BE REMOVED AS SHOWN.
14. BEFORE CUTTING ANY HOLES THROUGH THE EXISTING SLAB REFER TO EXISTING STRUCTURAL DRAWINGS FOR GENERAL REQUIREMENTS.
15. AFTER PIPE REMOVAL ALL EXISTING OPENINGS IN FIRE SEPARATION ARE TO BE FILLED-IN TO MAINTAIN INTEGRITY OF THAT FIRE SEPARATION.
16. RECONNECT VENTS FROM EXISTING EQUIPMENT AND PLUMBING FIXTURES WHICH ARE TO REMAIN TO NEW VENTS AS REQUIRED.
17. PROVIDE SIGN IDENTIFYING LOCATION OF ALL VALVES INSTALLED IN CEILING SPACE.
18. ALL WATER, SANITARY, SEWER AND VENT COPPER PIPING WITH SOLDER JOINTS SHALL BE LEAD FREE. DO NOT INSTALL WATER LINES IN OUTSIDE WALL WHERE THEY MAY FREEZE, UNLESS BOTH THE WALL AND THE PIPES ARE PROPERLY INSULATED.
19. INSTALL SHUT-OFF VALVES AT EACH PLUMBING FIXTURE AND EACH EQUIPMENT CONNECTION.
20. REFER TO ARCHITECTURAL FOR OWNER SUPPLIED EQUIPMENT. CONFIRM ALL MECHANICAL REQUIREMENTS AND PROVIDE TO SUIT.

EXHAUST FAN SCHEDULE

REFER	AREA SERVED	AIR FLOW CFM	E.S.P. IN.W.C.	ELECTRICAL		DRIVE	FAN SPEED RPM	UNIT WEIGHT LBS	SOUND LEVEL dBA	CONTROL	MANUFACTURER, MODEL AND ACCESSORIES
				MOTOR SIZE HP	VOLTAGE						
EF-1	UNIVERSAL WASHROOM	122	0.744	1/3	120V/1ø/60Hz	DIRECT	1725	31	–	SWITCH	COOK 101C17D OR60; COMPLETE WITH ROOF CURB
EF-2	MACHINE ROOM	122	0.744	1/3	120V/1ø/60Hz	DIRECT	1725	31	–	SENSOR	COOK 101C17D OR60; COMPLETE WITH ROOF CURB

NOTES:
1. ALL FANS SHALL INCLUDE VIBRATION ISLOATION AND STARTERS.
2. REFER TO THE CONTROL SCHEMATICS AND SEQUENCES OF OPERATION.
3. ACCEPTABLE MANUFACTURERS SUBJECT TO SHOP DRAWING REVIEW: CARNES, GREENHECK, REVERSOMATIC, BROAN.

RETURN/ EXHAUST GRILLE SCHEDULE

SYMBOL	SIZE MM x MM (IN. x IN.)	APPLICATION	NECK SIZE MMø (INSø)	AIRFLOW RANGE CFM	NC RANGE	MANUFACTURER AND MODEL (BASIS OF DESIGN: E.H. PRICE)
R-1 CFM / E-1 CFM	300x300 (12x12)	CEILING GRILLE	–	<450	<30	80D
R-2 CFM / E-2 CFM	600x300 (24x12)	CEILING GRILLE	–	<800	<30	80D
R-3 CFM / E-3 CFM	600x600 (24x24)	CEILING GRILLE	–	<2000	<30	80D
R-4 CFM	500x500 (20x20)	CEILING GRILLE	–	<1500	<30	80D
R-5 CFM	750x350 (30x14)	WALL GRILLE	–	<835	<30	530D
R-6 CFM	750x250 (30x10)	DUCT GRILLE	–	<540	<30	530D

NOTE(S): 1. ACCEPTABLE ALTERNATES SUBJECT TO SHOP DRAWING REVIEW: TITUS, METALAIRE, KRUEGER OR APPROVED EQUAL.
2. ALL RETURN GRILLES SHALL C/W MERV 13 FILTERS.

LOUVER SCHEDULE

TAG	MANUFACTURER	MODEL	MIN SECTION SIZE (IN) (WXH)	MAX SECTION SIZE (IN) (WXH)	FINISH	ACCESSORIES
LOU-1	PRICE INDUSTRIES	DE439 FIXED BLADE LOUVER	9 X 9.5	72 X 120	COLOUR ANODIZED (TO MATCH WITH THE EXISTING BUILDING)	DRAINABLE LOUVER C/W BIRD SCREEN, FRAME, MOTORIZED DAMPER

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PROJECT :
KING'S ROAD PS,
ACCESSIBILITY UPGRADES PROJECT
660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE :
MECHANICAL LEGENDS, GENERAL NOTES, EQUIPMENT SCHEDULE

RCEI
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CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905)844-3913
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DATE :	December 2025
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DWG STATUS :	REVIEW
PROJECT No. :	2025-502
DRAWING No. :	M1.0
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PLUMBING FIXTURE CONNECTION SCHEDULE

TAG	FIXTURN NAME	SANITARY		VENT		DCWS		DHWS		TEMPERED		REMARKS
		MM	INS	MM	INS	MM	INS	MM	INS	MM	INS	
W1–BF	WATER CLOSET FLOOR MOUNTED– FLUSHOMETER –EXPOSED–MANUAL	75	3	38	1.5	32	1.25	–	–	–	–	1. American Standard Madera FloWise 3461001.020 Barrier free Toilet, Floor mounted with floor outlet, Toilet operates in the range of 4.2 to 6.0 LPF (1.1 – 1.6 GPF), Vitreous china, White finish, Ever Clean antimicrobial surface, Elongated bowl, 419 mm (16–1/2") rim height, 254 mm (10") to 305 mm (12") rough–in from wall to the center of waste outlet, Direct–fed siphon jet flush action, 38 mm (1–1/2") top spud, Flush valve by others, Fully–glazed 54 mm (21/8") trapway, Condensation channel, Toilet seat not included, Two (2) colour matched bolt caps with retainers (481310–100). Overall Dimensions: 356 mm (14") wide x 718 mm (28–1/4") from finished wall Water Surface: 254 x 305 mm (10" x 12") water surface area. 2. Centoco #500STSCCFE–001 FAST–N–LOCK, for elongated bowl, Open front, Heavy–duty, For commercial applications, Polypropylene, Toilet seat, Less seat cover, Plastic commercial check hinges, and Stainless–steel hinge pin, Specified in White finish, 3. SL–ROYAL 111–1.28 ROYAL Manual Exposed Water closet flushometer, 38 mm (1–1/2") spud coupling For top spud toilet, constructed from Semi–red brass, Polished chrome finish, High Efficiency 4.8 LPF (1.28 GPF), Chloramine resistant PERMEX®synthetic rubber diaphragm, Metal oscillating handle with triple seal handle packing, Flush tube for 292 mm (11–1/2") rough–in, Adjustable tailpiece, 25mm (1") I.P.S. screwdriver Bak–Chek®angle control stop with free spinning vandal–resistant stop cap, Dual–filtered fixed bypass, Sweat solder adapter kit with cover tube, High back pressure vacuum breaker, Inlet located right of valve, 25 mm (1") supply pipe, Cast wall flange with set screw, Non–hold–open, no external volume adjustment, Pressure Range: 103 – 552 kPa (15 – 80 PSI) operating water pressure Compliances and certifications: Requires less than 5 pounds of force to activate (push–button), cUPC compliant. 4. CM–16104 wall mounting, back rest, solid core plastic laminate panel back, Antique white, 305 mm (12") wide, 102 mm (4") high, 8" (204 mm), 18 gauge stainless steel bar with #4 gloss with flanges and covers, concealed snap flanges and mounting hardware included, Provide adequate backing in wall for support and comply to local codes for barrier free requirements
L1–BF	WALL HUNG LAVATORY– TWO HANDLE FAUCET	50	2	32	1.25	13	0.50	13	0.50	13	0.5	1. American Standard Murro with Ever clean #0954.004EC/0059.020EC Basin, 540mm x 520mm x 165mm (21–1/4" x 20–1/2" x 6–1/2") high, vitreous china, for carrier with concealed arms, rear overflow, recessed self–draining faucet ledge, semi–pedestal P–trap cover. 2. Chicago Faucets #802–VCP–317VP–XK–E2805 Two handle faucet, 4" (102mm) centerset, solid brass body construction, ceramic 1/4 turn cartridge, with Vandal Resistant 1.9LPM (0.5 GPM), aerator outlet, metal red and blue index buttons 102mm (4") long wrist blade handle with vandal resistant screw. 3. McGuire #155AC open grid drain, chrome plated cast brass one piece top, 1.5mm (1/16") tubular 32mm (1–1/4") tailpiece. 4. McGuire #H170BVRB Faucet Supplies, chrome finish polished brass, 13mm (1/2") I. D. Inlet x 127mm (5") horizontal extension tubes, combination V. P. Loose key handle, escutcheon and stainless steel braided flexible riser. 5. McGuire #8872C P–Trap, heavy cast brass adjustable body, with slip nut, 32mm (1–1/4") size, shallow wall flange and seamless tubular wall bend 6. Watts #TCA–411, Carrier, mounted on concrete floor, with epoxy coated cast iron concealed arms with sliding adjustable arm brackets, heavy gauge steel uprights with integral welded feet. Minimum space required: for one unit: 102mm (4") for two to six units in a row: 152mm (6") finished metal stud wall to back of pipe space.
FD	FLOOR DRAIN	75	3	38	1.5	–	–	–	–	–	–	Refer to specifications.
TSP	TRAP SEAL PRIMER	–	–	–	–	10/13	0.38/0.50	–	–	–	–	One – 10MM/0.38" PER FD, FFD, HD, PD

ELECTRIC HEATER SCHEDULE

REFER	TYPE	MAKE/MODEL	AIRFLOW CFM	HEATING CAPACITY	FAN MOTOR	ELECTRICAL			WEIGHT (LBS)	DIMENSIONS LXWXH (IN)	REMARKS
				MBH	HP	VOLTAGE	M.C.A.	M.O.C.P.			
EH–1/ EH–3	HEAVY–DUTY STEEL BASEBOARD HEATER	OUELLET/ OPR1508	–	5.1	–	208/1/60			37	63–15/16 X 3–1/8 X 10–1/8	
EH–2	CEILING FAN HEATER	OUELLET/ ODSR02008	310	6.8	1/50	208/1/60			31	23–5/8 X 23–5/8 X 8–3/4	
UH–1	COMMERCIAL INDUSTRIAL SUSPENDED UNIT HEATER	OUELLET/ OAS02008AM	510	6.8	1/30	208/1/60			45	16–1/2 X 12–1/8 X 17	

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PROJECT :
KING'S ROAD PS,
ACCESSIBILITY UPGRADES PROJECT
660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

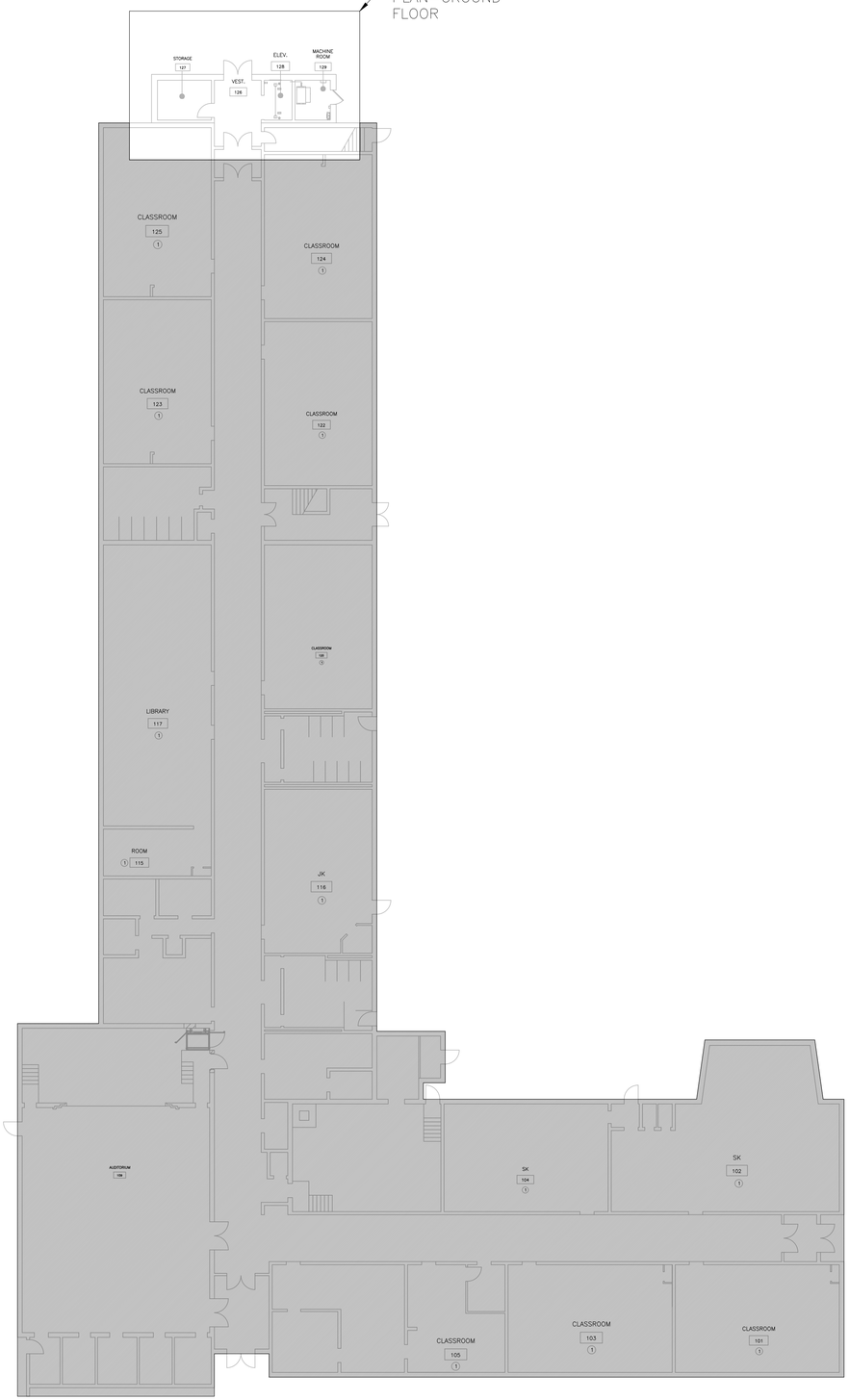
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DWG TITLE :
PLUMBING FIXTURE CONNECTION SCHEDULE

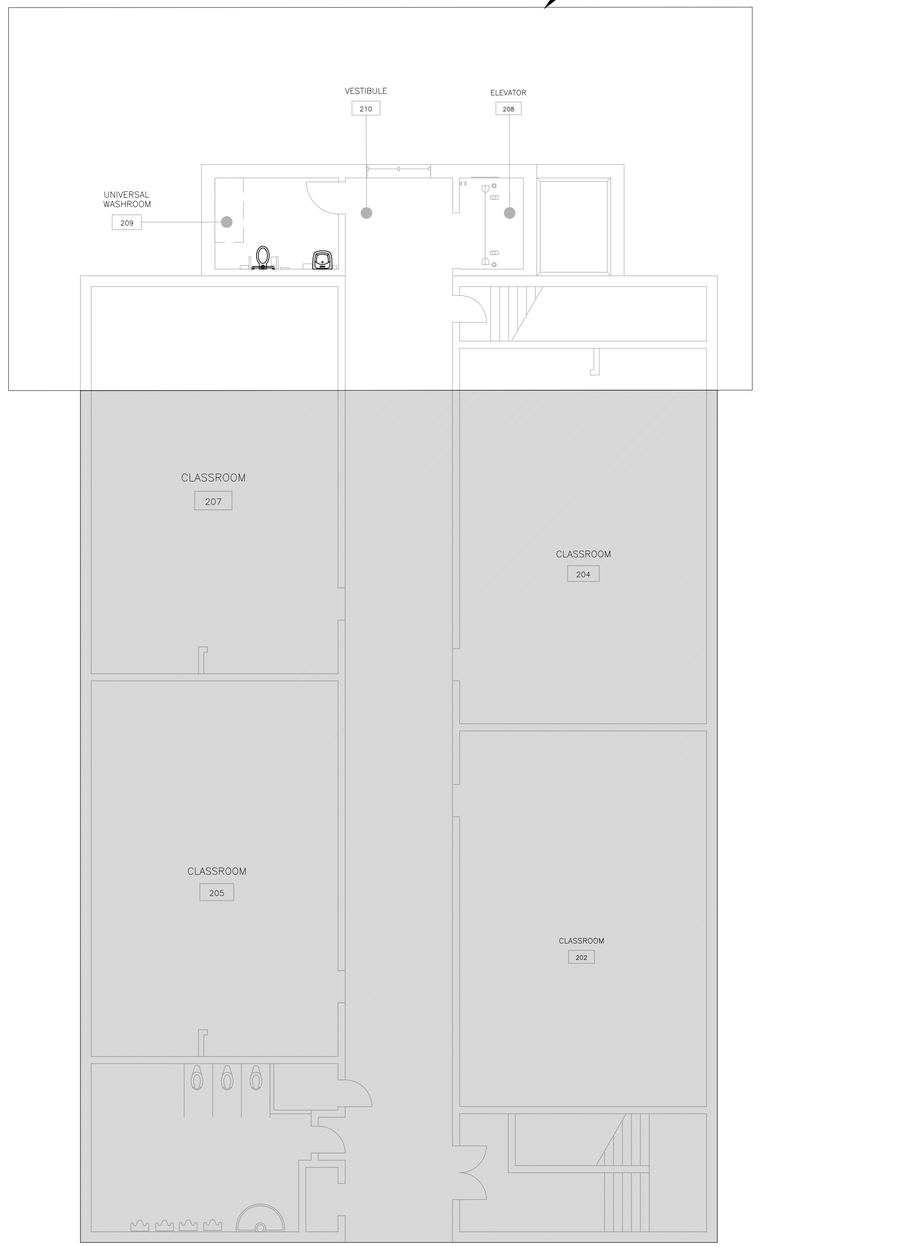
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REVISION

MECHANICAL KEY PLAN–GROUND FLOOR



MECHANICAL KEY PLAN–SECOND FLOOR



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PROJECT :

KING'S ROAD PS, ACCESSIBILITY UPGRADES PROJECT

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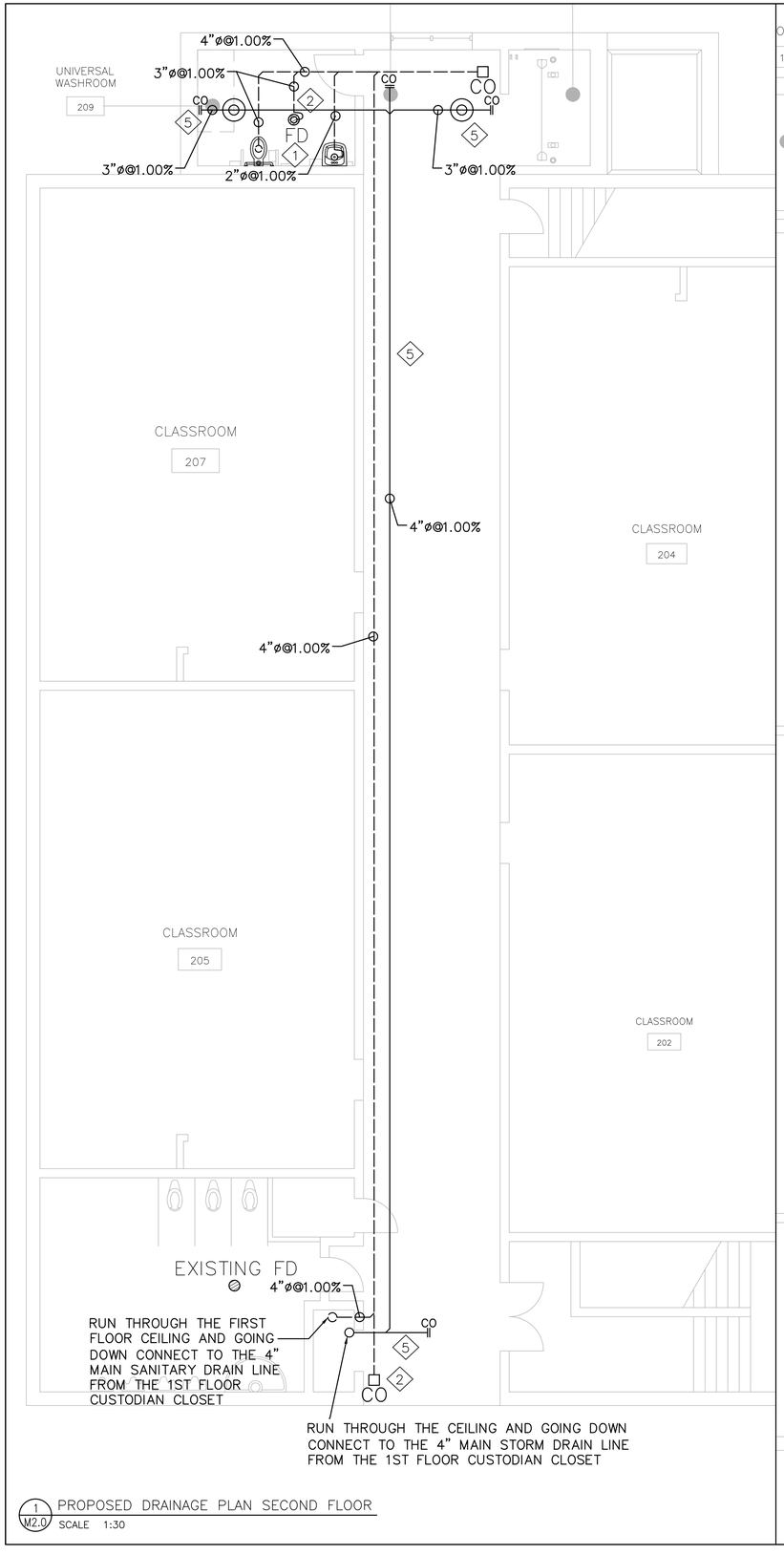
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DWG TITLE :

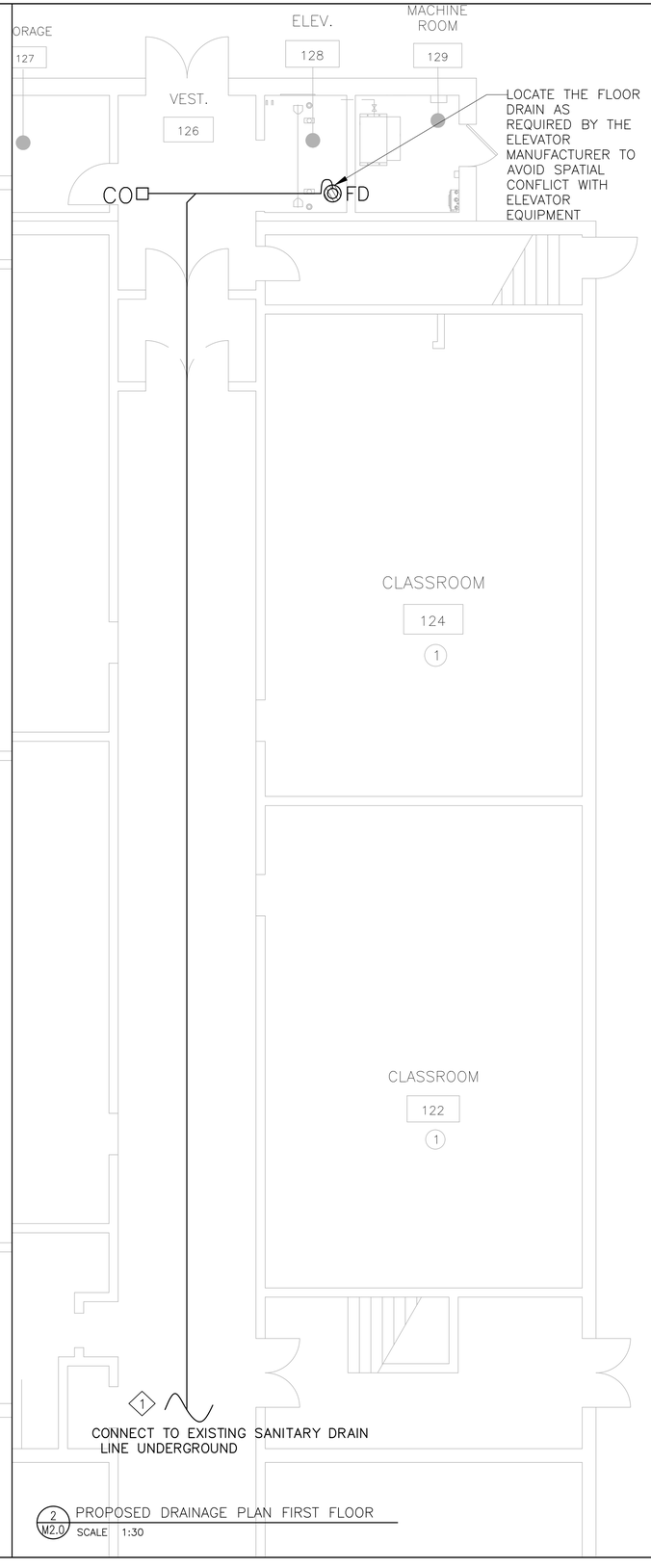
MECHANICAL KEY PLANS

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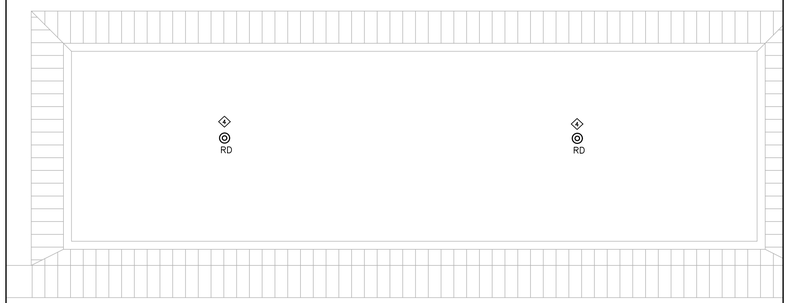
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DRAWING No. :	M1.2
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1 M2.0 PROPOSED DRAINAGE PLAN SECOND FLOOR
SCALE 1:30



2 M2.0 PROPOSED DRAINAGE PLAN FIRST FLOOR
SCALE 1:30



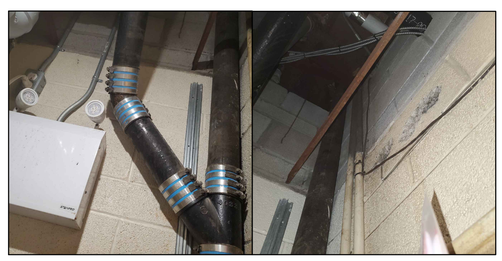
3 M2.0 PROPOSED ROOF DRAINS – SECOND FLOOR ROOF
SCALE 1:70

DRAWING NOTES

1	PROVIDE AND INSTALL NEW SANITARY DRAIN PIPES ALONG WITH P-TRAPS, CLEAN OUT AND ALL ASSOCIATED ACCESSORIES AND CONNECT TO THE NEW PLUMBING FIXTURES AS SHOWN. MECHANICAL TRADE TO SCAN THE FLOOR TO FIND THE EXACT LOCATION OF THE UNDERGROUND EXISTING SANITARY LINE. CONNECT THE NEW SANITARY LINE TO THE EXISTING. THE CONTRACTOR TO CUT AND REMOVE THE CONCRETE SLAB AS REQUIRED TO COMPLETE THE PLUMBING SCOPE.
2	ALL CLEANOUTS AND FLOOR DRAINS TO BE INSTALLED AT THE HEIGHT OF THE FINISHED FLOOR.(USE ADJUSTABLE HEIGHT DRAINS TO ACCOMMODATE DIFFERENT FINISHED FLOOR HEIGHTS)
3	CONTRACTOR TO PROVIDE 3"ø VENT PIPE RISER TO THE CEILING SPACE AND CONNECT TO THE EXISTING VENTING SYSTEM AS PER OBC AND LOCAL AHJ.
4	PROVIDE AND INSTALL RAIN WATER DRAING PIPE AS SHOWN.
5	RUN THE RAIN WATER PIPE AT HIGH LEVEL IN THE CEILING SPACE. COORDINATE WITH OTHER SERVICES IN THE CEILING SPACE.



4" MAIN SAITARY DRAIN LINE FROM THE 1ST FLOOR CUSTODIAN CLOSET



4" MAIN STORM DRAIN LINE FROM THE 1ST FLOOR CUSTODIAN CLOSET

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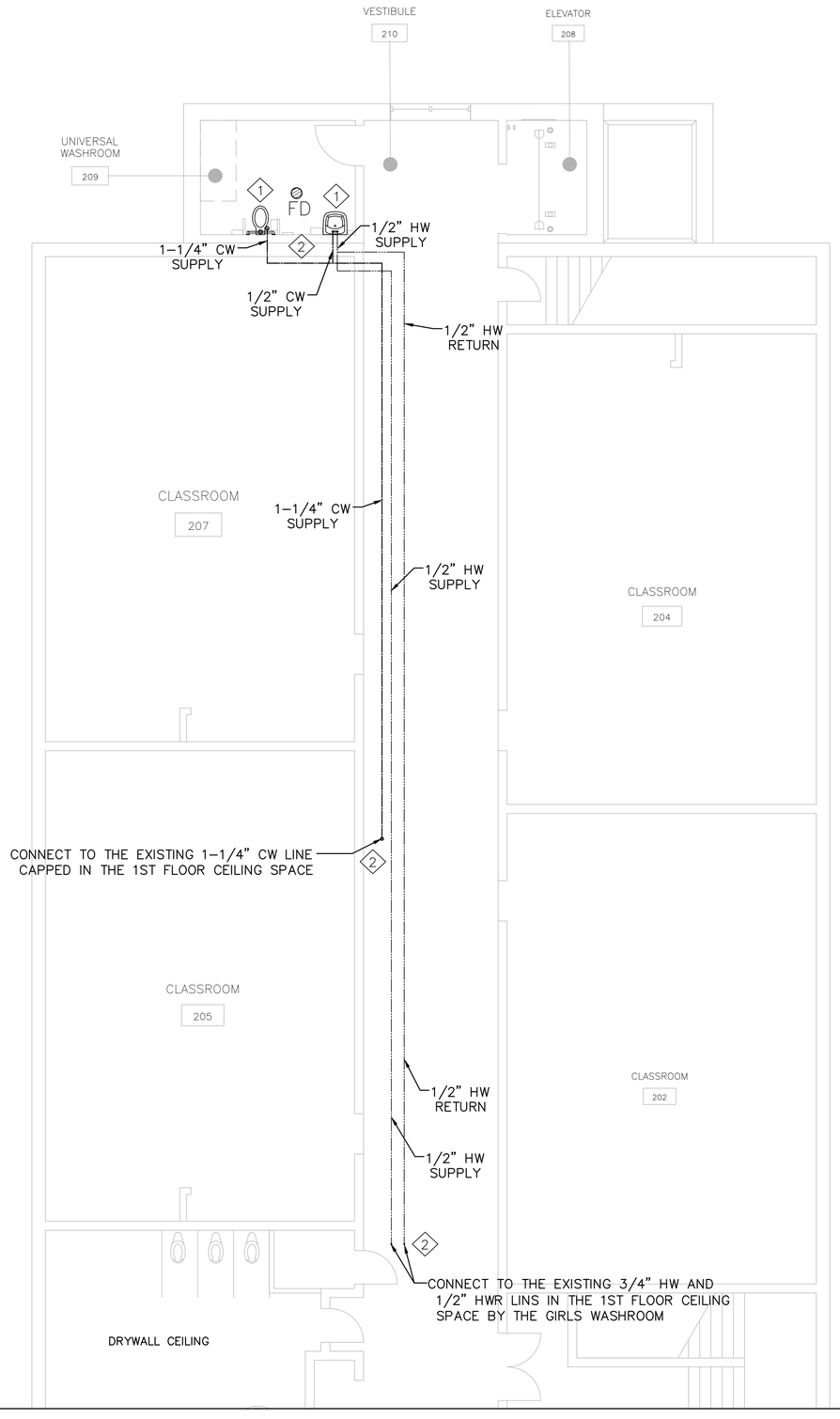
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HALTON DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE :
PROPOSED DRAINAGE PLAN

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DRAWING NOTES

1	SUPPLY AND INSTALL NEW FIXTURE UNITS AT THE LOCATION SHOWN. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION. PROVIDE HOT, COLD WATER AND HOT WATER RE-CIRCULATION CONNECTIONS.
2	PROVIDE AND INSTALL NEW DOMESTIC COLD WATER, HOT WATER AND HOT WATER RE-CIRCULATION PIPES FROM THE EXISTING WASHROOM, RUN THROUGH THE CEILING SPACE AND CONNECT TO THE NEW PLUMBING FIXTURES ALONG WITH FITTINGS, SUPPORT, VALVES, INSULATION ETC.
3	MECHANICAL CONTRACTOR TO VERIFY THE EXACT LOCATION OF THE EXISTING PIPES TO CONNECT.

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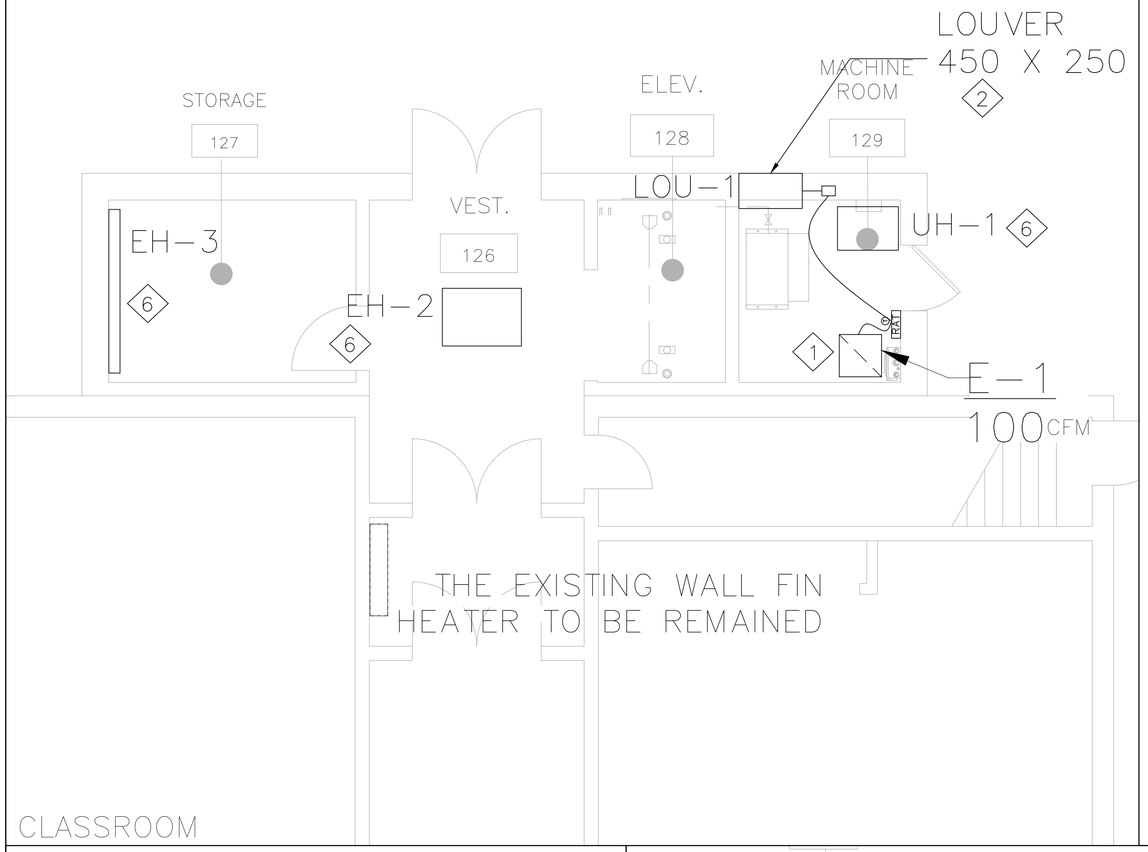
PROFESSIONAL SEAL :

DWG TITLE :
PROPOSED PLUMBING PLAN

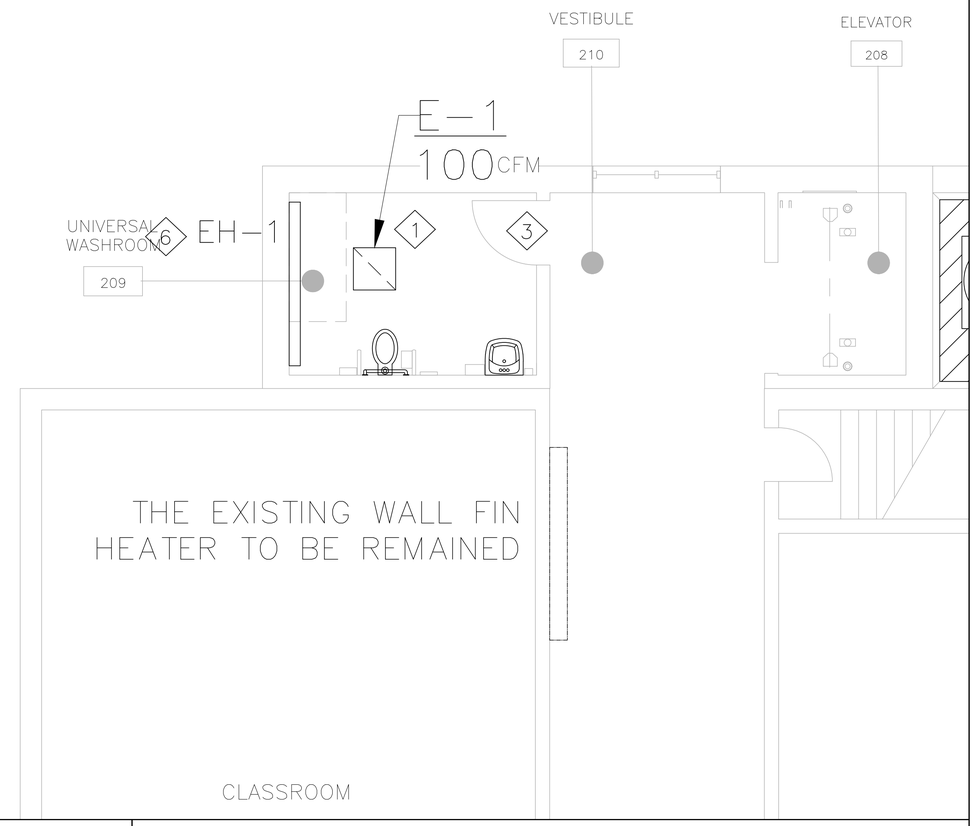
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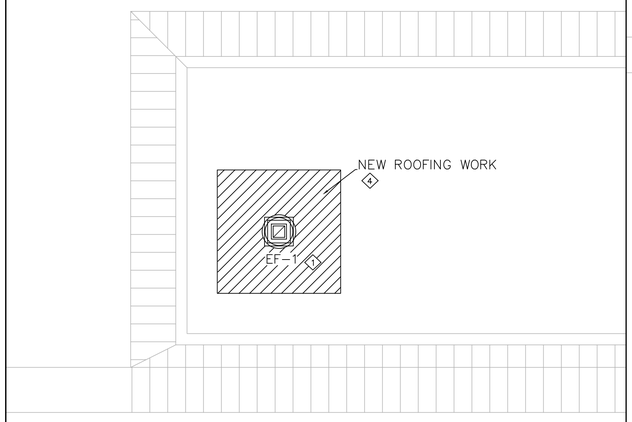
1 M3.0 PROPOSED HVAC PLAN – MACHINE ROOM
SCALE 1:20



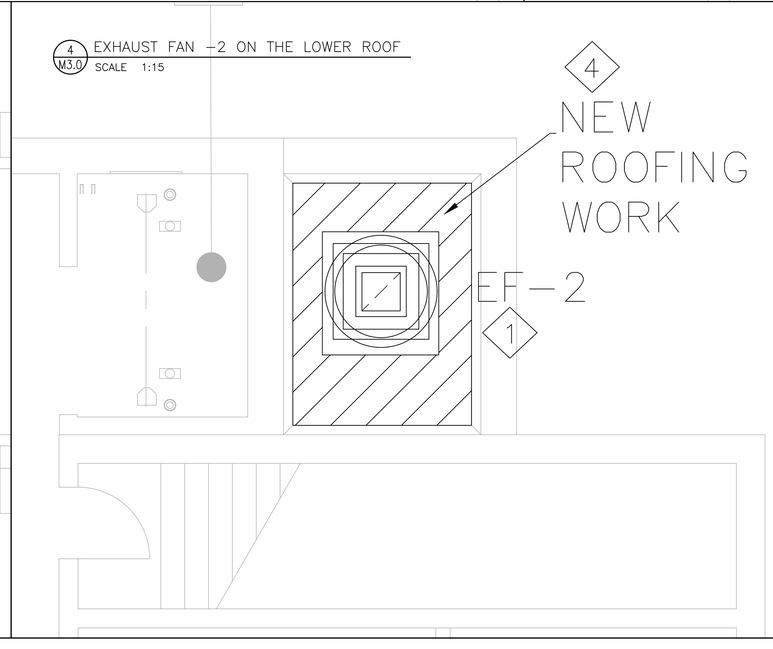
2 M3.0 PROPOSED HVAC PLAN – UNIVERSAL WASHROOM
SCALE 1:20



3 M3.0 EXHAUST FAN –1 ON ROOF
SCALE: 1:50



4 M3.0 EXHAUST FAN –2 ON THE LOWER ROOF
SCALE 1:15



DRAWING NOTES

1	PROVIDE AND INSTALL A DOWNBLAST EXHAUST FAN WITH A ROOF CURB AND A REVERSE ACTING THERMOSTAT.
2	PROVIDE AND INSTALL A DRAINABLE LOUVER WITH A BIRDSCREEN AND A MOTORIZED ACTUATOR CONNECTED TO THE RAT IN THE MECHANICAL ROOM AS SHOWN
3	ARCHITECT TO PROVIDE A DOOR WITH AN UNDERCUT.
4	NEW ROOFING WORK TO BE FINISHED 3FT AROUND THE PROPOSED EQUIPMENT.
5	ALL THE ROOFING WORK REQUIRED SHALL BE CARRIED OUT BY THE SCHOOL BOARD'S APPROVED ROOFING CONTRACTOR.
6	PROVIDE AND INSTALL ELECTRICAL BASEBOARD, CEILING FAN AND UNIT HEATERS AS SHOWN

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PROJECT :
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660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE :
PROPOSED HVAC PLAN

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DWG STATUS : REVIEW
PROJECT No. : 2025-502
DRAWING No. : M2.2
REVISION

GENERAL SPECIFICATION

DEFINITIONS

1. WHEREVER THE TERM "INSTALL" IS USED IT MEANS INSTALL AND CONNECT COMPLETE.
2. WHEREVER THE TERM "SUPPLY" IS USED IT MEANS SUPPLY ONLY.
3. WHERE THE TERM "PROVIDE" IS USED IN RELATION TO EQUIPMENT, ETC., IT MEANS "SUPPLY, INSTALL, CONNECT, AND COMMISSION.
4. WHEREVER THE TERM "REMOVE" IS USED IT MEANS DISCONNECT AND DISPOSE FROM THE BUILDING AND SITE.

ABBREVIATIONS

1. "N" NEW ITEM TO BE SUPPLIED AND INSTALLED.
2. "EX" EXISTING ITEM TO REMAIN.
3. "REL" RELOCATE EXISTING ITEM TO NEW LOCATION.
4. "REM" REMOVE EXITING ITEM.

ABBREVIATIONS

1. THE DRAWINGS AND SPECIFICATIONS WILL BE READ WITH ARCHITECTURAL DRAWINGS. THE OWNER'S BUILDING REQUIREMENTS, THE LEGEND, AND SPECIFICATIONS OF THE DRAWING. MAXIMUM CONDITIONS WILL GOVERN. REVIEW MECHANICAL DRAWINGS AND PROVIDE POWER TO ALL MECHANICAL DEVICES WITH MAY BE ABSENT FROM THE ELECTRICAL DRAWINGS.
2. ACCURATE DIMENSIONS FOR THE WORK MUST BE OBTAINED FROM ARCHITECTURAL OR ACTUAL MEASUREMENT ON THE SITE.
3. VISIT THE SITE PRIOR TO TENDER AND VERIFY ALL CONDITIONS AND DIMENSIONS, INCLUDING LOCATIONS OF EXISTING CAPPED SERVICES, AND ALL FOR ANY REROUTING OF EXISTING AND/OR NEW SERVICES AND EQUIPMENT IN TENDER PRICE. FAILURE TO DO SO SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY.
4. REPORT TO THE ENGINEER ALL AMBIGUITIES, DISCREPANCIES, OMISSIONS, ERRORS, DEPARTURES FROM BUILDING BYLAWS AND/OR FROM GOOD PRACTICE PRIOR TO TENDER CLOSING.
5. PROVIDE ALL WORK IN ACCORDANCE WITH THE ONTARIO BUILDING CODE, AND THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES, AND LOCAL BY-LAWS.
6. APPLY FOR, OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED PRIOR TO COMMENCEMENTS OF CONSTRUCTION. INCLUDE ALL PROVINCIAL AND FEDERAL SALES TAXES.
7. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED SCHEDULE TO MEET THE PROJECT COMPLETION DATE AND ALL SPECIFIED INTERIM SCHEDULES.
8. COMPLY WITH THE GENERAL CONTRACTOR'S CONSTRUCTION SCHEDULE.
9. MAKE GOOD ALL DAMAGES TO ADJACENT WORK, PROVIDE ALL CUTTING, PATCHING, FLASHING WORK AND CLEAN-UP OF FLOORS, WALLS, CEILINGS, ETC.
10. PROVIDE PROPER SHOP DRAWINGS OF ALL SPECIFIED PRODUCTS AND SUBMIT FOR APPROVAL TO THE ARCHITECT AND ENGINEER.
11. DURING PROGRESS OF WORK, SUBSTITUTE PRODUCTS WILL ONLY BE CONSIDERED WHEN TENDERED PRODUCTS BECOME UNOBTAINABLE AND WRITTEN PROOF IS SUBMITTED.
12. THE QUALITY AND PERFORMANCE CHARACTERISTICS OF SUBSTITUTE PRODUCTS SHALL BE EQUAL TO THE SPECIFIED PRODUCTS. IMPLEMENTATION OF SUBSTITUTE PRODUCTS IS SUBJECT TO THE REVIEW OF PROPERLY SUBMITTED SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER.
13. ASSUME RESPONSIBILITY AND PAY FOR ANY ADDITIONAL INSTALLATION COSTS INCURRED BY ALL DIVISIONS RESULTING FROM THE ALTERNATES AND/OR SUBSTITUTIONS. MAKE REVISIONS TO RECORD DRAWINGS INCORPORATING ALL ALTERNATES AND/OR SUBSTITUTIONS AND ALL RELATED CHANGES.
14. PROVIDE THE OWNER WITH A WRITHEN WARRANTY, FOR ALL LABOUR, MATERIALS, AND EQUIPMENT IN THIS CONTRACT, FOR A PERIOD OF ONE YEAR COMMENCING AT SUCH TIME AS THE OWNER, OR HIS REPRESENTATIVE, DEEMS THE WORK ACCEPTABLE.
15. OBTAIN AND PAY FOR ONE (1) SET OF TRANSPARENCIES AND ONE (1) SET OF WHITE PRINTS. MARK PRINTS TO ACCURATELY INDICATE INSTALLED WORK AND TRANSFER ALL INFORMATION ONTO THE SET OF TRANSPARENCIES. UPON COMPLETION OF THE WORK SUBMIT THE COMPLETED RECORD DRAWINGS AND TRANSPARENCIES TO THE ENGINEER AND THE OWNER.
16. ASSEMBLE THREE (3) MANUALS, EACH CONTAINING DATA SHEETS, BROCHURES, OPERATING, MAINTENANCE, RECOMMENDED SPARE PARTS, AND LUBRICATING INSTRUCTIONS AND A COMPLETE SET OF REVIEWED SHOP DRAWINGS AND BIND IN HARD SECTIONS AND VOLUMES. PRESENT ONE (1) COPY FOR REVIEW BY CONSULTANT. MAKE ALL CORRECTIONS REQUESTED BY THE CONSULTANT AND RESUBMIT FOR REVIEW.
17. INCLUDE COST OF PREMIUM THE IN TENDER PRICE FOR WORK DURING NIGHTS, WEEKENDS OR OTHER TIME OUTSIDE NORMAL WORKING HOURS NECESSARY TO MAINTAIN ALL MECHANICAL SERVICES IN OPERATIONS, AND TO COMPLETE THE WORK SUBMISSION FOR EXTRA OR DELETED WORK.
18. PROVIDE A COMPLETE COST BREAKDOWN OF ALL MATERIALS, EQUIPMENT AND LABOUR COSTS ASSOCIATED WITH EACH SUBMISSION FOR EXTRA OR DELETED WORK.
19. CONFER WITH ALL TRADES INSTALLING EQUIPMENT WHICH MAY AFFECT THE MECHANICAL WORK AND ARRANGE THE WORK IN PROPER RELATION WITH EQUIPMENT INSTALLED UNDER ALL DIVISIONS OF THE CONTRACT.
20. INSTALL ALL PIPING IN THE BEST WORKMANLIKE MANNER AND IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADES.
21. PROVIDE SLEEVES FOR ALL NEW PIPING THROUGH EXISTING SLAB, BEAMS, SLAB TO SLAB WALL ETC. WHERE INDICATED AND/OR REQUIRED. OBTAIN BASE BUILDING STRUCTURAL ENGINEER'S APPROVAL PRIOR TO COMMENCEMENT OF WORK.
22. IDENTIFY EACH PIPED AND DUCTED SERVICE COMPLETE WITH DIRECTIONAL FLOW ARROWS. LOCATE IDENTIFICATION AND FLOW ARROWS NOT MORE THAN 12M (40') APART IN STRAIGHT RUNS OF PIES AND DUCTS. USE WORDING INDICATED ON THE MECHANICAL LEGEND. USE 50MM(2") HIGH STENCIL LETTERS.
23. ALL WALL AND FLOOR OPENINGS SHALL BE PACKED AND SEALED WITH AN APPROVED FIRE RESISTANT INSULATION TO 25MM (1") FROM END SIDE OF OPENING ON BOTH SIDES OF FLOOR OR WALL. REMAINING PORTION SHALL BE SEALED WITH AN APPROVED FIRE STOP SUBSTANCE EQUAL TO 'DOW CORNING' #3-6548 SILICON RTV FOAM PENETRATION SEALANT.
24. IN ALL AREAS REQUIRING CORE DRILLING THROUGH EXISTING FLOOR SLAB FOR MECHANICAL SERVICES, ETC. ALLOW FOR ALL NECESSARY RADIOGRAPHY TO LOCATE HIDDEN ELECTRICAL SERVICES, STRUCTURAL REINFORCING, ETC., AND INCLUDE ALL COSTS IN TENDER PRICE. CO-ORDINATE THIS WORK WITH OWNER COOORDINATOR FOR TIME DURATION AND LOCATION REQUIRED AND ADHERE TO THE OWNER'S REQUIREMENTS. SUBMIT CORE DRILLING PLAN TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
25. CHECK AND VERIFY LOCATION OF EXISTING MECHANICAL AND ELECTRICAL INTERFERENCES IN CEILING SPACE OF FLOOR BELOW AND/OR BELOW FLOOR SLAB IN ALL AREAS REQUIRING CORE DRILLING AND/OR CUTTING OF FLOOR SLAB ON GRADE AND ENSURE COMPATIBILITY OF AREA BELOW TO THE SATISFACTION OF THE OWNER.
26. ALL SHUTDOWNS OF ANY PORTION OF THE EXISTING BASE BUILDING SYSTEMS SHALL BE PERFORMED BY THE OWNER'S BUILDING OPERATIONS STAFF AND/OR COORDINATED WITH THE OWNER FOR TIME AND DURATION OF INTERRUPTIONS AND ADHERE TO THE OWNER'S INSTRUCTIONS IN THE REGARD. COST FOR SHUTDOWNS, DRAINING AD REFILLING OF BASE BUILDING SYSTEMS SHALL BE INCLUDED IN THE TENDER PRICE.
27. PROVIDE ALL ACCESS DOORS WHERE SHOWN AND/OR REQUIRED BY SITE CONDITIONS. IN CEILINGS OR WALLS. ACCESS DOORS SHALL BE EQUAL TO MILCOR OR LEHAAGE AND MUST BE COMPATIBLE WITH CEILING/WALL TYPE AND FINISH INSTALLATION TO COMPLY WITH THE ARCHITECT'S APPROVAL. ACCESS DOORS IN RATED CEILINGS OR WALLS SHALL BE ULC APPROVED FOR THE APPLICATION.
28. RE-USE EXITING MATERIALS AND EQUIPMENT WHEREVER POSSIBLE AND PROVIDE NEW ONLY WHERE REQUIRED AND AS SPECIFIED TO ENSURE A COMPLETE INSTALLATION. ALL EQUIPMENT, MATERIALS AND ASSOCIATED CONTROLS NOT USED IN THIS CONTACT SHALL BE RETURNED TO OWNER.
29. CHECK AND VERIFY ON SITE FOR ROUTING OF NEW DUCT WORK, PIPING AND LOCATION OF NEW EQUIPMENT AND INCLUDE IN TENDER PRICE FOR ANY RELOCATIONS OF EXITING SERVICES OR ADJUSTMENTS OF NEW SERVICES OF EQUIPMENT AS REQUIRED TO SUIT SITE CONDITIONS. PROVIDE OFFSETS IN PIPING AND CUT WORK AS REQUIRED TO AVOID INTERFERENCES.
30. SEAL AIRTIGHT ALL AROUND DUCT WORK AND PIPING PENETRATIONS THROUGH PARTITIONS ABOVE CEILING WITH APPROVED SEALANT FOR FIRE RATED ASSEMBLIES.
31. ALL DEFICIENCIES MUST BE COMPLETE WITH 4 WEEKS UPON NOTICE ISSUED BY THE ENGINEER. THE ENGINEER MAY HAVE THE DEFICIENCIES COMPLETED BY OTHERS AT THE CONTRACTOR'S EXPENSE, IF THE DEFICIENCIES ARE NOT CORRECTED.
32. ALL ELECTRIC BASEBOARD AND FORCED FLOW HEATER SHALL BE SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL ELECTRIC DUCT HEATERS ARE SUPPLIED AND INSTALLED BY THE MECHANICAL CONTRACTOR BUT WIRED BY ELECTRICAL.

MECHANICAL SPECIFICATION

PLUMBING

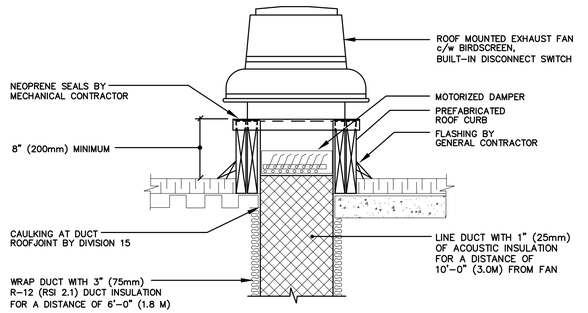
1. PLUMBING SERVICES ARE TO BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH:
   THE ONTARIO BUILDING CODE (2006)
   THE WATER RESOURCES ACT (REG. 815)
   ASHRAE/IES 90.1 (2004)
   FEDERAL, PROVINCIAL OR LOCAL AUTHORITIES HAVING JURISDICTION.
2. HOT AND COLD PORTABLE WATER PIPING TO BE TYPE-L COPPER (CONFORM TO ASTM-B88) WITH SOLDER-JOINT FITTINGS (CONFORM TO ANSI-B16.18 OR ANSI-B16.22).
3. BURIED DRAINAGE PIPING INSIDE THE BUILDING TO BE ABS PLASTIC (CERTIFIED TO CAN/CSA-B181.1) WITH SOLVENT CEMENT JOINT (CONFORM TO CAN/CSA-181.1).
4. ALL ABOVE GRADE SANITARY DRAINS AND VENT STACKS TO BE CAST IRON, NO HUB, WITH MJ JOINTS (CERTIFIED TO CSA-B70). BRANCH VENTS AND ABOVE GRADE SANITARY DRAINS MAY BE COPPER DRAINAGE TUBE (DWV) (COMPLY WITH ASTM-B306) WITH SOLDER JOINT FITTINGS (CONFORM TO ANSI-B16.29).
5. STANDARD FLOW ROOF DRAINS TO BE SMITH SERIES 1010ERCCID ROOF DRAIN, ALL DUCO COATED 15" (380MM) DIA. CAST IRON BODY, WITH UNDER DECK CLAMP, ADJUSTABLE EXTENSION AND SUMP RECEIVER, 11" (280MM) SECURED C.I. DOME. ON SMALL AREA ROOFS PROVIDE SERIES 1330ERCCID DRAIN, WITH 8 1/2" (212MM) ALUMINUM DOME. IN PATIO AND TRAFFIC AREAS PROVIDE SERIES 1470ERCNB DRAIN, WITH ADJUSTABLE SLOTTED EXTENSIONS AND 8" X 8" (200MM X 200MM) NICKEL BRONZE SQUARE PROMENADE TOP. INVERTED ROOF INSTALLATION USE SERIES 1017EPRCCID DRAINS.
6. FLOW CONTROL ROOF DRAINS SMITH SERIES 1083ERCCID FLOW CONTROL ROOF DRAIN SLOPED ROOF ALL DUCO COATED CST IRON BODY, WITH ECK CLAMP, ADJUSTABLE DETENTION AND SUM RECEIVER, 11" (280MM) SECURED C.I. DOME AND 6" HIGH (150MM) FLOW RATE CONTROL WEIR. INVERTED ROOF INSTALLATION US SERIES 1017-85-ERPCCID DRAINS.
7. PARAPET, SCUPPER DRAINS, GUTTER, AND PIT DRAINS TO BE SMITH SERIES 1510/30SO SCUPPER DRAIN, ALL DUCO COATED CAST IRON BODY, WITH SECURED ANGLED GRATE, FLASHING CLAMP AND 45 DEGREE OR 90 DEGREE OUTLETS. FOR GUTTER INSTALLATION USE SMITH SERIES 1630, WITH 4 1/2 (114MM) HIGH DOME.
8. FLOOR DRAINS IN FINISHED AREAS TO BE SMITH SERIES 2005A FLOOR DRAIN, ALL DUCO COATED CAST IRON BODY, REVERSIBLE CLAMP DEVICE AND ADJUSTABLE 5' DIAMETER (127MM) NICKEL BRONZE 1/4" (6.35MM) THICK STRAINER, SECURED WITH IS.S. SCREWS, 4" (100MM) THROAT ON STRAINER. IN QUARRY OR MOSAIC TILED AREAS, PROVIDE SQUARE 'B' - 5"X5" (127MM X 127MM) POLISHED BRONZE (PB) SQUARE STRAINER. FLOOR DRAIN WITH FUNNEL PROVIDE 2005A-3580NB.
9. FLOOR DRAINS IN MECHANICAL ROOMS AND UNFINISHED AREAS TO BE SMITH SERIES 2320 FLOOR DRAIN, ALL DUCO COATED CAST IRON BODY, SEEPAGE FLANGE, ADJUSTABLE COLLAR, CALMING DEVICE AND 8" (200MM) DIAMETER GRATE. FLOATING FLOORS PROVIDE 9340, WITH MOMENT COMPENSATOR AND VIBRATION ISOLATOR.
10. FLOOR DRAINS WITH COMBINATION FUNNEL TO BE SMITH SERIES 2320-3591FUNNEL FLOOR DRAIN, ALL DUCO COATED CAST IRON BODY, SEEPAGE FLANGE, ADJUSTABLE COLLAR, CLAMPING DEVICE AND 8-1.2" (216MM) WITH 4" X 9" (101.6MM X 228.6MM) OVAL FUNNEL. FLOATING FLOOR PROVIDE 9340*-3591, WITH MOVEMENT COMPENSATOR AND VIBRATION ISOLATOR.
11. EXTERIOR NON-FREEZE WALL HYDRANT TO BE SMITH SERIES 5609QTNB HYDRANT, 1/4 TURN NON-DRIOP, CERAMIC CARTRIDGE, 3/4" (19MM) NON-FREEZE WALL TYPE WITH BRONZE FACE, ADJUSTABLE WALL-OFLANGE OPERATION KEY AND SERF-DRAINING INTEGRAL VACUUM BREAKER. LENGTH TO SUIT WALL THICKNESS.
12. INTERIOR HOSE BIBB TO BE CAMBRIDGE BRASS #32W201 HOSE BIBB, 1/2" (12.7MM) SIZE, WALL TYPE ROUGH BRONZE WITH HOSE END VACUUM BREAKER.
13. LINE CLEANOUTS TO BE SMITH SERIES #4420 LINE CLEANOUTS, IN CAST IRON PIPE WITH BOLTED NEOPRENE CASKETED COVER SECURED TO BODY WITH BRASS BOLTS, WITH FULL SIZE PIPE OPENING.
14. STACK CLEANOUT TO BE SMITH SERIES #4510 STACK CLEANOUT, IN BASE OF CAST IRON STACK WITH NEOPRENE CASKETED SECURED COVER. WHERE CLEANOUTS ARE CONCEALED BEHIND FINISHED WALLS ACCESS SHALL BE MADE BY SMITH 4530 ROUND STAINLESS STEEL PLATE AND SLOTTED FLAT HEAD STAINLESS STEEL SCREWS.
15. URINAL CLEANOUT TO BE SMITH SERIES SQ4-1819 URINAL WALL ACCESS CLEANOUT , WITH S.S BOLT AND WING NUT, COMPLETE WITH ROUND POLISHED S.S. ACCESS COVER AND SECURED WITH V.P. SCREW.
16. FLOOR CLEANOUTS IN UNFINISHED AREAS AND OUTSIDE AREAS, SMITH SERIES 4220 FLOOR CLEANOUT, DUCO COATED CAST IRON BODY WITH INTEGRAL CLAMP DEVICE, AND REMOVABLE POSITIVE SEAL CLOSURE PLUG AND HEAVY DUTY 6" (150MM) ADJUSTABLE COVER SECURED WITH STAINLESS STEEL SCREWS.
17. FLOOR CLEANOUTS IN TILED AREAS, SMITH SERIES 4140 FLOOR CLEANOUT, SAME AS ABOVE WITH SQUARE NICKEL BRONZE COVER AND FRAME RECESSED FOR TILE. COVER CAN BE ADJUSTED TO SUIT FLOOR LINES WHEN INSTALLING FINISHED FLOOR.
18. FLOOR CLEANOUTS IN TERRAZZO AREAS, SMITH SERIES 4180 FLOOR CLEANOUT, SAME AS ABOVE WITH SQUARE NICKEL BRONZE COVER AND FRAME RECESS FOR TERRAZZO. COVER CAN BE ADJUSTED TO SUIT FLOOR LINES WHEN INSTALLING FINISHED FLOOR.
19. FLOOR CLEANOUTS IN CARPETED AREAS, SMITH SERIES 4020Y FLOOR CLEANOUT, SAME AS ABOVE WITH NICKEL BRONZE COVER AND FRAME.
20. FLOOR CLEANOUTS IN OTHER FINISHED AREAS, SMITH SERIES 4020 FLOOR CLEANOUT, SAME AS ABOVE WITH NICKEL BRONZE FRAME AND COVER.
21. FLOOR CLEANOUTS FOR HEAVY TRAFFIC AREAS, SMITH SERIES 4100 FLOOR CLEANOUT, SAME AS ABOVE WITH EXTRA HEAVY NICKEL BRONZE COVER AND FRAME.
22. TRAP SEAL PRIMER SERVING 1 OR 2 DRAINS TO BE P.P.P. INC. MODEL PO-500 AUTOMATIC TRAP SEAL PRIMER VALVE, SEARING INDIVIDUAL OR REMOTE AREA DRAINS WITH ½" NPT (MTOF) CONNECTIONS WITH STRAINER AND INTEGRAL BACK FLOW PREVENTER & VACUUM BREAKER.
23. PROVIDE ISOLATION VALVES ON ALL MAIN LINES, BRANCH LINES AND AT PIECES OF EQUIPMENT. ALL VALVES SHALL BE JENKINS, CRANE OR EQUAL WITH A MINIMUM RATING OF 125% OF THE SYSTEM DESIGN PRESSURE.
24. ALL ABOVE GRADE PIPING IS TO BE INSULATED WITH FIBREGLASS INSULATION TO PREVENT CONDENSATION OR TO RETAIN HEAT FOR ENERGY EFFICIENCY. INSULATION SYSTEM TO BE SCHULLER MICRO-LOK OR EQUAL, WITH SIZES AS SHOWN BELOW.

SERVICE & PIPE SIZE	INSULATION REQUIRED
RAINWATER LEADERS (ANY SIZE)	1"
SANITARY DRAINS (ANY SIZE)	1"
DOMESTIC COLD WATER (ANY SIZE)	1"
DOMESTIC HOT WATER (2" & SMALLER)	1"
DOMESTIC HOT WATER (2½" & LARGER)	1½"
DOMESTIC HOT WATER RECIRC.(ANY SIZE)	1"
DOMESTIC WATER (HOT OR COLD) BRANCHES	½"

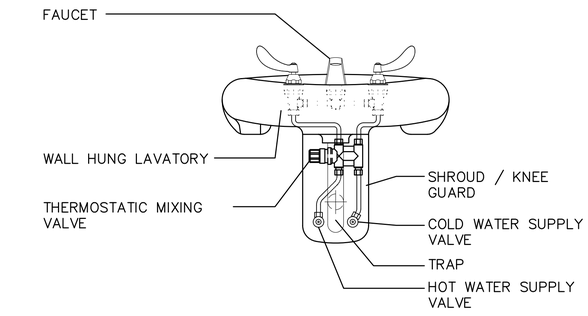
25. IDENTIFY ALL PIPE OR PIPE COVERING WITH SMILLIE MCADAMS SUMMERLIN LTD.COIL-MARK OR ADHESIVE STYLE BUILDING SERVICE PIE MARKER. ALL IDENTIFICATION SHALL INCORPORATE DIRECTION OF FLOW ARROW AND THE MANUFACTURES STANDARD SYSTEM DESIGNATION. IDENTIFICATION MUST BE APPLIED AT INTERVALS NOT GREATER THAN 40 FT. (12M). ADJACENT TO VALVES, BEHIND ACCESS DOORS, AT CHANGES IN DIRECTION AND WHERE PIPES PASS THROUGH WALLS OR FLOORS, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
26. IDENTIFY AL VALVES BY MEANS OF A 1-1/4" (32MM) DIAMETER BRASS TAG WITH 3/8" (9.5 MM) STAMPED BLACK PAINT FILLED CHARACTERS, OR A 1-1/4" (32MM) SQUARE ENGRAVED TWO-PLY PLASTIC TAG WITH 3/8" (9.5MM) BLACK CHARACTERS ON WHITE BACKGROUND, TAGS TO BE CONSECUTIVELY NUMBERED AND SECURED TO VALVES BY A BRASS BEAD CHAIN. PROVIDE AND MOUNT FOR OWNER A TYPED VALVE DIRECTORY IN A BLACK DOCUMENT FRAME, LISTING VALVE NUMBER, LOCATION, AND SERVICE. INDIVIDUAL FIXTURE VALVES NEED NOT BE IDENTIFIED.
27. IDENTIFY ALL EQUIPMENT SUCH AS, BUT NOT LIMITED TO FANS, PUMPS, MOTORS AHU'S AND THEIR RELATED STARTERS BY MEANS OF ON ENGRAVED TWO-PLY PLASTIC I.D. PLATE. EQUIPMENT I.D. PLATES SHALL HAVE 3/8" (9.5 MM) WHITE CHARACTERS ON BLACK BACKGROUND: STARTER I.D. PLATES SHALL BE AS ABOVE WITH 1/8"(3.1MM)CHARACTERS. ALL PLATES SHALL BE SIZED TO ACCOMMODATE REQUIRED DESCRIPTION BEARING TYPE OF EQUIPMENT, NUMBER AND SERVICE. LOCATE CONSPICUOUSLY AND SECURE WITH SELF ADHESIVE TAPE. RECOGNIZED ABBREVIATIONS WILL BE ACCEPTABLE. OTHER PROPOSED ABBREVIATIONS TO BE APPROVED BY THE CONSULTANT.
28. PROVIDE ACCESS PANELS TO ALL CONCEALED VALVES OR EQUIPMENT. SIZE OF PANELS TO ALLOW FOR MAINTENANCE OR REMOVAL OF ITEM.
29. UNIVERSAL ACCESS DOORS FOR WALLS AND CEILINGS TO BE ACUDOR SERIES UF-5000 ACCESS DOORS, 14 GA. (17MM) STEEL, RUST RESISTANT, CONTINUOUS CONCEALED HINGE, WITH POSITIVE AND SELF-OPENING SCREWDRIVER OPERATED LOCK. DOORS IN TILE WALLS SHALL BE STAINLESS STEEL AND SHALL SUIT TILE PATTERN. ALL OTHER PANELS SHALL BE PRIME PAINTED STEEL. MINIMUM SIZE OF PANELS SHALL BE 12" X 18" (300MM X450MM). WHEREVER POSSIBLE 24" X 24" (600MM X 600MM) PANELS SHALL BE USED.
30. RECESSED ACCESS DOOR FOR TILE APPLICATIONS TO BE ACUDOR SERIES AT-5020 RECESSED ACCESS DOOR FOR CEILING TILE, 16 GA. (1.5MM) STEEL WITH CONCEALED PIVOTING ROD TYPE HINGE AND ALLEN KEY OPERATED LOCK. DOOR TO BE RECESSED 5/8" (14MM) TO RECEIVE CEILING TILE. FOR CERAMIC WALL TILE PROVIDE #AT-5020SS STAINLESS STEEL RECESSED ACCESS DOOR WITH ALLEN KEY LOCK.
31. RECESSED ACCESS DOOR FOR DRYWALL APPLICATIONS TO BE ACUDOR SERIES DW-5015 RECESSED ACCESS DOOR, 16 GA. (1.5MM) STEEL WITH CONCEALED PIVOTING ROD TYPE HIGH AND SELF-OPENING SCREWDRIVER OPERATED LOCK. DOOR TO BE RECESSED 5/8"(14MM) TO RECEIVE DRYWALL. FLANGE OF DOOR TO BE GALVANIZED STEEL TAPING BEADING TO PROVIDE FINISH OF DRYWALL JOINTS.
32. FIRE RATED ACCESS DOORS TO BE INSULATED ACUDOR SERIES FW-5050 FIRE RATED ACCESS DOORS, FOR WALLS AND CEILING UL/ULC 1-1/2 HOUR 'B' LABEL WITH MAXIMUM TEMPERATURE RISE OF 250 DEGREES AFTER 30 MINUTES. DOOR WITH 2' (50MM) INSULATION, STEEL. 20 GA (1MM) WITH 16 GA. (1.6MM) FRAME, CONCEALED HINGE, SELF LATCHING RING PULL AND GREY BAKED ENAMEL FINISH.
33. PROVIDE PLUMBING FIXTURES AND EQUIPMENT AS SPECIFIED ON THE DRAWINGS. ALL ITEMS TO BE NEW AND OF THE HIGHEST QUALITY. ALL ITEMS INSTALLED BY THIS CONTRACTOR MUST BE INSTALLED COMPLETE AND INCLUDE ALL PIPING, VALVES AND MISCELLANEOUS FITTINGS, CONTROLS, SUPPORT BASE OR STRUCTURE, TO ENSURE A TOTALLY FUNCTIONAL UNIT OR SYSTEM. COORDINATE INSTALLATION WITH OTHER TRADES AS REQUIRED.
34. ALL PLUMBING INSTALLATIONS ARE TO BE IN THE BEST WORKMANLIKE MANOR AND IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE.
35. SUPPORT ALL PIPING AS FOLLOWS:

PIPE SIZE	DISTANCE BETWEEN SUPPORTS
1" & SMALLER (METALLIC)	6'-0" MAXIMUM
1¼" & SMALLER (METALLIC)	8'-0" MAXIMUM
½" & SMALLER (PLASTIC)	3'-0" MAXIMUM
1¼" & SMALLER (PLASTIC)	4'-0" MAXIMUM

36. PROVIDE SLEEVES FOR ALL PIPING PENETRATING WALLS AND FLOORS. ENSURE ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES ARE PROPERLY SEALED WITH AN APPROVED COMPOUND.
37. ALL TRENCHING, BEDDING, AND BACKFILL OF BURIED PIPING IS THE RESPONSIBILITY OF THE CONTRACTOR.



DETAIL OF ROOF MOUNTED EXHAUST FAN



DETAILS OF UNDER LAVATORY THERMOSTATIC MIXING VALVE

The Contractor shall verify all dimensions prior to commencement of the work.
All print and specifications are the property of the Architect and must be returned upon completion of the work.

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR 50% CD	Feb 11, 2026
2	ISSUED FOR 95% CD	March 11, 2026
3	ISSUED FOR 95% CD - M	March 19, 2026
4	ISSUED FOR COMMENTS	April 24, 2026
5	ISSUED FOR TENDER	June 4, 2026
6		
7		
8		

PROJECT : KING'S ROAD PS, ACCESSIBILITY UPGRADES PROJECT
660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE : MECHANICAL SPECIFICATIONS AND DETAILS

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
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www.regal-eng.com

DATE : December 2025
SCALE : NTS
DRAWN BY: TD
CHECKED BY : MA
DWG STATUS : REVIEW
PROJECT No. : 2025-502
DRAWING No. : M3.0
REVISION

LEGEND

▬	ELECTRICAL PANEL
	NON–FUSED DISCONNECT SWITCH
	MOTOR CONNECTION (SINGLE OR THREE PHASE)
MSB	MAIN SWITCH BOARD
	15A, 120V DUPLEX T–SLOT GROUND FAULT INTERRUPTER RECEPTACLE.
	DOOR OPERATOR
PL	OUTLET FOR PUSH TO LOCK
PUL	OUTLET FOR PUSH TO UNLOCK
SL	STROBE LIGHT FOR EMERGENCY RESPONSE SYSTEM
PU	PATIENT UNIT FOR EMERGENCY RESPONSE SYSTEM
OL	OCCUPIED LIGHT FOR EMERGENCY RESPONSE SYSTEM
ERS	EMERGENCY RESPONSE SYSTEM
HO	DOOR HOLD OPEN DEVICE
▬	FIRE ALARM CONTROL PANEL
	PHOTOELECTRIC TYPE SMOKE DETECTOR
AV	AUDIBLE & VISUAL DEVICE
F	FLUSH WALL OR CEILING MOUNTED FIRE ALARM HORN & STROBE
	EMERGENCY LIGHTING FIXTURE
	EMERGENCY LIGHTING FIXTURE AND BATTERY
	SURFACE OR RECESS MOUNTED LIGHTING FIXTURE. LETTER DENOTES TYPE
	SURFACE OR RECESS MOUNTED LIGHTING FIXTURE. LETTER DENOTES TYPE
	TELEPHONE OUTLET MOUNTED AT 1500MM A.F.F C/W 21MM CONDUIT.
OSS	WALL MOUNT PIR OCCUPANCY SENSOR
HD	HAND DRYER
	CEILING MOUNTED SPEAKER C/W 21MM CONDUIT
	WALL MOUNTED SPEAKER C/W 21MM CONDUIT
ES	OUTLET FOR SECURITY DOOR STRIKE
DC	OUTLET FOR SECURITY CONCEALED DOOR CONTACT
CR	OUTLET FOR SECURITY HID CARD ACCESS READER
WG	WIRE GUARD
R	'R' INDICATES RELOCATE
EX	'EX' INDICATES EXISTING
ER	'ER' INDICATES EXISTING TO REMAIN
	OUTLET FOR CLOSED CIRCUIT CAMERA
OS	CEILING MOUNTED OCCUPANCY SENSOR

GENERAL NOTES

1. ELECTRICAL CONTRACTOR SHALL BALANCE CIRCUIT LOADS AS CLOSELY AS POSSIBLE.
2. DIV 26 SHALL REFER TO ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS FOR ALL SCOPE OF WORK OF DIVISION 26 WHICH ARE RELATED TO OTHER TRADES.
3. PROVIDE AND INSTALL EACH ITEM MENTIONED OR INDICATED OF QUALITY AND SUBJECT TO QUALIFICATIONS NOTED. PERFORM ACCORDING TO CONDITIONS STATED EACH OPERATIONS STATED, EACH OPERATION PRESCRIBED. PROVIDE THEREFORE ALL LABOR, MATERIAL, EQUIPMENT, INCIDENTALS AND SERVICES REQUIRED TO COMPLETE THE INSTALLATION.
4. SCHEDULE AND COORDINATE ALL WORK WITH OTHER TRADES.
5. EXAMINE THE SITE, EXISTING EQUIPMENT AND THE LOCAL CONDITION AFFECTING THE WORK UNDER THIS CONTRACT. NO EXTRAS WILL BE PAID SUBSEQUENTLY FOR ANY OBVIOUS CONSIDERATIONS MISSED OR OVERLOOKED BY THE CONTRACTOR.
6. REFER TO MECHANICAL DRAWINGS AND COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION OF EQUIPMENT AND DEVICES PRIOR TO ROUGH IN.
7. RE–ROUTE AS REQUIRED TO MAINTAIN CONTINUITY FOR ALL SYSTEMS TO REMAIN WHICH ARE AFFECTED BY THE ADDITION/ALTERATION.
8. ANY INTERRUPTION TO THE POWER SUPPLY TO THE EXISTING BUILDING SHALL BE CO–ORDINATED WITH THE SCHOOL BOARD/ARCHITECT ON SITE.
9. PROVIDE AND INSTALL STAINLESS STEEL BLANK COVER PLATES WHERE OUTLETS ARE REMOVED FROM EXISTING WALLS THAT ARE TO REMAIN.
10. ALL ELECTRICAL WIRING AND LOW VOLTAGE WIRING SHALL BE RUN IN CONDUITS. FREE AIR CABLES ARE NOT PERMITTED ON THIS PROJECT.
11. PROVIDE AND INSTALL NEW FIRE ALARM DEVICES AS SHOWN ON THE DELIVERED DRAWINGS TO MATCH EXISTING AND CONNECT TO EXISTING RESPECTIVE FIRE ALARM ZONES AND CIRCUITS WITH SUFFICIENT CAPACITY, VERIFY ON SITE FOR MORE DETAILS. THE EXISTING FIRE ALARM PANEL SHALL BE RECONFIGURED, MODIFIED, PROGRAMMED AND UPDATED TO SUIT INCLUDING NEW BOOSTER POWER SUPPLY, NEW ZONE CARDS, NEW MODULES, NEW RELAYS ETC TO HANDLE THE INSTALLATION OF NEW FIRE ALARM DEVICES. PROVIDE 3/4" CONDUIT FOR FIRE ALARM WIRING, BACK BOXES, ETC AND ALL ACCESSORIES AS REQUIRED FOR A FULLY OPERATIONAL FIRE ALARM SYSTEM, ALLOW FOR TESTING AND VERIFICATION.
12. ALL ELECTRICAL INSTALLATIONS SHALL BE RECESSED/CONCEALED INSTALLATIONS WHEREVER POSSIBLE; OTHERWISE PROVIDE WIREMOLD STEEL SURFACE MOUNTED RACEWAY C/W SURFACE MOUNTED OUTLETS. CO–ORDINATE WITH CONSULTANTS PRIOR TO INSTALLATION.
13. IDENTIFY THE SCOPE OF WORK FOR REMOVAL OF THE CEILING TILES TO GENERAL CONTRACTOR FOR PRICING PURPOSE. DURING TENDER PERIOD, ELECTRICAL CONTRACTOR SHALL CO–ORDINATE AND INFORM THE GENERAL CONTRACTOR FOR THE REMOVAL OF EXISTING CEILING AND FLOORS FOR THE SAKE OF EXTENDING/REMOVING ELECTRICAL SERVICES FROM THE EXISTING BUILDING AND FOR ALL THE RENOVATION/UPGRADATION WORK REQUIRED IN THE EXISTING BUILDING.
14. MODIFY/EXTEND/REPLACE EXISTING CONDUITS/WIRING/BACKBOXES AS REQUIRED FOR THE RELOCATED AND EXISTING TO REMAIN EQUIPMENT/DEVICES FOR FULLY OPERATIONAL SYSTEM.
15. CONTRACTOR SHALL PERFORM VOLTAGE DROP CALCULATIONS FOR ALL BRANCH CIRCUITS (LIGHT AS WELL AS POWER) AND SHALL MAINTAIN VOLTAGE DROP WITH PERMISSIBLE LIMITS AS PER OESC REQUIREMENTS AND PROVIDE PROPER WIRE SIZES ACCORDINGLY PRIOR TO COMMENCING OF ROUGH–IN INSTALLATION. THE VOLTAGE DROP CALCULATIONS SHALL BE BASED ON MAXIMUM CURRENT AMPACITY.
16. MODIFY PANEL DIRECTORIES OF RESPECTIVE PANELS TO ADD NEW CIRCUITS TO SUIT.
17. PROVIDE SINGLE HEAD J–HOOKS OF 2" DIA. SUSPENDED FROM SLAB IN THE CEILING SPACE OF ALL ROOMS UNDER SCOPE OF WORK. PROVIDE J–HOOKS EVERY 2 FEET AND SUSPENDED BELOW ANY PIPING, MECHANICAL DUCTS ETC. NO RUN OF LOOSE CABLE FROM CONDUIT STAB UP SHALL EXCEED 10 FEET TO FIRST J–HOOK. PROVIDE QUANTITY OF J–HOOKS TO SUIT FOR FULL COVERAGE THROUGHOUT FLOOR AREA OF NEW ADDITION/RENOVATION.
18. WHEREVER NEW BREAKERS/DISCONNECT SWITCHES ARE REQUIRED TO BE ADDED IN EXISTING SWITCHBOARDS/DISTRIBUTION PANELS/PANELS AS INDICATED ON THE DRAWINGS, ELECTRICAL CONTRACTOR SHALL MODIFY, EXTEND BUS, PROVIDE BRACKETS, RETROFIT AND TO ALLOW FOR THE INSTALLATION OF THE NEW REQUIRED/INDICATED CIRCUIT BREAKERS/DISCONNECT SWITCHES WITHIN THE EXISTING ELECTRICAL PANEL. CONTRACTOR SHALL VERIFY ON SITE FOR THE SCOPE AND EXTENT OF WORK AND SHALL CO–ORDINATE WITH PANEL MANUFACTURER FOR MORE DETAILS AND THEN PROCEED ACCORDINGLY. CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIALS (INCLUDING BUT NOT LIMITED TO : CUSTOM MADE PARTS, BUS ASSEMBLY, HARDWARE ETC.). LABOR ETC. FOR FULLY OPERATIONAL SYSTEM. THE NEW BREAKERS/DISCONNECT SWITCHES TO BE ADDED SHALL BE FROM THE SAME MANUFACTURER AS EXISTING. KA RATING OF THE NEW BREAKERS/DISCONNECT SWITCHES SHALL MATCH EXISTING OR NEXT HIGHER AVAILABLE VALUE.
19. PROVIDE NEW PANEL DIRECTORIES FOR ALL THE NEW PANELS INDICATING ALL CIRCUITS FED FROM THE RESPECTIVE PANELS. NAME HE UNUSED BREAKERS AS 'SPARE'.
20. IN CASE OF NON–ACCESSIBLE CEILING. ALL WIRING UPTO ELECTRICAL DEVICES SHALL BE DONE IN CONDUITS TO SUIT APPLICATION TO FACILITATE MAINTENANCE.
21. PROVIDE CONDUITS AND BACK BOXES FOR LIGHTING CONTROL DEVICES TO SUIT APPLICATIONS AND AS PER MANUFACTURER'S RECOMMENDATIONS.
22. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING MECHANICAL/ELECTRICAL FIXTURES WHEN ENCOUNTERED IN ORDER TO FACILITATE LOCATION OF NEW ELEVATOR AND MAKE ALL NECESSARY ARRANGEMENTS. FOR DISCONNECTING / RE–ROUTING / RELOCATING AS REQUIRED.
23. PRIOR TO THE CONSULTANT RELEASING THE COMPLIANCE LETTER, THE WORK MUST BE COMPLETE AND SAFE. AND THE FOLLOWING DOCUMENTATION MUST BE SUBMITTED WITH NO DEFICIENCIES:
    a. ESA INSPECTION CERTIFICATE
    b. FIRE ALARM VERIFICATION REPORT (WITHOUT EXCEPTIONS)
    c. FIRE ALARM AUDIBILITY REPORT (WITHOUT EXCEPTIONS)
    d. EMERGENCY LIGHTING TESTING REPORT

ELECTRICAL DRAWING LIST

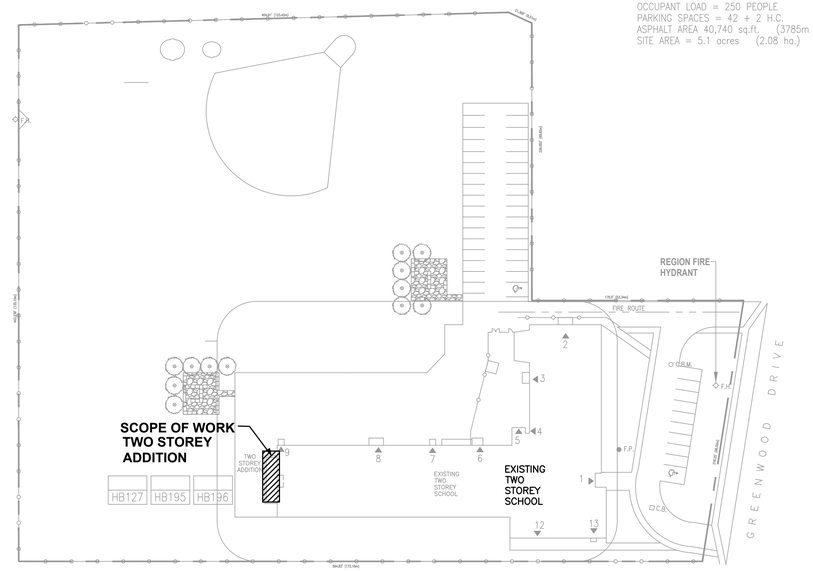
E1.0 LEAD SHEET , SCHEDULES & KEY PLAN
E2.0 DEMOLITION SITE PLAN
E2.1 EXISTING ELECTRICAL PANEL LOCATION PLAN
E2.2 PROPOSED SINGLE LINE DIAGRAM AND ELECTRICAL DETAILS
E3.0 PROPOSED POWER PLAN
E4.0 PROPOSED LIGHTING PLAN
E5.0 PROPOSED FIRE ALARM PLAN
E6.0 ELECTRICAL SPECIFICATIONS

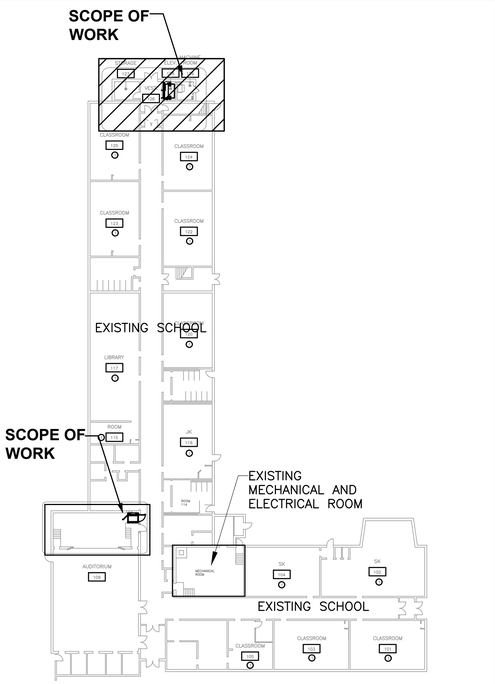
PROPOSED LIGHTING FIXTURE SCHEDULE

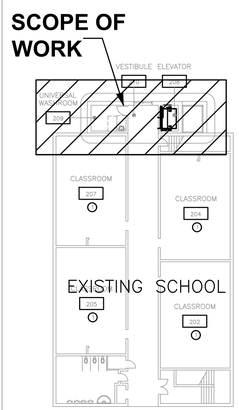
TYPE	DESCRIPTION	LAMP/FIXTURE MAKE/MODEL	VOLT	LUMENS	LAMP			MOUNT
					WATT	TYPE	COL.	
M	1'X4' SURFACE FIXTURE	PEERLESS ELECTRIC LXHL–14–32–40K–12–05–MV EQUALS: VISIONEERING, LITHONIA AND GE	120–277	4000	29	LED	4000	SURFACE MOUNTED
A2	2'X4' RECESSED FIXTURE	LITELINE LEDP–24–WH–40–40 EQUALS: PEERLESS–ELECTRIC AND LITHONIA	120–277	4860	40	LED	4000	CEILING RECESSED
MA	LED FULL CUT OFF WALL PACK, DIE CAST ALUMINIUM HOUSING AND DOOR	EXO OUTDOOR LIGHTING LNC2–48L35–4K7–3–UNV EQUIVALENT BY COOPER, CANLYTE OR GE	120–277		35	LED	4000	WALL MOUNTED

LEGAL DESCRIPTION: CON BF PT LOT 1, City of Burlington

OCCUPANT LOAD = 250 PEOPLE
PARKING SPACES = 42 + 2 H.C.
ASPHALT AREA 40,740 sq.ft. (3785m)
SITE AREA = 5.1 acres (2.08 ha.)







1 / E1.0 KEY PLAN
N.T.S

The Contractor shall verify all dimensions prior to commencement of the work.
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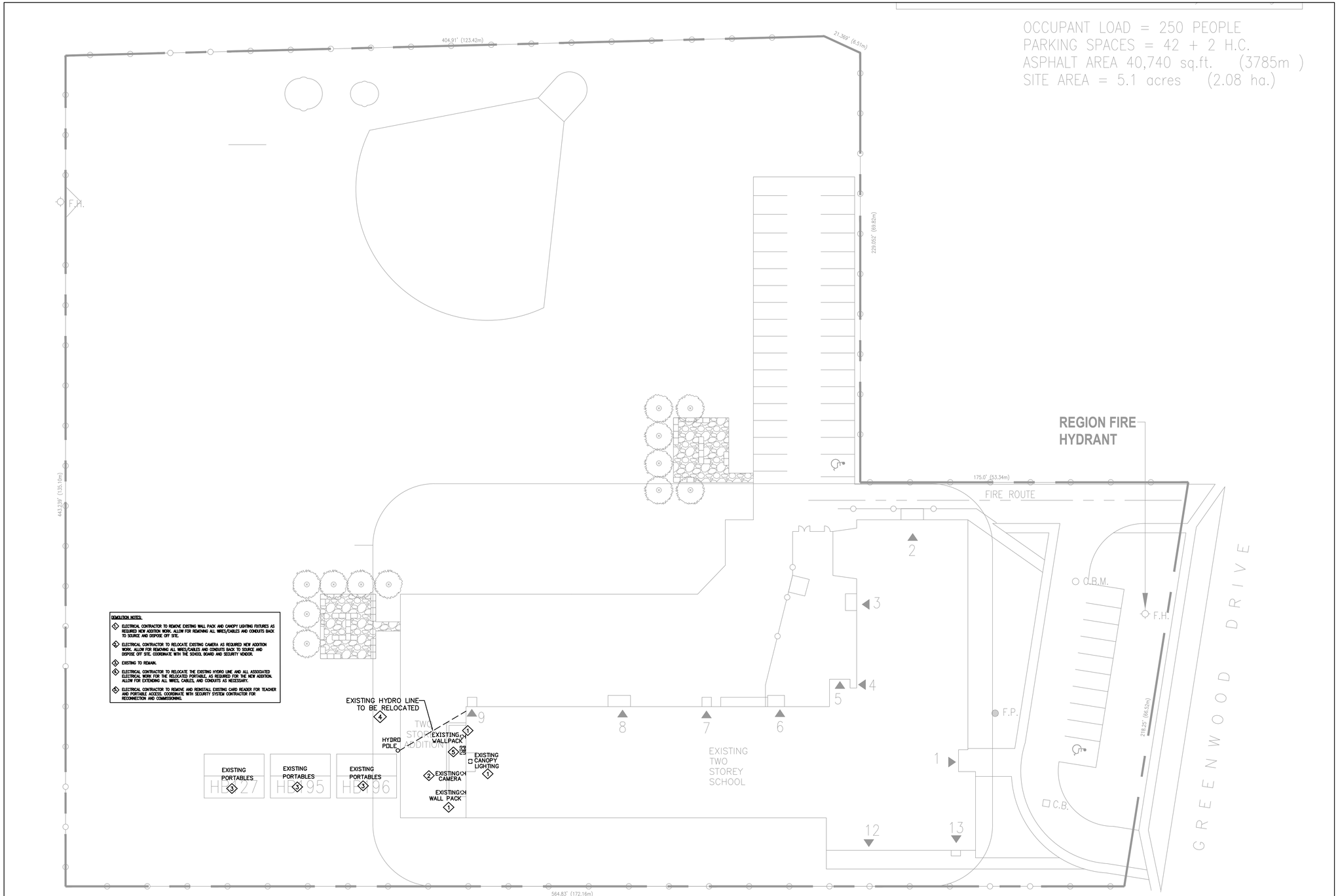
PROJECT:
KING'S ROAD PS, ACCESSIBILITY UPGRADES PROJECT
660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE :
ELECTRICAL LEAD SHEET,DETAILS, KEY PLAN AND PANEL SCHEDULES

RCEI
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905)844–3913
www.regal–eng.com

DATE : December 2025
SCALE : AS NOTED
DRAWN BY: AS
CHECKED BY : MA
DWG STATUS : REVIEW
PROJECT No. : 2025-502
DRAWING No. : E1.0
REVISION



1 / E2.0 DEMOLITION SITE PLAN
1:50

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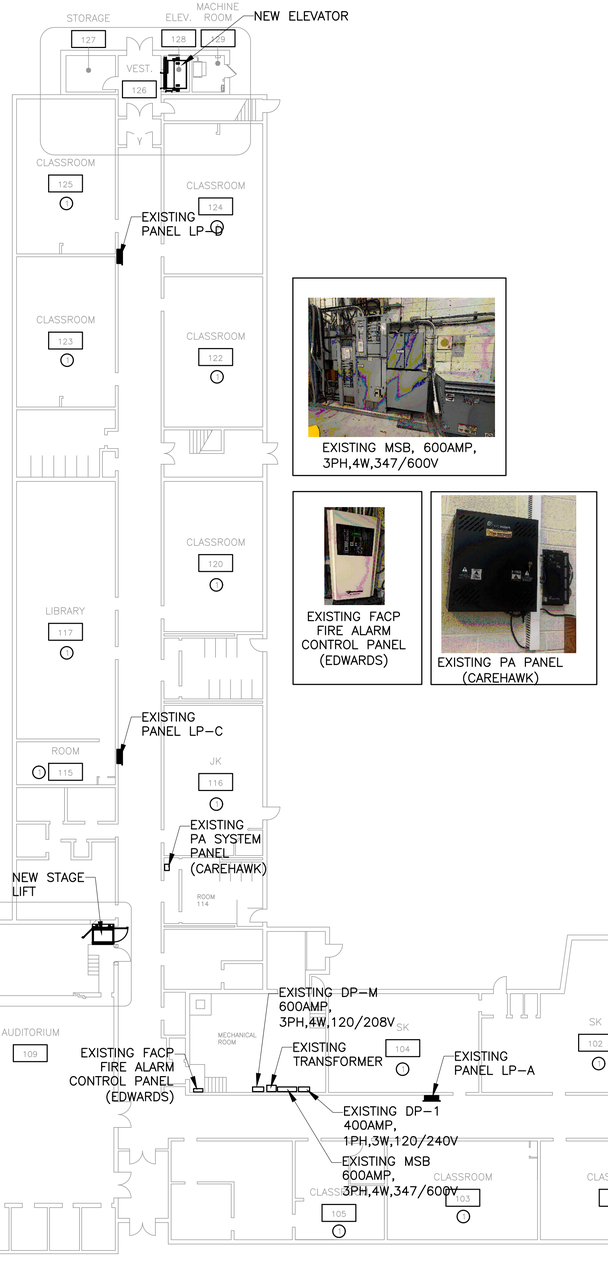
PROJECT:
KING'S ROAD PS, ACCESSIBILITY UPGRADES PROJECT
660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE :
DEMOLITION SITE PLAN

RCEI
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wycroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905)844-3913
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DATE : December 2025
SCALE : AS NOTED
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CHECKED BY : MA
DWG STATUS : REVIEW
PROJECT No. : 2025-502
DRAWING No. : E2.0
REVISION



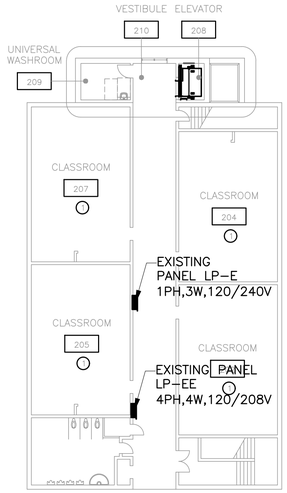
EXISTING MSB, 600AMP, 3PH,4W,347/600V

EXISTING FACP FIRE ALARM CONTROL PANEL (EDWARDS)

EXISTING PA PANEL (CAREHAWK)

1 / E2.1 EXISTING GROUND FLOOR ELECTRICAL PANEL LOCATION

1:50



2 / E2.1 EXISTING SECOND FLOOR ELECTRICAL PANEL LOCATION

1:50

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PROJECT:

KING'S ROAD PS, ACCESSIBILITY UPGRADES PROJECT

660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

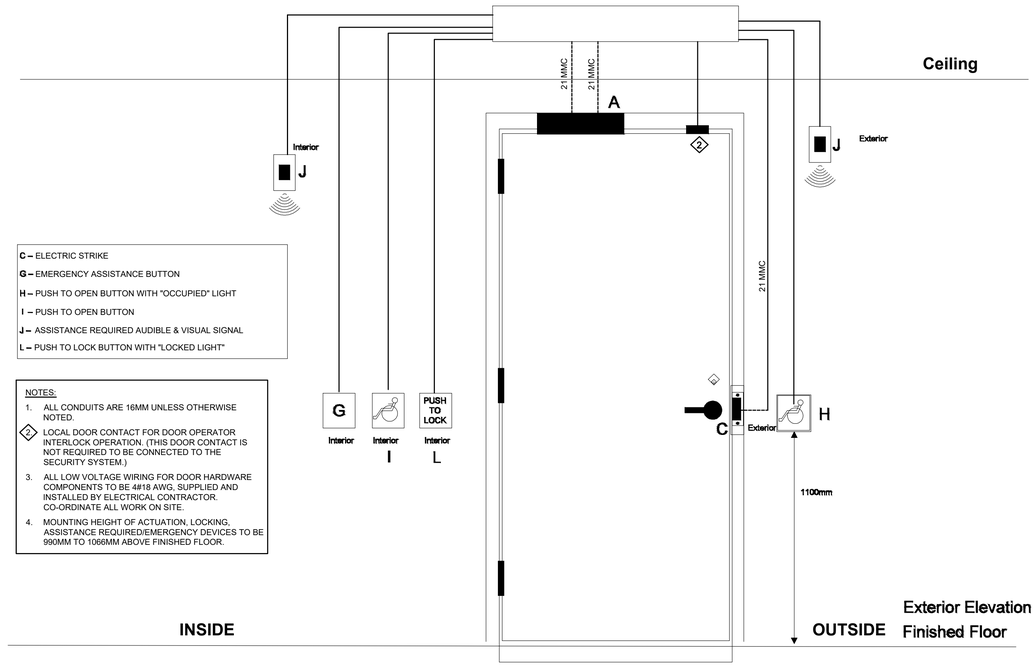
PROFESSIONAL SEAL :

DWG TITLE :

EXISTING ELECTRICAL PANEL LOCATION PLAN

RCEI
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

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DWG STATUS :	REVIEW
PROJECT No. :	2025-502
DRAWING No. :	E2.1
REVISION	



NOTES:

1. ALL CONDUITS ARE 16MM UNLESS OTHERWISE NOTED.
2. LOCAL DOOR CONTACT FOR DOOR OPERATOR INTERLOCK OPERATION. (THIS DOOR CONTACT IS NOT REQUIRED TO BE CONNECTED TO THE SECURITY SYSTEM.)
3. ALL LOW VOLTAGE WIRING FOR DOOR HARDWARE COMPONENTS TO BE 4#18 AWG, SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR. CO-ORDINATE ALL WORK ON SITE.
4. MOUNTING HEIGHT OF ACTUATION, LOCKING, ASSISTANCE REQUIRED/EMERGENCY DEVICES TO BE 990MM TO 1066MM ABOVE FINISHED FLOOR.

UNIVERSAL WASHROOM DOOR OPERATOR SCHEMATICS (TYPICAL)

EMERGENCY RESPONSE SYSTEM FOR WASHROOMS

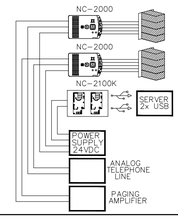
1. CONTRACTOR TO PROVIDE AND INSTALL EMERGENCY RESPONSE SYSTEM FOR THE WASHROOMS.
2. BASIS OF DESIGN IS MIRCOM, EQUIVALENT PRODUCT BY OTHER MANUFACTURERS ACCEPTABLE BASED ON SHOP DRAWING REVIEW.

MICARE SYSTEM CONSIST OF THE FOLLOWING:

CO-ORDINATOR BUNDLE	NC-2100K 1 EACH
SOFTWARE	NC-2100SW 1 EACH
4 LED MULTIDOME LIGHT	NC-4LED 4 EACH
PATIENT UNIT	NC-2000 4 EACH
SERVER	1 EACH
ROUTER	1 EACH
3 GANG ELECTRICAL BOX	3-FYWSW-UPC 4 EACH
ELECTRICAL BOX	1XW-PS24BB 1 EACH
24V POWER SUPPLY	RB-MD-990 1 EACH
CABLE 1 FOOT	200'
EOL-103	END OF LINE RESISTOR (10K)

3. ELECTRICAL CONTRACTOR SHALL INSTALL THE SYSTEM AS PER MANUFACTURER'S INSTRUCTIONS.
4. PROVIDE AND INSTALL COMPLETE SYSTEM TO MEET THE CODE REQUIREMENTS. CO-ORDINATE WITH MIRCOM AND INSTALL SYSTEM AS PER MANUFACTURER'S INSTRUCTIONS.
5. ONCE SYSTEM IS INSTALLED AND TESTED, PROVIDE REQUIRED TRAINING TO THE MAINTENANCE STAFF.

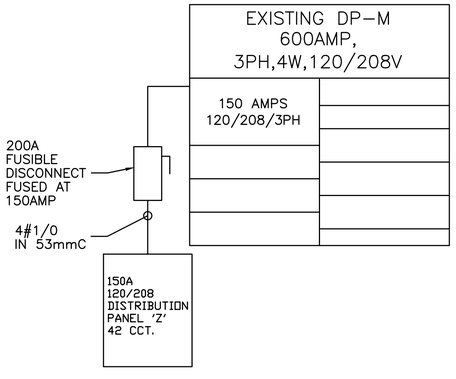
TYPICAL FLOOR PLAN FOR EACH WASHROOM



NOTE:

1. SERVER TO BE LOCATED IN CHANGE ROOM. ELECTRICAL CONTRACTOR TO PROVIDE POWER REQUIRED (B-xx & B-XX) FOR THE EMERGENCY RESPONSE SYSTEM.

SINGLE LINE DIAGRAM



ELECTRICAL PANEL:
120/208V-3Ø-60HZ,
150 AMP MAIN BREAKER

NEW PANELBOARD Z SCHEDULE

DESCRIPTION	BRKR SIZE (A)	WATTS PER PHASE A	B	C	CR NO	BUS ABC	CR NO	WATTS PER PHASE A	B	C	BRKR SIZE (A)	DESCRIPTION
ELEVATOR MOTOR	30				01		02				30	LIFT CONTROL PANEL
					03		04				20	LIFT RECEPTACLE *
					05		06				20	LIFT RECEPTACLE *
UH-1	20				07		08				20	EH-2
	2P				09		10				2P	
LIFT RECEPTACLE *	20				11		12				15	EXHAUST FAN 2
LIGHTING	15				13		14				15	BATTERY UNIT BU-1
STAGE LIFT MOTOR	30				15		16				20	LIFT RECEPTACLE *
STAGE LIFT CONTROLLER	15				17		18				15	BATTERY UNIT BU-1
STAGE LIFT LIGHT	15				19		20				15	LIGHTING
RECEPTACLE GFI	20				21		22				15	EXHAUST FAN 1
DOOR OPERATOR	20				23		24				20	DOOR OPERATOR
EMERGENCY RESPONSE SYSTEM	20				25		26				20	DOOR OPERATOR
RECEPTACLE	15				27		28				15	HAND DRIYER
EH-3	20				29		30				2P	
	2P				31		32				20	EH-1
					33		34				2P	
					35		36				15	LOUVER
					37		38					
					39		40					
					41		42					
(*) GROUND FAULT INTERRUPTER CIRCUIT BREAKER												
(**) C/W LOCK-OFF DEVICES												

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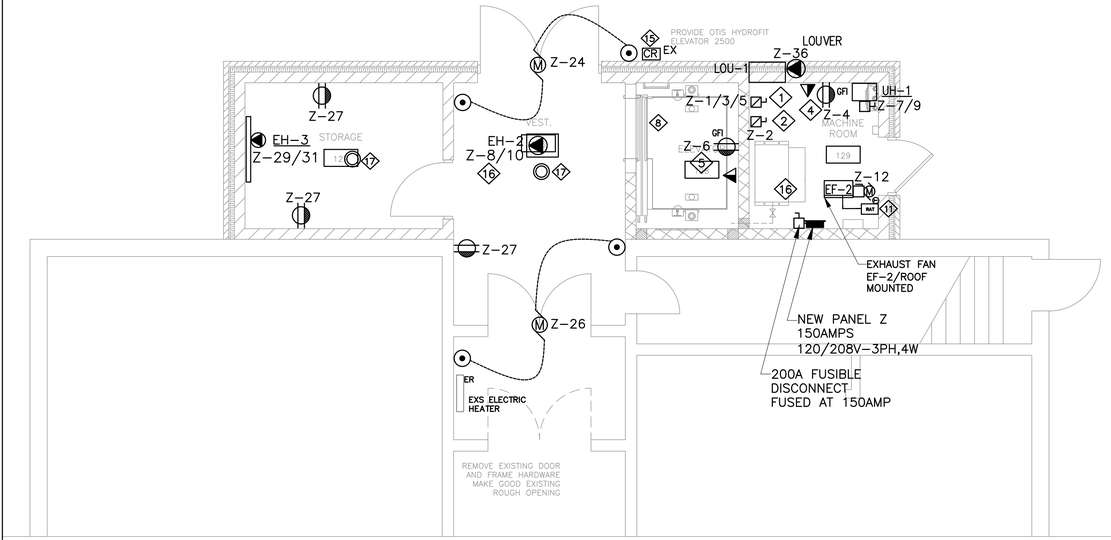
PROJECT:
KING'S ROAD PS,
ACCESSIBILITY UPGRADES PROJECT
660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE :
PROPOSED SINGLE LINE DIAGRAM AND ELECTRICAL DETAILS

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905)844-2913
www.regal-eng.com

DATE : December 2025
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CHECKED BY : MA
DWG STATUS : REVIEW
PROJECT No. : 2025-502
DRAWING No. : E2.2
REVISION

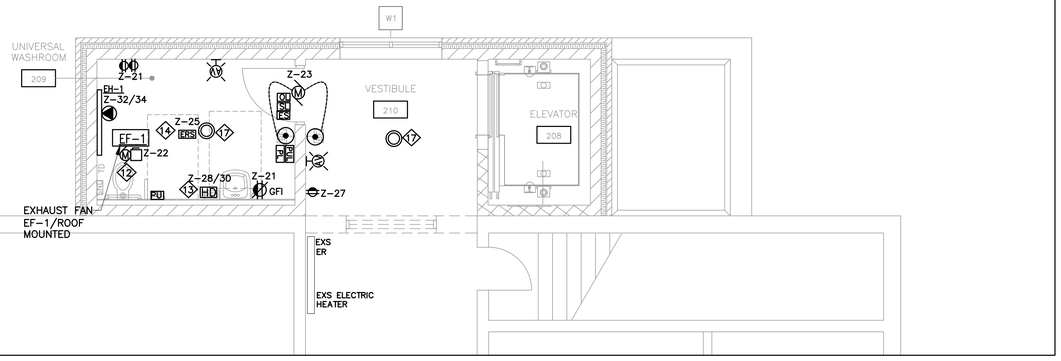


ENLARGED ELEVATOR, MACHINE ROOM AND STORAGE PLAN

1:50

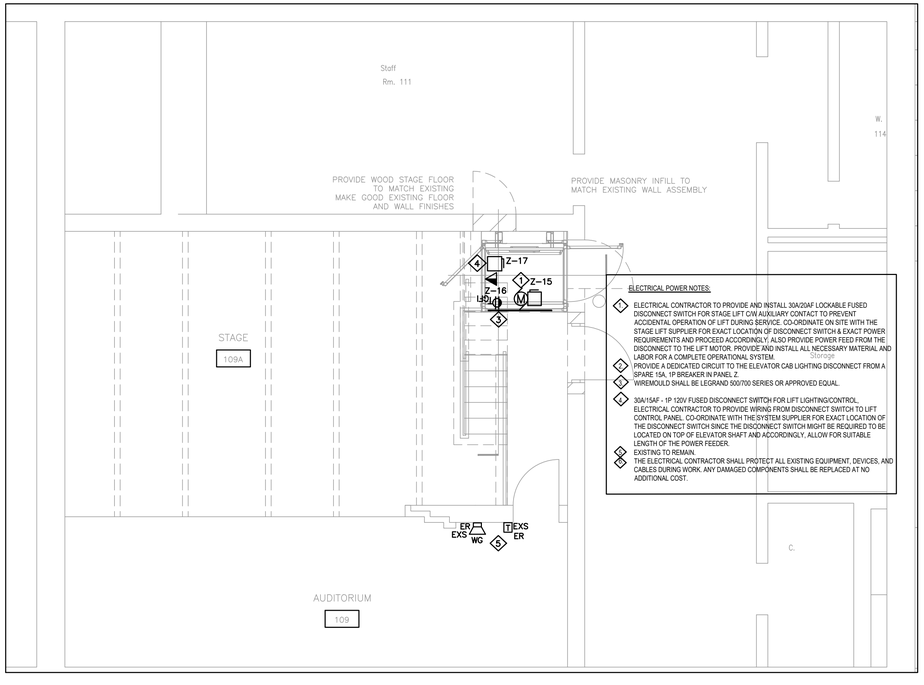
ELECTRICAL POWER NOTES:

1. 30A/30AF - 3P 208V LOCKABLE FUSED (FUSE TO MANUFACTURERS REQUIREMENTS) DISCONNECT SHALL BE C/W AN AUXILIARY CONTACT FOR BATTERY LOWERING THAT IS POSITIVELY OPENED MECHANICALLY. THE OPENING NOT BEING SOLELY DEPENDENT ON SPRINGS, AND IN THE CONTROL CIRCUIT TO PREVENT THE MOVEMENT OF THE CAR WHEN THE DISCONNECT SWITCH IS OPEN FOR LIFT. ELECTRICAL CONTRACTOR TO PROVIDE WIRING FROM DISCONNECT SWITCH TO ELEVATOR MOTORS VIA CONTROL PANEL. CO-ORDINATE WITH THE SYSTEM SUPPLIER FOR THE EXACT LOCATION OF THE DISCONNECT SWITCH SINCE THE DISCONNECT SWITCH MIGHT BE REQUIRED TO BE LOCATED ON TOP OF ELEVATOR SHAFT AND ACCORDINGLY, ALLOW FOR SUITABLE LENGTH OF THE POWER FEEDER.
2. 30A/15AF - 1P 120V FUSED DISCONNECT SWITCH FOR LIFT LIGHTING/CONTROL, ELECTRICAL CONTRACTOR TO PROVIDE WIRING FROM DISCONNECT SWITCH TO LIFT CONTROL PANEL. CO-ORDINATE WITH THE SYSTEM SUPPLIER FOR EXACT LOCATION OF THE DISCONNECT SWITCH SINCE THE DISCONNECT SWITCH MIGHT BE REQUIRED TO BE LOCATED ON TOP OF ELEVATOR SHAFT AND ACCORDINGLY, ALLOW FOR SUITABLE LENGTH OF THE POWER FEEDER.
3. NIL
4. PROVIDE A BUILDING GROUND WITH A DEDICATED CONDUCTOR, WIRED TO THE ELEVATOR CONTROLLER AND SIZED ACCORDING TO THE APPLICABLE ELECTRICAL CODE.
5. GFI RECEPTACLE & HEAT DETECTOR SHALL BE PROVIDED IN THE PIT OF LIFT.
6. NIL.
7. EXISTING CONDUITS AND WIRING PASSING THROUGH THE AREA OF WORK IN RELOCATED POSITION. CO-ORDINATE ON SITE FOR EXACT LOCATION AND LENGTH PRIOR TO ROUGH IN.
8. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR TO INSTALL A DRAIN IN THE PIT AND CONNECT TO THE EXISTING DRAIN LINE.
9. NIL.
10. 24"X24" JUNCTION BOX IN THE CEILING SPACE IN CORRIDOR AT FIRST FLOOR.
11. REVERSE ACTING THERMOSTAT.
12. EXHAUST FAN SHALL INTERLOCK WITH THE LIGHTING FIXTURES,OCCUPANCY SENSOR SHALL CONTROL THE LIGHTING FIXTURES AND THE EXHAUST FAN.
13. HAND DRYER SHALL BE PROVIDED BY THE SCHOOL BOARD. ELECTRICAL CONTRACTOR SHALL PROVIDE POWER CONNECTION FOR THE HAND DRYER.
14. CONTRACTOR TO INSTALL CONTROLLER FOR NURSES CALL IN THE CEILING SPACE OF B/F WASHROOM. POWER TO THE CONTROLLER FROM PANEL Z AS SHOWN.
15. EXISTING CARD READER FOR TEACHER AND PORTABLE ACCESS SHALL BE REINSTALLED. COORDINATE WITH SECURITY SYSTEM CONTRACTOR FOR RECONNECTION.
16. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL POWER FOR THE NEW ELECTRICAL UNIT HEATER AS SHOWN. ELECTRICAL UNIT HEATERS WILL BE PROVIDED BY MECHANICAL CONTRACTOR.
17. PROVIDE NEW PA,SPEAKERS AND CONNECT TO THE EXISTING P.A CIRCUITS. EXISTING MAIN P.A. CONTROL CONSOL IS LOCATED IN ROOM 114. ALLOW FOR TESTING AND TO MAKE THE SYSTEM FULLY FUNCTIONAL.
18. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL EXISTING EQUIPMENT, DEVICES, AND CABLES DURING WORK. ANY DAMAGED COMPONENTS SHALL BE REPLACED AT NO ADDITIONAL COST.
19. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR ALL RELATED ELECTRICAL WORK. ENSURE ALL CONNECTIONS TO MECHANICAL EQUIPMENT ARE INSTALLED PER MANUFACTURER REQUIREMENTS.



1 E3.0 PROPOSED GROUND AND SECOND FLOOR POWER PLAN

1:50



2 E3.0 PROPOSED GROUND FLOOR-STAGE LIFT POWER PLAN

1:50

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PROJECT :

KING'S ROAD PS, ACCESSIBILITY UPGRADES PROJECT

660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

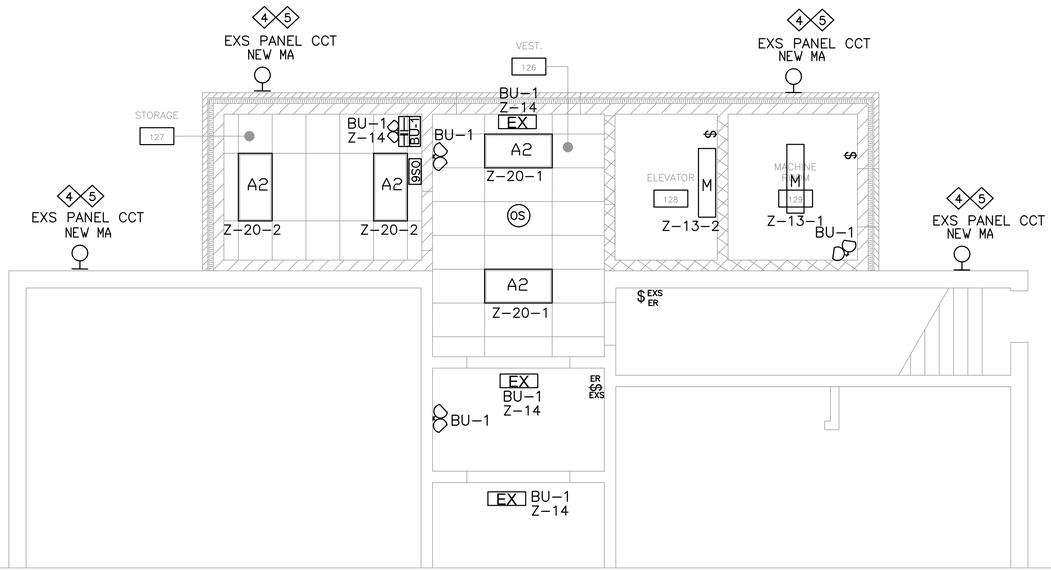
PROFESSIONAL SEAL :

DWG TITLE :

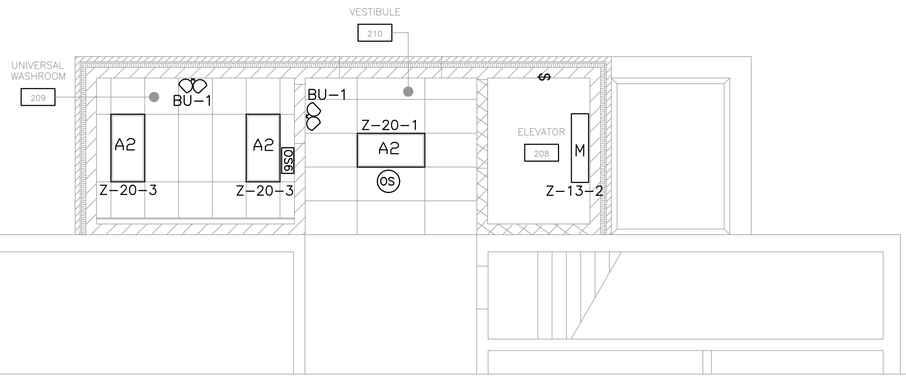
PROPOSED POWER FLOOR PLAN

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905)844-2913
www.regal-eng.com

DATE :	December 2025
SCALE :	AS NOTED
DRAWN BY:	AS
CHECKED BY :	MA
DWG STATUS :	REVIEW
PROJECT No. :	2025-502
DRAWING No. :	E3.0
REVISION	



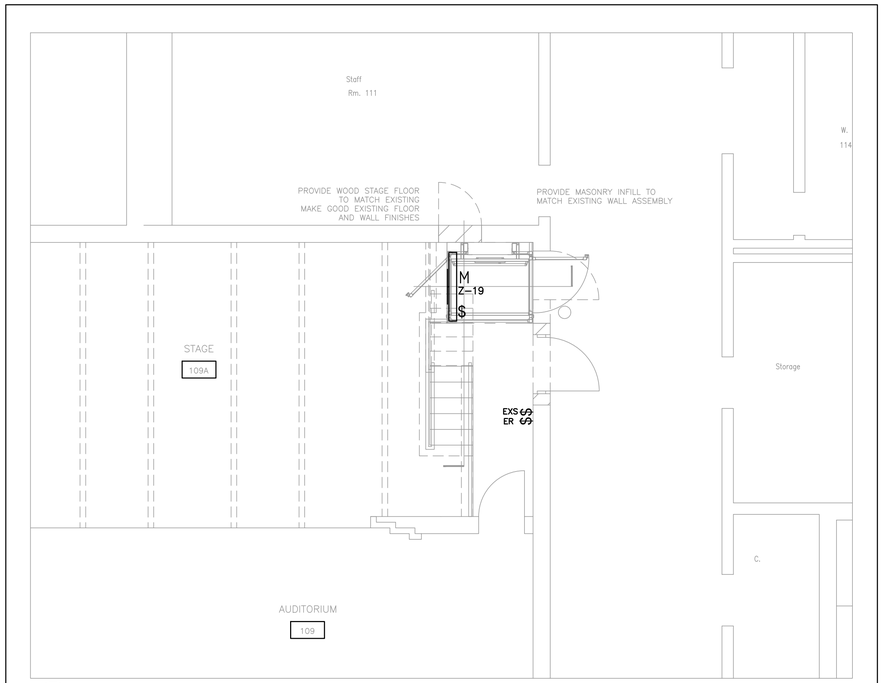
1 / A1 ENLARGED ELEVATOR, MACHINE ROOM AND STORAGE REFLECTED CEILING PLAN



2 / A1 ENLARGED ELEVATOR AND UNIVERSAL WASHROOM REFLECTED CEILING PLAN

1 / E4.0 PROPOSED GROUND AND SECOND FLOOR LIGHTING PLAN

1:50



3 / A1 ENLARGED STAGE LIFT PLAN

1:50

2 / E4.0 PROPOSED GROUND FLOOR-STAGE LIFT LIGHTING PLAN

1:50

LIGHTING NOTES:

1. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW LIGHTING FIXTURES AS SHOWN ON THE DRAWINGS. PROVIDE POWER TO THE NEW LIGHTING FIXTURES FROM NEW PANEL Z AS SHOWN.
2. PROVIDE AND INSTAL NEW WIRING, CONDUIT AND ACCESSORIES AS REQUIRED TO CONNECT THE NEW LIGHTING FIXTURES.
3. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EXIT SIGN AS SHOWN ON THE DRAWINGS.
4. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL MA TYPE LIGHTING FIXTURES AS SHOWN. CONNECT TO THE EXISTING EXTERIOR LIGHTING CIRCUIT . ALLOW FOR EXTENDING WIRING CONDUIT AND ACCESSORIES AS REQUIRED TO CONNECT THE NEW LIGHTING FIXTURES.
5. ALL EXTERIOR LIGHTS TO BE CONTROLLED THROUGH PHOTOCELL.
6. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL EXISTING EQUIPMENT, DEVICES, AND CABLES DURING WORK. ANY DAMAGED COMPONENTS SHALL BE REPLACED AT NO ADDITIONAL COST.

BATTERY UNIT SCHEDULE

LOCATION	UNIT UNMBER	EXIT SIGNS	DOUBLE HEADS	SINGLE HEADS	CONNECTED LOAD (WATT)	CAPACITY (WATT)			
						30 MIN	1H00	1H30	2H00
STORAGE ROOM	BU-1	3	6	0	84	720	420	300	240
REFER TO ELECTRICAL SPECIFICATION									

The Contractor shall verify all dimensions prior to commencement of the work.
All print and specifications are the property of the Architect and must be returned upon completion of the work.

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1	ISSUED FOR 50% CD	Feb 11, 2026
2	ISSUED FOR 95% CD	March 11, 2026
3	ISSUED FOR 95% CD - M	March 19, 2026
4	ISSUED FOR COMMENTS	April 24, 2026
5	ISSUED FOR TENDER	June 4, 2026
6		
7		
8		

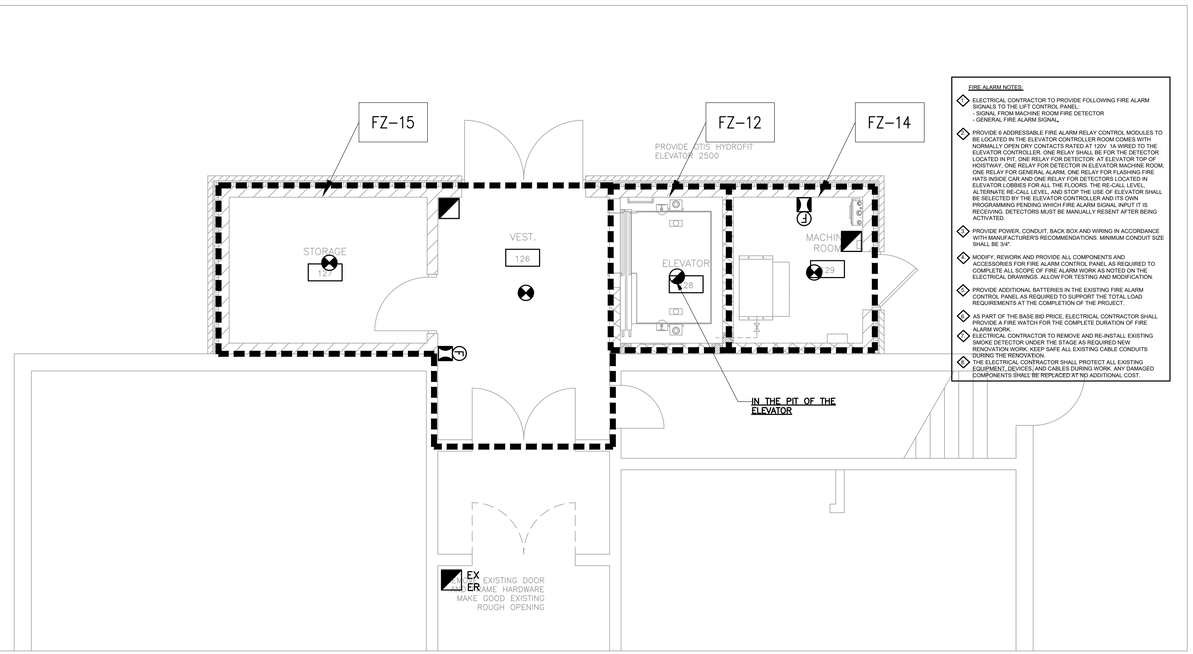
PROJECT :
KING'S ROAD PS,
ACCESSIBILITY UPGRADES PROJECT
660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE :
PROPOSED LIGHTING FLOOR PLAN

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
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DATE : December 2025
SCALE : AS NOTED
DRAWN BY: AS
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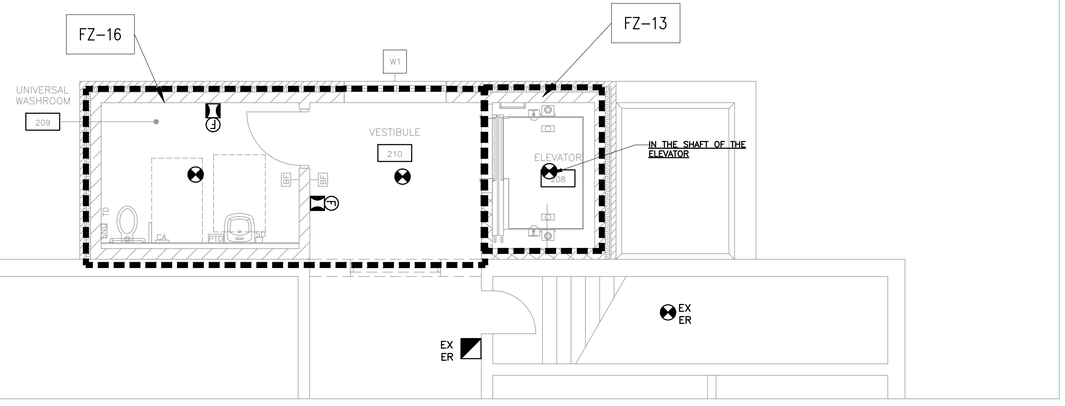


FIRE ALARM NOTES:

1. ELECTRICAL CONTRACTOR TO PROVIDE FOLLOWING FIRE ALARM SIGNALS TO THE LIFT CONTROL PANEL:
   - SIGNAL FROM MACHINE ROOM FIRE DETECTOR
   - GENERAL FIRE ALARM SIGNAL.
2. PROVIDE 6 ADDRESSABLE FIRE ALARM RELAY CONTROL MODULES TO BE LOCATED IN THE ELEVATOR CONTROLLER ROOM COMES WITH NORMALLY OPEN DRY CONTACTS RATED AT 120V 1A WIRED TO THE ELEVATOR CONTROLLER. ONE RELAY SHALL BE FOR THE DETECTOR LOCATED IN PIT, ONE RELAY FOR DETECTOR AT ELEVATOR TOP OF HOISTWAY, ONE RELAY FOR DETECTOR IN ELEVATOR MACHINE ROOM, ONE RELAY FOR GENERAL ALARM. ONE RELAY FOR FLASHING FIRE HATS INSIDE CAR AND ONE RELAY FOR DETECTORS LOCATED IN ELEVATOR LOBBIES FOR ALL THE FLOORS. THE RE-CALL LEVEL, ALTERNATE RE-CALL LEVEL, AND STOP THE USE OF ELEVATOR SHALL BE SELECTED BY THE ELEVATOR CONTROLLER AND ITS OWN PROGRAMMING PENDING WHICH FIRE ALARM SIGNAL INPUT IT IS RECEIVING. DETECTORS MUST BE MANUALLY RESENT AFTER BEING ACTIVATED.
3. PROVIDE POWER, CONDUIT, BACK BOX AND WIRING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MINIMUM CONDUIT SIZE SHALL BE 3/4".
4. MODIFY, REWORK AND PROVIDE ALL COMPONENTS AND ACCESSORIES FOR FIRE ALARM CONTROL PANEL AS REQUIRED TO COMPLETE ALL SCOPE OF FIRE ALARM WORK AS NOTED ON THE ELECTRICAL DRAWINGS. ALLOW FOR TESTING AND MODIFICATION.
5. PROVIDE ADDITIONAL BATTERIES IN THE EXISTING FIRE ALARM CONTROL PANEL AS REQUIRED TO SUPPORT THE TOTAL LOAD REQUIREMENTS AT THE COMPLETION OF THE PROJECT.
6. AS PART OF THE BASE BID PRICE, ELECTRICAL CONTRACTOR SHALL PROVIDE A FIRE WATCH FOR THE COMPLETE DURATION OF FIRE ALARM WORK.
7. ELECTRICAL CONTRACTOR TO REMOVE AND RE-INSTALL EXISTING SMOKE DETECTOR UNDER THE STAGE AS REQUIRED NEW RENOVATION WORK. KEEP SAFE ALL EXISTING CABLE CONDUITS DURING THE RENOVATION.
8. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL EXISTING EQUIPMENT, DEVICES, AND CABLES DURING WORK. ANY DAMAGED COMPONENTS SHALL BE REPLACED AT NO ADDITIONAL COST.

1 / A1 ENLARGED ELEVATOR, MACHINE ROOM AND STORAGE PLAN

1:50

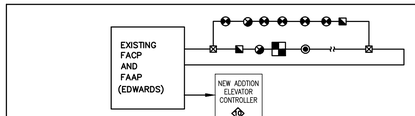


2 / A1 ENLARGED ELEVATOR AND UNIVERSAL WASHROOM PLAN

1:50

1 / E5.0 PROPOSED GROUND AND SECOND FLOOR FIRE ALARM PLAN

1:50



FIRE ALARM ZONES SCHEDULE	
ZONE	DESCRIPTION
FZ-12	NEW ADDITION GROUND FLOOR ELEVATOR
FZ-13	NEW ADDITION SECOND FLOOR ELEVATOR
FZ-14	NEW ADDITION GROUND FLOOR MACHINE ROOM
FZ-15	NEW ADDITION STORAGE ROOM
FZ-16	NEW ADDITION BF WASHROOM

FIRE ALARM LEGEND	
	EXISTING TO REMAIN
	NEW PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR
	AUTOMATIC FIXED TEMPERATURE HEAT DETECTOR AT 157° F
	FLUSH WALL OR CEILING MOUNTED FIRE ALARM HORN
	FLUSH WALL OR CEILING MOUNTED FIRE ALARM HORN & STROBE
	PHOTOELECTRIC TYPE SMOKE DETECTOR UNLESS NOTED OTHERWISE
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
	PULL STATION



EXISTING FIRE ALARM CONTROL PANEL (EDWARDS)



EXISTING FIRE ALARM ANNUNCIATOR PANEL (EDWARDS)

NOTES:

1. REFER TO FLOOR PLANS FOR EXACT LOCATION AND QUANTITIES OF DEVICES.
2. CONTRACTOR IS CONFIRM WIRE SIZE (BASED UPON LENGTH OF CIRCUIT RUN AND QUANTITY OF SIGNALS) FOR SIGNAL CIRCUIT WITH MANUFACTURER.
3. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW FIRE ALARM DEVICES AND FIRE ALARM HORNS/STROBES TO THE NEW ADDITION AREA. EC TO PROVIDE AND INSTALL NEW CONDUITS CABLES FOR NEW FIRE ALARM DEVICES.
4. ELECTRICAL CONTRACTOR TO CONNECT NEW FIRE ALARM DEVICES TO EXISTING FIRE ALARM PANEL LOCATED IN THE EXISTING MECHANICAL ROOM. EXISTING FIRE ALARM SYSTEM IS EDWARDS. ELECTRICAL CONTRACTOR SHALL VERIFY THE CONDITION AND CAPACITY OF THE EXISTING FIRE ALARM PANEL PRIOR TO INSTALLATION OF NEW DEVICES. PROVIDE AND INSTALL NEW MODULE OR EXPANSION COMPONENTS AS REQUIRED TO ACCOMMODATE THE NEW DEVICES.
5. CONTRACTOR TO MAKE SURE THE SOUND OF NEW FIRE ALARM HORN SYNCHRONIZES WITH EXISTING FIRE ALARM HORNS.
6. ELECTRICAL CONTRACTOR TO MODIFY THE EXISTING FIRE ALARM SYSTEM AS REQUIRED. ALLOW FOR TESTING AND VERIFICATION.
7. ELECTRICAL CONTRACTOR TO PROVIDE VERIFICATION AND TESTING OF ALL NEW FIRE ALARM DEVICES AND EXISTING FIRE ALARM DEVICES. CERTIFY THE FIRE ALARM SYSTEM.
8. ELECTRICAL CONTRACTOR TO MAINTAIN EXISTING FIRE ALARM SYSTEMS AND ALL OTHER LIFE SAFETY SYSTEMS IN FULL OPERATION DURING CONSTRUCTION.
9. ELECTRICAL CONTRACTOR TO PROVIDE NEW FIRE ALARM ZONES IN EVERY FIRE SEPARATION.
10. CONTACTS WITHIN THE CONTROLLER WILL BE PROVIDED BY THE ELEVATOR SUPPLIER. CO-ORDINATE AND CONNECT ACCORDINGLY.
11. ELECTRICAL CONTRACTOR MUST BE COORDINATED WITH THE SCHOOL BOARD FOR ANY POWER OR LIFE SAFETY SYSTEM SHUTDOWNS. CONTRACTOR TO NOTIFY MINIMUM 7 (SEVEN) DAYS ADVANCE NOTICE REQUIRED.
12. UPON COMPLETION OF THE FIRE ALARM INSTALLATION THE CONTRACTOR SHALL PROVIDE TO THE SCHOOL BOARD A CLEAN UPDATED PASSIVE GRAPHICS SOFT COPY WITH NO WATERMARKS FOR THEIR RECORDS.
13. ELECTRICAL CONTRACTOR TO SHALL ALLOW FOR CAN / ULC S1001 INTEGRATED SYSTEMS TESTING OF FIRE PROTECTION AND LIFE SAFETY SYSTEMS. (THIRD PARTY)
14. WHERE FIRE PROTECTION AND LIFE SAFETY SYSTEMS, AND SYSTEMS WITH FIRE PROTECTION AND LIFE SAFETY FUNCTIONS, ARE INTEGRATED OR INTERFACED WITH OTHER BUILDING SYSTEMS, THESE SYSTEMS SHALL BE TESTED AS A COMPLETE SYSTEM IN ACCORDANCE WITH CAN/ULC-S1001 – INTEGRATED SYSTEMS TESTING OF FIRE PROTECTION AND LIFE SAFETY SYSTEMS TO VERIFY PROPER OPERATION. TESTING SHALL BE COMPLETED AND CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO AND CERTIFIED BY ULC TO PERFORM THIS TYPE OF WORK.

The Contractor shall verify all dimensions prior to commencement of the work.
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PROJECT :

KING'S ROAD PS,
ACCESSIBILITY UPGRADES PROJECT

660 GREENWOOD ROAD, BURLINGTON, ONTARIO, L7T 3P3
HALTON DISTRICT SCHOOL BOARD

PROFESSIONAL SEAL :

DWG TITLE :
PROPOSED FIRE ALARM FLOOR PLAN

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, ON L6K 3S3
PHONE: (905)844-3913
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DATE : December 2025
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DRAWN BY: AS
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DRAWING No. : E5.0
REVISION

ELECTRICAL SPECIFICATION

SCOPE OF WORK

1. SUPPLY LABOUR, TOOLS, SERVICES, EQUIPMENT AND PROVIDE MATERIALS REQUIRED TO COMPLETE WORK IN ACCORDANCE WITH THIS SPECIFICATION AND DRAWINGS. COMPLY WITH LAWS, REGULATIONS AND CODES OF AUTHORITIES HAVING JURISDICTION. CONFORM TO REQUIREMENTS OF BIDDING DOCUMENTS AND DIVISION 1.

EXAMINATION OF SITE AND DOCUMENTS

1. PROVIDE TO SUBMITTING BID, CAREFULLY EXAMINE CONDITIONS AT SITE WHICH WILL OR MAY AFFECT WORK, DRAWINGS AND SPECIFICATION AND BECOME FAMILIAR WITH BUILDING CONSTRUCTION, FINISHES AND OTHER WORK ASSOCIATED WITH WORK IN ORDER THAT BID INCLUDES FOR EVERYTHING NECESSARY FOR COMPLETION OF WORK.

PERMITS, CERTIFICATES AND FEES

1. PAY FOR AND OBTAIN PERMITS TO COMPLETE WORK. WHEN WORK IS COMPLETE, SUPPLY AND TURN OVER INSPECTION CERTIFICATES FROM GOVERNING AUTHORITIES TO CONSULTANT. PAY FEES AND CHARGES LEVED BY MUNICIPALITY AND OTHER GOVERNING AUTHORITIES FOR PERMITS, INSPECTIONS AND CERTIFICATES. KEEP COPY OF SUCH PERMITS AND CERTIFICATES, ETC. ON JOB SITE.

CO-ORDINATION AND CO-OPERATION

1. ELECTRICAL CONTRACTOR TO CO-ORDINATE HIS WORK WITH WORK OF ALL TRADES TO ENSURE A PROPER AD COMPLETE INSTALLATION. NOTIFY ALL TRADES CONCERNED OF REQUIREMENT FOR OPENINGS, SLEEVES, INSERTS AND OTHER HARDWARE NECESSARY IN THEIR WORK FOR INSTALLATION OF HIS WORK AND WHERE HIS WORK IS TO BE INTEGRATED WITH WORK OF OTHER TRADES OR IS TO BE INSTALLED IN CLOSE PROXIMITY WITH WORK OF OTHER TRADES. CAREFULLY CO-ORDINATE WORK PRIOR TO AND DRIVING INSTALLATION.
2. EXACT LOCATIONS AND ROUTING OF SERVICES MUST BE PROPERLY PLANNED CO-ORDIANTED AND ESTABLISHED WITH ALL AFFECTED TRADES PRIOR TO INSTALLATION SUCH THAT THEY WILL CLEAR EACH OTHER AS WILL AS ANY OBSTRUCTIONS. GENERALLY, PIPING REQUIRING UNIFORM PITCH SHALL BE GIVEN RIGHT OF WAY WITH OTHER SERVICE LOCATED AND ARRANGED TO SUIT.

NOISE CONTROL

1. WORK WHICH MAY CAUSE NOISE DISTURBANCES MUST BE SCHEDULED AT TIMES APPROVED BY CONSULTANT. CO-ORDINATE WORK WITH TPADES TO MINIMIZE NOISE DISTURBANCES.

CLEAN UP

1. DURING CONSTRUCTION, KEEP SITE REASONABLY CLEAR OF RUBBISH AND WASTE MATERIAL RESULTING FORM WORK ON DAILY BASIS. AFTER COMPLETION OF WORK, REMOVE RUBBISH AND DEBRIS, ARRANGE AND PAY FOR REPAIR OF DAMAGES CAUSED AND LEAVE PREMISES AND WORK IN GOOD ORDER.

PROTECTION OF EQUIPMENT

1. PROPERLY PROTECT AND STORE ALL EQUIPMENT AND MATERIAL ON SITE FROM DAMAGE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFE STORAGE OF ALL EQUIPMENT AND GOODS TO BE RELOCATED AND SHALL REPAIR OR REPLACE DAMAGED EQUIPMENT AND GOODS AT DISCRETION OF OWNER..

INSPECTION OF WORK

1. CONSULTANT SHALL AT ALL TIMES HAVE ACCESS TO WORK AND SHALL BE NOTIFIED AT AGREED UPON TIMES OF STAGES OF WORK.
2. CONTRACTOR SHALL GIVE CONSULTANT TIMELY NOTICE OF DATE (WITHIN 48 HOURS AFTER PERFORMANCE) WHEN FOLLOW STAGES OF WORK HAVE BEEN PERFORMED:
   WHEN 33% OF WORK HAS BEEN COMPLETED:
   WHEN 66% OF WORK HAS BEEN COMPLETED:
   WHEN 95% OF WORK HAS BEEN COMPLETED:
   UPON SUBSTANTIAL PERFORMANCE OF WORK.
3. WHERE STANDARDS OF WORK ARE SPECIFIED OR IMPLIED AND WORK DOES NOT COMPLY WITH PERFORMANCE SPECIFIED OR IMPLIED . SUCH DEFICIENCY SHALL BE CORRECTED AS DIRECTED BY CONSULTANT. ANY SUBSEQUENT TESTING TO VERIFY PERFORMANCE SHALL BE DOWN AT CONTRACTORS/ EXPENSE. AND CHARGE FOR OWNER'S STAFF CONSULTANT OR OTHER PERSONNEL RELATED TO SUCH RE-TESTING SUCH ALSO BE AT EXPENSE OF CONTRACTOR.

PRODUCTS

1. PRODUCTS LISTED AND/OR SPECIFIED ON CONTRACT DOCUMENTS ARE SELECTED TO ESTABLISH DESIGN STANDARDS. IN MOST CASES, ACCEPTABLE MANUFACTURERS ARE LISTED. BASE YOUR BID PRICE ON BASE SPECIFIED PRODUCTS OR PRODUCTS SUPPLIED FROM ACCEPTABLE MANUFACTURERS. ENSURE PRODUCTS SUPPLIED FROM MANUFACTURERS OTHER THAN BASE SPECIFIED MANUFACTURERS ARE EQUIVALENT TO SPECIFIED PRODUCTS. PROPOSED SUBSTITUTIONS OF MANUFACTURERS OF PRODUCTS MAY BE PROPOSED TO CONSULTANT FOR ACCEPTANCE.. LISTING IN EACH CASE CORRESPONDING CREDIT. CONSULTANT HAS SOLE DISCRETION IN ACCEPTING ANY PROPOSED SUBSTITUTION. INCLUDE IN BID PRICE ANY ADDITIONAL PRODUCTS SUPPLY BY MANUFACTURER OTHER THAN BASE SPECIFIED MANUFACTURER.

WARRANTY

1. WARRANT WORK TO BE IN STRICT ACCORDANCE WITH CONTRACT DOCUMENTS AND FREE FROM DEFECTS FOR 1 YEAR PERIOD FROM DATE OF WRITTEN ACCEPTANCE BY CONSULTANT. REFER AND/OR REPLACE ANY SUCH DEFECTS WHICH APPEAR IN WORK WITHIN WARRANTY PERIOD, ORDINARY WEAR AND EAR AND WILFUL DAMAGE BY, OR CARELESSNESS OF OWNER'S STAFF OR AGENTS EXCEPTED, WITHOUT ADDITIONAL COSTS INCURRED IN MAKING DEFECTIVE WORK GOOD, INCLUDES REPAIR OR REPLACEMENT OF BUILDING FINISHES, OTHER MATERIALS OR DAMAGE TO OTHER EQUIPMENT CAUSED BY SUCH DEFECTS, OR BY SUBSEQUENT REPLACEMENT OR REPAIRS.

INTERRUPTIONS TO AND SHUTDOWNS OF EXISTING SERVICES AND SYSTEMS

1. CO-ORDINATE AND PERFORM SHUTDOWNS AND INTERRUPTIONS TO EXISTING SYSTEMS AND SERVICES AT TIMES ACCEPTABLE TO OWNER. OBTAIN WRITTEN APPROVAL IN ADVANCE OF SHUTDOWN OR INTERRUPTION. INCLUDE FOR COSTS OF PREMIUM TIME TIM PERFORM WORK DURING NIGHTS, WEEKENDS OR OTHER TIME OUTSIDE OF NORMAL WORKING HOURS, AS NECESSARY TO MAINTAIN SERVICES IN OPERATION OR WITH MINIMUM INTERRUPTIONS AND TO INTERRUPTION WILL BE CARRIED OUT AS CONTINUOUS OPERATION TO MINIMIZE SHUTDOWN TIME AND TO REINSTATE SYSTEMS AS SOON AS POSSIBLE AND PRIOR TO SHUTDOWN, ENSURE MATERIALS AND LABOUR REQUIRED TO COMPLETE WORK FOR WHICH SHUTDOWN IS REQUIRED ARE AVAILABLE AT SITE.

CUTTING, PATCHING AND CORE DRILLING

1. DO CUTTING, PATCHING AND CORE DRILLING OF EXISTING BUILDING REQUIRED FOR INSTALL OF WORK. PERFORM CUTTING TO NEAT AND TRUE FASHION, WITH PROPER TOOLS AND EQUIPMENT TO OWNER'S APPROVAL.
2. IN FIRE RATED CONSTRUCTION PACK AND SEAL VOID BETWEEN OPENING AND CONDUIT FOR LENGTH OF OPENING WITH ASBESTOS-FREE ELASTOMERIC ULC LISTED AND LABELED MATERIALS. INSTALL FIRE-STOP AND SMOKE SEAL MATERIALS IN ACCORDANCE TO ULC CERTIFICATION AND MANUFACTURER'S REQUIREMENTS TO PROVIDE FIRE-STOP RATINGS OF OPENINGS IN ACCORDANCE WITH GOVERNING BUILDING CODE REQUIREMENTS.
3. DO NOT CUT OR DRILL EXITING WORK WITHOUT PRIOR OWNER'S APPROVAL IN CONSULTATION WITH OWNER AND BY USE OF X-RAY WITH OWNER'S APPROVAL, DETERMINE PRESENCE OF EXISTING SERVICES AND PERFORMING ROD CONCEALED BEHIND SURFACE TO BE CUT, NOTE: ELECTRICAL CONTRACTOR WILL BE HELD RESPONSIBLE FOR DAMAGE DONE TO EXISTING BUILDING AND SERVICES CAUSED BY CUTTING OR DRILLING.

DISCONNECTION, REMOVAL AND RELOCATION

1. WHERE INDICATED ON DRAWINGS AND DETERMINED BY SITE VISIT, DISCONNECT AND REMOVE ITEMS OF EXISTING OBSOLETE ELECTRICAL WORK AND RELOCATE DEVICES, WHERE FIXTURES, SWITCHES, RECEPTACLES AND OTHER DEVICES AND/OR EQUIPMENT IS REMOVED. DISCONNECT AT POINT OF ELECTRICAL SUPPLY, REMOVE OBSOLETE WIRING AND MAKE SYSTEM SAFE. WHERE EXISTING OBSOLETE CONDUIT AND SIMILAR RACEWAY MATERIAL CANNOT BE REMOVE. CUT BACK AND CAP OBSOLETE CONDUITS OR RACEWAYS. REVSE PANELBOARD DIRECTORIES ACCORDINGLY, IF AFFECTED BY WORK.
2. UNLESS OTHERWISE NOTED, OBSOLETE MATERIALS WHICH ARE DISCONNECTED AND ARE NOT TO BE RELOCATED OR REUSED WILL BECOME THE PROPERTY OF THE ELECTRICAL CONTRACTOR REMOVE FROM SITE AND DISPOSE. OBTAIN FORM OWNER, LIST OF EXISTING ITEMS TO BE CAREFULLY REMOVED AND TURNED OVER TO OWNER. SAID ITEMS WILL REMAIN PROPERTY OF OWNER.
3. PROVIDE JUNCTION BOXES, OUTLET BOXES, WIRING, PLATES, ETC., AS NECESSARY FOR COMPLETE RELOCATION OF DEVICES. CLEAN AND RE-LAMP RELOCATED LUMINARIES. REPLACE FAULTY BALLASTS. WHEN RELOCATION WORK IS COMPLETE, CONFIRM RELOCATED DEVICES ARE IN PROPER ORDER.
4. WHERE EXISTING SERVICES PASS THROUGH OR ARE IN AN AREA TO SERVE ITEMS WHICH ARE TO REMAIN, MAINTAIN SERVICES. INCLUDE FOR RE-ROUTING EXISTING SERVICES CONCEALED BEHIND FINISHES AND WHICH BECOME EXPOSED DURING RENOVATION WORK, SO AS TO BE CONCEALED BEHIND FINISHES.
5. IN AREAS WHICH ARE NOT BEING ARCHITECTURALLY RENOVATED AND WHICH DIVISION 16 MUST RUN SERVICES THROUGH, BE RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF ARCHITECTURAL CEILINGS, MECHANICAL EQUIPMENT, SPRINKLERS, ETC., AS REQUIRED FOR INSTALLING OF ELECTRICAL CONTRACTOR'S WORK. PATCH AND MAKE GOOD (INCLUDING PAINTING) SURFACES TO MATCH EXITING.

HAZARDOUS MATERIALS

1. AT ANY TIME DURING COURSE OF WORK ASBESTOS MATERIALS ARE ENCOUNTERED OR SUSPECTED, CEASE WORK IN AREA IN QUESTION AND IMMEDIATELY REPORT IN ACCORDANCE WITH ONTARIO REGULATION 654/85 (SECTION 7) TO CONSULTANT. DO NOT RESUME WORK IN AFFECTED AREA WITOUT APPROVAL FROM CONSULTANT.

RECORD DRAWINGS (AS-BUILTS)

1. WHEN WORK BEGINS AT SITE, CLEARLY AND ACCURATELY MARK ON A BOUND SET OF WHITE PRINTS OF CONTRACT DRAWINGS ON A DAILY BASIS ALL CHANGES AND DEVIATION FROM ROUTING OF AND LOCATIONS OF EQUIPMENT SHOWN ON CONTRACT DRAWINGS CHANGE AND DEVIATION INCLUDING THOSE MADE BY ADDENDA, CHANGE ORDERS AND SITE INSTRUCTION, AND DEVIATIONS INCLUDING THOSE MADE BY ADDENDA, CHANGE ORDERS AND SITE INSTRUCTIONS, AND CHANGES AND DEVIATIONS INDICATED ON SUPPLEMENTAL DRAWINGS ISSUED WITH ADDENDA, CHANGE ORDERS AND SITE INSTRUCTIONS. MAINTAIN "AS-BUILT" WITH PRINTS AT SITE FOR PERIODIC INSPECTION BY CONSULTANT THROUGHOUT DURING OF WORK. PAY PARTICULAR ATTENTION TO ACCURATELY DIMENSIONING LOCATION OF ALL CONCEALED SERVICES TERMINATED FOR FUTURE EXTENSION, ALL BURIED WORK AND SERVICES AND WORK ENCLOSED WITHIN BUILDING IN INACCESSIBLE LOCATIONS.
2. WHEN WORK ENDS AT SITE, UPDATE A COPY OF CONTRACT DOCUMENT DRAWING DIS SET SO THAT IT REFLECTS ALL DEVIATIONS FROM ORIGINAL CONTRACT DOCUMENT DRAWINGS,THUS FORMING A TRUE "AS-BUILT" DRAWING DIS SET. PROVIDE A SET OF REPRODUCIBLE MYLAR PRINTS OF CONTRACT DRAWINGS PRODUCED FROM TRUE "AS-BUILT" MYLAR PRINTS TO CONSULTANT. ALL SUBMITTED DRAWINGS SHALL BE OF THE SAME QUALITY AS ORIGINAL CONTRACT DOCUMENT DRAWINGS.
3. UPDATE OWNER'S DISTRIBUTION RISER DIAGRAMS POSTED IN ELECTRICAL ROOM.

SHOP DRAWINGS AND OPERATING & MAINTENANCE INSTRUCTION MANUALS

1. SUBMIT SHOP DRAWINGS AND OPERATION & MAINTENANCE INSTRUCTION MANUALS FOR THE FOLLOWING:
   1.1 SPECIAL RECEPTACLES AND SWITCHES;
   1.2 LUMINARIES;
   1.3 TRANSFORMERS:
   1.4 DIMMERS:
   1.5 EMERGENCY LIGHTING BATTERY UNITS;
   1.6 FIRE ALARM SYSTEM COMPONENTS;
   1.7 PIPE TRACING AND ACCESSORIES;
   1.8 SURFACE METAL RACEWAY;
   1.9 ELECTRIC HEATING UNITS;
   1.10 LOW VOLTAGE LIGHTING CONTROL COMPONENTS;
   1.13 FLOOR FITTINGS;
   1.14 DATA COMMUNICATION SYSTEM;
   1.17 SECURITY SYSTEM;
   1.18 NET WORK CABLING SYSTEM.
2. PROPERLY IDENTIFY SHOP DRAWING FOR REVIEW AND SHOW IN DETAIL EQUIPMENT AND MATERIALS. ENDORSE EACH DRAWING, INCLUDE COMPANY NAME AND SUBMITTAL DATE. PROVIDE MANUALS AS INDICED, IDENTIFIED HARD, COVER 3-RING BINDERS COMPLETE WITH:
   2.1 A COPY OF EACH 'REVIEWED' SHOP DRAWING;
   2.2 EXPLANATIONS OF OPERATING PRINCIPLES AND SEQUENCES;
   2.3 PART LISTS WITH NUMBERS;
   2.4 RECOMMEND MAINTENANCE PRACTICES AND PRECAUTIONS;
   2.5 COPIES OF INSPECTION CERTIFICATES ISSUED BY GOVERNING AUTHORITIES;
   2.6 COPIES OF PANELBOARD DIRECTORIES.
3. PROVIDE 2 SETS OF MANUALS. CONFIRM EXACT QUANTITY AND METHOD OF SUBMISSION WITH CONSULTANT.

GENERAL CONDUIT AND CONDUCTOR INSTALLATION REQUIREMENTS

1. INSTALL CONDUIT AND CONDUCTORS CONCEALED TO DEGREE MADE POSSIBLE BY FINISHES AND PROVED INSTALLATIONS IN ACCORDANCE WITH ELECTRICAL SAFETY CODE AND LOCAL GOVERNING AUTHORITIES. PLAN AND CO-ORDINATE LOCATIONS AND ROUTING OF SERVICES WITH TRADES PRIOR TO INSTALLATION. IN AREAS WHERE A MULTIPLICITY OF SERVICES OCCURS, PREPARE DETAIL DRAWINGS AND SUBMIT TO CONSULTANT FOR REVIEW PRIOR TO START OF AFFECTED WORK.
2. WHERE CONDUIT AND/OR CONDUCTORS ARE EXPOSED, ARRANGE SAME TO AVOID INTERFERENCE WITH OTHER WORK AND PARALLEL TO BUILDING LINES. WHERE HORIZONTAL CONDUITS AND/OR CONDUCTORS ARE EXPOSED, INSTALL AS HIGH AS POSSIBLE. DO NOT INSTALL CONDUIT AND/OR CONDUCTORS WITHIN 6" (150MM) OF 'HOT' PIPES OR EQUIPMENT UNLESS CONDUIT AND/OR CONDUCTORS ARE ASSOCIATED WITH EQUIPMENT. UNDEPENDABLY RUN CONDUIT AND CONDUCTORS MUST BE SUPPORTED FROM THE CEILING OR WALL STRUCTURE, NOT FROM CEILING HANGERS, DUCTWORK, PIPING, CABLE TRAYS ETC.
3. IDENTIFY CONDUIT RUNS (IE. TAG BOTH ENDS OF CONDUIT RUNS)

CONDUITS

1. PROVIDE CONDUIT FOR CONDUCTORS. CONDUIT TO BE EMT (THIN WALL) GALVANIZED,ELECTICAL METALLIC TUBING TO CSA C222 NO. 83, COMPLETE WITH FACTORY MAD BENDS WHERE SITE BENDING IS NOT POSSIBLE AND JOINTS AND TERMINATIONS MADE WITH COMPRESSION CONNECTORS, FOR SHORT BRANCH CIRCUIT CONNECTORS TO MOTORIZED EQUIPMENT AND TRANSFORMERS (MINIMUM LENGTH 18" (450MM), MAXIMUM LENGTH 24" (600MM) WITH 180 DEGREE LOOP WERE POSSIBLE)-GALVANIZED STEEL FLEXIBLE FLUID - TIGHT METALLIC CONDUIT TO CSA C222 NO. 56 COMPLETE WITH IDEAL STEEL TOUGH CONDUIT CONNECTORS AT TERMINATIONS. FOR CONDUIT GREATER THAN 2" (1200MM), PROVIDE RIGID GALVANIZED STEEL TO CSA C222 NO. 45 COMPLETE WITH FITTINGS, CONNECTORS AND RIGID COUPLINGS.)
2. SUPPORT AND SECURE CONDUIT AT SPACING IN ACCORDANCE WITH CODE REQUIREMENTS BY MEANS OF GALVANIZED PIPE STRAPS, CONDUIT CLIPS, RING BOLT TYPE HANGERS OR BY OTHER PROPER MANUFACTURER DEVICES. PROVIDE CONDUIT FITTINGS CONSTRUCTED OF SAME MATERIALS AS CONDUIT AND SUITABLE FOR APPLICATION. SQUARE AND PROPERLY REAM ENDS OF SITE CUT CONDUIT. GENERALLY CONDUIT IS SIZED ON DRAWINGS. SIZE CONDUIT NOT SIZED ON DRAWING IN ACCORDANCE WITH CODE. BEND CONDUIT AT FULL CONDUIT DIAMETER WITH NO KINKS AND N OOFLAKING R CRACKING OF FINISHES.

CONDUCTORS

1. PROVIDE CONDUCTORS. REFER TO DRAWINGS FOR SIZING OF CONDUCTORS. GENERALLY BRANCH CIRCUIT CONDUCTOR SIZES ARE INDICATED ON CONSULTANT'S DRAWINGS. SUCH SIZES ARE MINIMUM REQUIREMENTS AND MUST BE INCREASED TO SUIT LENGTH OF RUN AND VOLTAGE DROP IN ACCORDANCE WITH SCHEDULE OBTAINED FORM CONSULTANT. CONDUCTORS NOT SIZED ON DRAWINGS SHALL BE SIZED IN ACCORDANCE WITH CODE. PROVIDE CABLE SUPPORT SYSTEM ACCESSORIES WHICH ARE NOT SPECIFIED HEREIN OR SHOWN ON DRAWINGS BUT ARE REQUIRED FOR PROPER INSTALLATION.
2. CONDUCTORS TO BE T90 NYLON' SINGLE CONDUCTOR TO CSA C222 NO. 75, COLOUR CODED 194 DEGREES F. (90 DEGREES C), PVC INSULATED AND NYLON COVERED.
3. BRANCH CIRCUIT CONDUCTORS IN ACCESSIBLE SUSPENDED CEILING SPACES, IN STUB WALL CONSTRUCTION TO SUSPENDED CEILING SPECES (MAXIMUM 20' (6M) RUN PERMITTED MAY BE 'BX' TYPE AC-90 FLEXIBLE ARMORED CABLE WITH 'RW-90' CONDUCTORS AND BARE COPPER GROUND CONDUCTORS TO CSA C22 NO. 51 (BULLETIN NO.994) PROVIDE PROPER SQUEEZED TYPE CONNECTORS AND PLASTIC ANTO-SHORT BUSHINGS AT TERMINATIONS. SUPPORT 'BX' IN CEILING SPACES AND IN STUD WALL CONSTRUCTION WITH STEEL 2 HOLE CABLE STRAPS TO "CODE" REQUIREMENTS.
4. BRANCH CIRCUIT CONDUCTORS UP TO AND INCLUDING NO. 10 AWG SHALL BE SOLID CONDUCTORS IN SIZES LARGER THAN NO. 12 AWG UNLESS OTHERWISE NOTED.
5. PROVIDE IDI ELECTRIC 'IDEAL' NO. 451, NO. 452 AND NO. 453 'WING-NUT' CSA CERTIFIED 600V RATED PRESURE TYPE CONNECTORS.
6. COLOUR CODE CONDUCTORS IN ACCORDANCE WITH CODE, THROUGHOUT TO IDENTIFY PHASES, NEUTRALS AND GROUND BY MEANS OF SELF-LAMINATING COLOURED TAPE, COLOURED CONDUCTOR INSULATION OR PROPERLY SECURED COLOURED PLASTIC DISCS.
7. WHEN PULLING WIRES INTO CONDUIT, USE IDI ELECTRIC 'IDEAL YELLOW 77' LUBRICANT. ENSURE WIRES ARE KEPT STRAIGHT AND ARE NOT TWISTED OR BRAISED.

OUTLET BOXES, PULL BOXES AND JUNCTION BOXES

1. PROVIDE CSA APPROVED STAMPED GALVANIZED STEEL OUTLET BOX FOR EACH LUMINARIES, FIRE ALARM DEVICE, ETC. REFER TO DRAWINGS FOR LOCATIONS OF OUTLETS. CONFIRM EXACT LOCATIONS PRIOR TO ROUGH-IN.
2. PROVIDE PULL BOXES AND JUNCTION BOXES WHEREVER NECESSARY TO FACILITATE CONDUCTOR & CONDUIT INSTALLATIONS. GENERALLY, PROVIDE CONDUIT RUNS EXCEEDING 100' (30M) IN LENGTH OR WITH MORE THAN 3, 90 DEGREE BENDS WITH PULL BOX INSTALLED AT CONVENIENT AND SUITABLE INTERMEDIATE ACCESSIBLE LOCATION. PROVIDE JUNCTION BOXES AND PULL BOXES SIZED IN ACCORDANCE WITH CODE TO SUIT NUMBER AND SIZE OF CONDUITS AND CONDUCTORS. BOXES TO BE GALVANIZED OR PRIME COATED PLATED STEEL COMPLETE WITH SCREW-ONN OR HINGED COVERS AND KNOCKOUTS. BOXES MUST BE ACCESSIBLE AFTER WORK IS COMPLETE.
3. SIZE, ARRANGEMENT AND TYPE OF BOXES MUST BE SUITABLE FOR APPLICATION. PROVIDE BLANK COVER PLATES ON EXISTING OBSOLETE BOXES WHICH ARE TO REMAIN. CLEARLY IDENTIFY MAIN PULL OR JUNCTION BOXES BY SPRAY PAINTING COVERS IN ACCORDANCE WITH FOLLOWING COLOUR SCHEDULE:
   3.1 LIGHTING - YELLOW
   3.2 NORMAL POWER - BLUE
   3.3 ESSENTIAL POWER - ORANGE
   3.4 FIRE ALARM - RED
4. WHERE REQUIRED, SUPPLY ACCESS DOORS OF MINIMUM NO. 23 GAUGE. PRIME COATED STEEL COMPLETE WITH HINGES AND FRAMES TO GIVE ACCESS TO BOXES AND CONDUCTOR JOINTS AND OTHER SIMILAR ELECTRICAL WORK WHICH MAY NEED MAINTENANCE OR REPAIR, BUT WHICH IS CONCEALED IN N ACCESSIBLE CONSTRUCTION. CONFIRM FINISHES WITH OWNER.

RECEPTACLES, SWITCHES AND FACE PLATES

1. PROVIDE HUBBELL CANADA CSA APPROVED SPECIFICATION GRADE AC QUIET ACTION TOGGLE TYPE, 20A, 120V-277V SWITCHES AND SPECIFICATION GRADE PREMIUM QUALITY DUPLE NYLON CONSTRUCTION U-GROUND 12A-125V, 3W RECEPTACLES. DEVICES SHALL BE BACK AND SIDE WIRED. PROVIDE GRADE 18-8 TYPE 302.304 0.041" (1MM) THICK STAINLESS STEEL FACE PLATES WITH MATCHING SCREWS. CONFIRM TYPE AND FINISH OF DEVICES WITH OWNER PRIOR TO ORDERING.
2. WHERE SHOWN, PROVIDE HUBBELL NO. IGS262. 15A-125V, ULC LISTED, 2-POLE 3W, ORANGE COLOURED, SPECIFICATION GRADE ISOLATED GOUND DUPLEX RECEPTACLE COMPLETE WITH STAINLESS STEEL COVER PLATE AND MATCHING SCREWS.
3. WHERE SHOWN, PROVIDE HUBBELL NO. GF5252, 15A-125V ULC LISTED CLASS A, GROUP ONE, 2-POLE, 3IVORY COLOURED SPECIFICATION GRADE, GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE, COMPLETE WITH STAINLESS STEEL COVER PLATE AND MATCHING SCREWS.
4. PROVIDE PERMANENTLY LABELED, SELF ADHESIVE IDENTIFICATION TAPE ON INSIDE AND OUTSIDE OF EACH DEVICE OUTLET FACE PLATE IDENTIFYING LOCATION FROM WHERE EACH DEVICE IS FED.
5. ACCEPTABLE MANUFACTURES INCLUDE LEWTON, PASS AND SEYMOUR, ARROW-HEAR AND BRYANT.

FASTENING AND SECURING HARDWARE

1. PROVIDE PROPER FASTENERS AND SIMILAR HARDWARE REQUIRED FOR CONDUIT CONDUCTORS AND FOR EQUIPMENT HANGER AND/OR SUPPORT MATERIAL UNLESS OTHERWISE NOTED. EXPLOSIVE POWER ACTUATED FASTENERS WILL NOT BE PERMITTED UNLESS SPECIFIC WRITTEN APPROVAL FOR US AND TYPE HAS BEEN OBTAINED FROM CONSULTANT. UNDER NO CIRCUMSTANCES US CEILING SUSPENSION HANGERS OR GRIDS FOR SUSPENSION OF CONDUIT AND CONDUCTORS.

IDENTIFICATION NAMEPLATES

1. FOR EACH PIECE OF ELECTRICAL DISTRIBUTION EQUIPMENT FROM ELECTRICAL SOURCE OF SUPPLY UP TO AND INCLUDING PLANELOADS, PROVIDE ENGRAVED LAMACOID IDENTIFICATION NAMEPLATES SECURED TO APPARATUS WTH.
2. PROVIDE LAMACOID LABELS (3-PLY) WHITE LETTERED ON BLACK BACKGROUND- 1/4" HIGH LETTERING ON ALL ELECTRICAL EQUIPMENT SUPPLIED, MOUNTED AND/OR CONNECTED BY THIS CONTRACT.
2. PROVIDE BRADY LABELING ON ALL RECEPTACLE COVER PLATES INDICATING PANEL AND CIRCUITING NUMBER CONNECT BY THIS CONTRACT.

FUSES

1. PROVIDE COMPLETE SET OF FUSES FOR EACH FUSIBLE DISCONNECT OR SIMILAR FUSIBLE EQUIPMENT. FUSES TO BE FORM 1 , CLASS 'J' HRC FUSES FOR CONSTANT RUNNING EQUIPMENT AND FOR 11 CLASS 'C' FUSES FOR MOTOR EQUIPMENT THAT CYCLES 'ON' AND 'OFF'. ACCEPTABLE MANUFACTURERS ARE ENGLISH ELECTRIC, BUSSMAN AND GOULD.

DISCONNECT SWITCHES

1. PROVIDE DISCONNECT SWITCHES, CUTLERHAMMER CANADA, HEAVY DUTYM, CSA APPROVED RONT OPERATED TYPE. FUSIBLE UNITS TO BE COMPLETE WITH FUSE CLIPS SUITABLE FOR HRC FUSES, UNLESS OTHERWISE NOTED. ENCLOSURES TO BE SPRINKLER-PROOF. AMP RATING, NUMBER OF POLES AND FUSE REQUIREMENTS ARE AS INDICATED ON DRAWINGS. ACCEPTABLE MANUFACTURERS INCLUDE SIEMENS ELECTRIC, FEDERAL PIONEER AND SQUARE 'D' CANADA.

CIRCUIT BREAKERS FOR EXISTING PANELBOARDS

1. PROVIDE BREAKERS IN EXISTING PANELBOARDS OF TYPE TO MATCH EXISTING DEVICES. QUALITY AND STANDARDS OF BREAKERS SHALL MATCH EXISTING. CONFIRM REQUIREMENTS ON SITE PRIOR TO ORDERING. PROVIDE FOR ALL MODIFICATIONS TO PANELBOARDS FOR BREAKERS AND FEEDER INSTALLATIONS. PROVIDE REPLACEMENT BRANCH CIRCUIT DIRECTORY CARDS NEATLY TYPEWRITTEN TO INCORPORATE ADDITIONAL AND EXISTING CONNECTED LOADS TO CONSULTANTS DIRECTIONS. DIRECTORIES SHALL USE OWNERS ACTUAL ROOM NAMES & NUMBERS AND NOT CONTRACT DRAWINGS NAMES & NUMBERS. PROVIDE ENGRAVED LAMACOID I.D. NAMEPLATES FOR DISTRIBUTION PANELBOARDS TO CONSULTANTS DIRECTION.

PANELBOARDS

1. PROVIDE CUTLER-HAMER CANADA TYPE 'POW-R-LINE 1' FACTORY ASSEMBLED DEAD FRONT PANELBOARDS, 120/208Y 3 PHASE 4 WIRE MANUFACTURED TO CSA STANDARD C22 NO 29 AND ELECTRICAL SAFETY AUTHORITY CODE AND DESIGNATED FOR AN INTERRUPTING CAPACITY OF 10KA SYMMETRICAL AT 208V.
2. INSTALL PANEL BOARDS WHERE SHOWN COMPLETE WITH:
   2.1 EEMAC 2 SPRINGLER-PROOF ENCLOSURE CONSTRUCTED OF CODE GAUGE GALVANIZED STEEL WITH REMOVABLE BOX ENDS, WIRING GUTTER SPACE ON SIDES AND A ASA-61 GREY BAKED ACRYLIC ENAMEL FINISH.
   2.2 TRIM FOR RECESSED OR SURFACE WALL MOUNTING AS SHOWN CONSTRUCTED CODE GAUGE STEEL, BOWDLERIZED. FINISHED WITH ASA-61 GREY BAKED ACRYLIC ENAMEL AND COMPLETE WITH CONCEALED FASTENER, CONCEALED HINGE, CHROME PLATED DOOR, LATCH AND KEYED ALIKE LOCK WITH KEY, STEEL FRAME HOLDER AND CIRCUIT DIRECTORY BACK OF DOOR AND MYLAR CIRCUIT BREAKER IDENTIFICATION STRIPS.
   2.3 DRIP SHIELD FOR SURFACE MOUNTED PANELBOARDS.
   2.4 HARD DRAWN ELECTRICAL GRADE COPPER BUS AND GROUND BUS
   2.5 HIGH STRENGTH SET SCREW TYPE ANTI_TURNING WIRE CONNECTORS.
   2.6 BOLT ON MOULDED CASE CIRCUIT BREAKERS.
   2.7 MAIN BREAKER AND GREEN POWER 'ON' INDICATOR LIGHT, WHERE SCHEDULED.
   2.8 200% CAPACITY NEUTRALS FOR PANELBOARDS AS SCHEDULED.
3. PROVIDE DOUBLE LUGGING TO EXISTING PANELBOARDS AS SHOWN.
4. SUPPORT CABINET INDEPENDENT OF CONNECTING CONDUIT. TURN OVER TO CONSULTANT PRIOR TO APPLICATION FOR SUBSTANTIAL PERFORMANCE OF WORK QUANTITY OF 2 PANELBOARD CABINET KEYS FOR PANELBOARD. IDENTIFY PANELBOARD BREAKERS IN PERMANENT MANNER AND COMPLETE TYPED CIRCUIT DIRECTORY TO OWNER'S APPROVAL.
5. ACCEPTABLE MANUFACTURERS INCLUDE SIMENS ELECTRIC. FEDERAL PIONEER AND SQUARE 'U' CANADA.
6. PROVIDE PANEL LABELS AND NEATLY TYPEWRITTEN PANEL DIRECTORY INSIDE DOOR IN PLASTIC SLEEVE.

GENERAL ELECTICAL WORK TESTING

1. IN ADDITION TO TESTS REQUIRED BY GOVERNING AUTHORITIES AND REGULATIONS, TEST WORK TO ENSURE THERE ARE NO LEAKS, GROUNDS OR CROSSES. ENSURE DEVICES ARE COMMISSIONED AND OPERABLE. COONECT CIRCUITS TO PANEL BOARDS SO AS TO BALANCE ACTUAL LOADS (WATTAGE) WITHIN 5%. IF REQUIRED TRANSPOSE CIRCUITS WHEN WORK IS COMPLETE TO MEET THIS REQUIREMENT.

LUMINARIES :

LED LIGHTING
1. GENERAL

PROVIDE LED LIGHTING FIXTURES AS SHOWN ON DRAWINGS AND LIGHTING SCHEDULE.
ALL FIXTURES SHALL BE CSA CERTIFIED AND ULC LISTED WHERE REQUIRED.
COORDINATE ALL INSTALLATION WITH ARCHITECTURAL AND SITE CONDITIONS PRIOR TO ROUGH-IN.

2. PRODUCTS

ALL LUMINAIRES SHALL BE COMPLETE LED TYPE WITH INTEGRAL LED DRIVERS.
COLOUR TEMPERATURE: 3500K UNLESS NOTED OTHERWISE.
MINIMUM CRI: 80-85.
FIXTURES SHALL PROVIDE UNIFORM LIGHT DISTRIBUTION AND BE SUITABLE FOR COMMERCIAL USE.
LED DRIVERS SHALL BE HIGH EFFICIENCY, FLICKER-FREE, AND CSA APPROVED.
MINIMUM 5-YEAR WARRANTY ON FIXTURES AND DRIVERS.

PROVIDE LIGHTING FIXTURE TYPES AND ACCEPTABLE MANUFACTURERS AS INDICATED ON THE ELECTRICAL DRAWINGS AND LIGHTING FIXTURE SCHEDULE. ALL FIXTURES SHALL BE SELECTED STRICTLY IN ACCORDANCE WITH THE APPROVED FIXTURE SCHEDULE UNLESS OTHERWISE APPROVED BY THE CONSULTANT.

3. INSTALLATION

INSTALL ALL FIXTURES AS PER MANUFACTURER'S INSTRUCTIONS AND DRAWINGS.
CONFIRM EXACT LOCATIONS PRIOR TO ROUGH-IN.
DO NOT SUPPORT FIXTURES FROM DUCTWORK, PIPING, OR CEILING S

Halton District School Board

FORM OF TENDER

Project Reference: RFT 26-085 Interior Renovations and Elevator Addition - King's Road PS

From (Bidder):_____
Company Name

_____
Street Address

_____
City, Province and postal code

_____
Phone Number Email Address

To (Owner): Halton District School Board
2050 Guelph Line
Burlington, Ontario L7P 5A8

By signing below, I/We acknowledge that I/We have read and accept the terms and conditions of this document and further that I/We have the authority to bind the organization.

I/We acknowledge that I/We have received addenda numbered _____ to _____ and the fee(s) quoted incorporate such addenda.

I/We have included one (1) electronic copy of the proposal submission in accordance with the terms and conditions of this RFP.

If this proposal is accepted by the HDSB and the HDSB is proceeding with the internal approvals for the award of the Agreement, then I/we will provide the required proof of insurance, and all other required submittals within five (5) business days of notification from the HDSB.

I/We, the undersigned, having examined the RFX Documents for the above-named Project, including Addenda, HDSB Standard Terms and Conditions and hereby offer to perform the Work in accordance with the Tender Documents, for the Stipulated Price of:

RFT 26-085 Interior Renovations and Elevator Addition - King's Road PS
Form of Tender Continued
Page 2 OF 2

Base Bid Amount (Excluding HST)	$
Cash Allowance	$ 100,000.00
Contingency Allowance	$ 250,000.00
Total Base Bid (Excluding HST)	$

Proposed Subcontractor:

Asbestos Contractor _____

Electrical Contractor _____

Mechanical Contractor _____

Roofing Contractor _____

We, the undersigned, declare that:

a. We agree to perform the Work within the required completion time specified in the Tender Documents,
b. We have arrived at the Tender without collusion with any competitor,
c. This Tender is open to acceptance by the Owner for a period of 120 days from the date of Tender Closing,
d. All Form of Tender supplements called for by the Tender Documents from an integral part of this Tender.

Signature: _____ _____
LEGAL NAME OF BIDDER DATE

_____ _____ _____
AUTHORIZED SIGNATURE OF BIDDER & TITLE PRINTED NAME
I have the authority to bind the Bidder

Halton District School Board

APPENDIX A - DECLARATION SIGNATURE SHEET

1. I/WE DECLARE that this Submission is made without collusion, knowledge, and comparison of figures or arrangement with any other company, firm or person submitting a Submission for the same work.

2. I/WE DECLARE that to our knowledge no member of Halton District School Board is, will be or has become financially interested, directly or indirectly, in any aspect of the Contract other than in the appropriate discharge of his/her obligations as an employee/officer of Halton District School Board.

3. I/WE HAVE READ, Understood and agree to abide by the Agreement to Abide by the Established Process.

4. I/WE HAVE CAREFULLY examined the RFX documents, including Addenda, and the HDSB Standard Terms and Conditions and have a clear and comprehensive knowledge of what is being requested hereunder. By submitting the Submission, the Bidder agrees and consents to the administrative procedures of the Board, as well as the procedures, terms, conditions and provisions of the RFX, including the Form of Tender.

5. I/WE have carefully examined all of the Proposal Documents, and that we have thoroughly reviewed all proposal documentation and addenda (as applicable) and hereby accept and agree to same as forming part and parcel of the proposed Contract.

6. I/WE ARE AUTHORIZED BY and have the authority to bind the Bidder.

DATE:_____

NAME:_____
Please Print

SIGNATURE:_____

TITLE:_____

COMPANY NAME:_____

ADDRESS:_____

PHONE NUMBER: _____

E-MAIL ADDRESS:_____

E-MAIL to Send PO: _____

Halton District School Board

APPENDIX B - SUPPLIER ATTESTATION

I, the undersigned, on behalf of **[Insert Full Legal Name of Supplier]** (the "Supplier"), hereby make the following declarations and attestations:

1. **Compliance with Procurement Restrictions**
   The Supplier has read, understands, and agrees to comply with all applicable procurement restriction requirements as outlined by the Halton District School Board (HDSB), including, but not limited to, restrictions related to trade agreements, supplier eligibility, conflict of interest, and ethical business conduct.

2. **Prohibited Suppliers and Affiliates**
   The Supplier confirms that neither it, nor any of its affiliated entities, principals, directors, or key personnel are currently debarred, suspended, or otherwise prohibited from bidding on or being awarded public contracts in the Province of Ontario, or in any other relevant jurisdiction applicable to this procurement.

3. **Disclosure of Conflict of Interest**
   The Supplier confirms that it has disclosed any actual or potential conflict of interest or circumstances that may give rise to a perceived conflict of interest. If no such conflicts exist, the Supplier confirms that, to the best of its knowledge, none are known at the time of submission.

4. **Ongoing Obligation**
   The Supplier acknowledges that compliance with the Procurement Restriction Policy is an **ongoing obligation**. The Supplier agrees to immediately notify the HDSB in writing if any information relevant to this declaration changes during the term of the procurement process or contract.

By signing below, I certify that the information provided in this attestation is true and accurate to the best of my knowledge.

Authorized Signature: _____

Name: [Insert Name] _____

Title: [Insert Title] _____

Company Name: [Insert Legal Name of Supplier] _____

Date: _____

Halton District School Board

APPENDIX C - PROCUREMENT RESTRICTION POLICY COMPLIANCE DECLARATION

In accordance with the Ontario Government's Procurement Restriction Policy and under the direction of the Ontario Government, the Halton District School Board (HDSB) is required to restrict participation in procurement opportunities from certain suppliers.

Specifically, U.S. based businesses are not eligible to participate in this procurement if they meet the following criteria:

- The business has its head office or principal place of business located in the United States; and,
- The business employs fewer than 250 full-time employees in Canada at the time of this procurement process.

Supplier Declaration of Status

Suppliers are required to declare their status in accordance with the above definition.

Please check one of the following boxes:

☐ We are a U.S. based business as defined under the Ontario Government's Procurement Restriction Policy.

☐ We are not a U.S. based business as defined under the Ontario Government's Procurement Restriction Policy.

By signing below, I certify that the information provided in this attestation is true and accurate to the best of my knowledge.

Authorized Signature: _____

Name: [Insert Name] _____

Title: [Insert Title] _____

Company Name: [Insert Legal Name of Supplier] _____

Date: _____

Halton District School Board

APPENDIX D - VOLUNTARY DECLARATION OF DIVERSE SUPPLIER STATUS

The Halton District School Board (HDSB) is committed to promoting equity, diversity, and inclusion in its procurement practices. In alignment with these values, HDSB encourages participation from diverse vendors, including businesses that are at least 51% owned, managed, and controlled by individuals from equity-deserving groups.

This declaration is **voluntary** and **will not be used as part of the evaluation or award process unless otherwise stated**. It is for data collection and internal reporting purposes only.

Please indicate if your business qualifies under one or more of the following categories (select all that apply):

- ☐ Indigenous-owned business
- ☐ Women-owned business
- ☐ Black-owned business
- ☐ Racialized (visible minority)-owned business
- ☐ 2SLGBTQIA+-owned business
- ☐ Persons with disabilities-owned business
- ☐ Canadian Veteran-owned business
- ☐ Social enterprise
- ☐ Other (please specify): _____
- ☐ Prefer not to disclose

By selecting any of the above, I affirm that at least 51% of the ownership and control of the business resides with individuals who self-identify with the selected category(ies).

Authorized Signature: _____

Name: _____

Title: _____

Company Name: _____

Date: _____

Halton District School Board

Appendix E – Notice of Intent Not to Submit a Bid

(Optional – For Vendors Who Do Not Intend to Respond)

If you do not intend to submit a bid in response to this RFX, the Halton District School Board (HDSB) would appreciate your assistance in completing this form and returning it to the email or online portal specified in the RFX. Your feedback helps us improve future procurement processes.

Company Name: _____

Contact Person: _____

Email Address: _____

Telephone Number: _____

Please check the applicable reason(s) for not submitting a response:

- ☐ The goods/services required are not within our area of expertise
- ☐ We are unable to meet the requirements/specifications
- ☐ Insufficient time to prepare a submission
- ☐ Cannot meet delivery or performance schedule
- ☐ Terms and conditions are too restrictive (please elaborate below)
- ☐ We do not wish to compete for this contract
- ☐ Already engaged in other work that conflicts with this opportunity
- ☐ Other (please specify): _____

Additional comments or suggestions for improving future opportunities (optional):

_____

_____

_____

_____

The HDSB thanks you for your time and interest.

Appendix F – Mandatory Incorporated Provisions

Some Mandatory Incorporated Provisions included in this RFX may not be relevant to every proposal and shall apply to the extent applicable.

Limitation of recourse; waiver as to the Crown (FAA s. 28)

Without limiting the *Financial Administration Act* (Ontario), including section 28, the Supplier acknowledges and agrees that its remedies, recourse and rights in respect of any Definitive Agreement are limited to HDSB and to HDSB's right, title and interest in its assets.

The Supplier further agrees that the following wording is a Mandatory Incorporated Provision and applies to every Definitive Agreement: "Supplier unconditionally and irrevocably waives and releases all other claims, remedies, recourse or rights against the Crown in right of Ontario in respect of the Agreement, and agrees that it shall have no remedies, recourse or rights in respect of the Agreement against the Crown in right of Ontario, any Ontario Ministry, Minister, agent, agency, servant, employee or representative of the Crown or any director, officer, servant, agent, employee or representative of a Crown agency or a corporation in which the Crown holds a majority of the shares or appoints a majority of the directors or members, other than against the Halton District School Board and its assets."

Freedom of Information and Privacy

Supplier shall comply with the Municipal Freedom of Information and Protection of Privacy Act ("**MFIPPA**") and treatment of confidential and personal information as set out in the RFX and HDSB Standard Terms and Conditions, including audit/disclosure obligations and records retention (minimum seven (7) years).

Accessibility

Supplier shall comply with the Ontario Human Rights Code, the Ontarians with Disabilities Act, 2005, and all regulations under each of the foregoing, including with respect to accessibility for Ontarians with disabilities.

WSIB/Health and Safety

Proof of WSIB coverage and compliance with the OHSA and applicable HDSB health and safety/asbestos requirements.

No Publicity

No publicity or promotion regarding HDSB or the Definitive Agreement without HDSB's prior written consent.

Audit Rights

HDSB reserves the right at any time during normal business hours, and as often as HDSB may deem necessary, to examine the successful Supplier's records with respect to the services delivered in connection with any Definitive Agreement. audit and records inspection rights as stated in the HDSB Standard Terms and Conditions.

The successful Supplier shall permit the HDSB to audit, examine, and make copies, excerpts or transcripts from such records, and to make audits of data relating to matters covered by any Definitive Agreement. The successful Supplier shall maintain and retain all records and other documents related to any purchase order, and any Definitive Agreement for a period of seven (7) years from the date of final payment, except in cases where unresolved audit questions require a longer period of time for resolution, as determined by the HDSB.

Contract Extension

Following the initial term of any Definitive Agreement, as applicable, the HDSB may, at its sole discretion, elect to extend any such Definitive Agreement for one or more additional term(s). Any such extension(s) shall be contingent upon satisfactory performance by the Supplier, as determined solely by the HDSB. The HDSB also reserves the right to negotiate the terms and conditions applicable to any extension, including, but not limited to, pricing and service levels.

Supplier's Conduct

When on HDSB property, the Supplier and its employees must:

a) have proper identification (name badge, uniform with logo, photo I.D. etc.);
b) be dressed appropriately, the following are not appropriate:
    i. clothing that fails to contain the anatomy when the person is carrying out normal duties, and
    ii. clothing with printed slogans, advertising or designs that are obscene or could have a double meaning;
c) use appropriate language;
d) refrain from wearing scented products or fragrances such as perfume, cologne, after shave, shampoos (as required);
e) work with dignity, courtesy and respect for self and others;
f) not make noise or move in corridors during morning announcements, and when playing the national anthem;
g) observe procedures during fire evacuation and lockdowns, whether they are actual or test (drills); and
h) park in designated spots.

The Supplier shall comply with all applicable HDSB policies and procedures, including but not limited to maintaining a smoke-free environment, and actively preventing,

refraining from, and promptly reporting any instances of sexual, racial, and ethno-cultural harassment or discrimination.

The Supplier will ensure that the education program is not interrupted and that the health and safety of the students and staff is not compromised.

Supplier acknowledges that no person who is impaired by alcohol or drugs will enter and/or remain on HDSB property.

The Supplier agrees that its employees and subcontractors will observe and comply with all standards, procedures, policies, rules and regulations of the HDSB, including but not limited to:

a) privacy;
b) use of facilities;
c) use of equipment;
d) building security; and,
e) computer technology.

Smoking/Vaping on HDSB Property

The Supplier shall not, and shall not permit its employees, agents, contractors, and representatives to, smoke any substance, by any means within any HDSB buildings or on any HDSB property, including inside vehicles located on HDSB premises. This prohibition includes, but is not limited to, tobacco, cannabis in any form, and the use of vaping devices.

Vehicle operation on HDSB Property

The Supplier shall exercise due care and caution when operating motorized vehicles on school property, particularly during times when students are entering or exiting the school building, or are present outside on school grounds or adjacent areas, including recess, lunch periods, and before or after the school day.

Additionally, while on HDSB property, Supplier and its employees, agents, contractors, and representatives shall turn off their vehicles and remove the keys during any stop and must never leave a vehicle idling while unattended, nor parked in designated accessible parking spaces. The HDSB assumes no responsibility for any theft of, or theft from, vehicles operated by the Supplier or its employees, agents, contractors, and representatives.

Suppliers will be responsible for any damage to HDSB property including but not limited to asphalt or natural surfaces as a result of using them for access of heavy vehicles. Making good of natural surfaces or asphalt areas that are damaged in the course of the work shall be to the original (new) condition irrespective of their condition prior to commencement of the work, or the condition of the adjacent unaffected areas. Supplier

vehicles are only permitted to access, stand or be parked in areas designated by administrative staff of HDSB.

Assignment

Except as expressly set out in any Definitive Agreement, the Supplier shall not assign, transfer, subcontract, convey, or otherwise dispose of any Definitive Agreement, in whole or in part, nor any right, title, interest, or authority therein, to any other individual, firm, company, or corporation without the prior written consent of the HDSB. Any such action taken without prior written consent shall be deemed null and void.

For the purposes hereof, the transfer or issuance by the Supplier of more than fifty (50%) percent of the voting securities of the Supplier to any third party other than to an affiliate (as such term is defined in the *Business Corporations Act* (Ontario)) or the shareholder or shareholders of the Supplier as of the Closing Date, whether or not such transfer or issuance of voting securities takes place in one or more transactions, shall, for the purposes of this provision, be deemed to be an assignment of the Definitive Agreement requiring the consent of the HDSB, unless such transfer or issuance of shares is made pursuant to an initial public offering of common shares under the *Securities Act* (Ontario).

Change Orders

A Change Order arises when unforeseen conditions are identified that are directly related to the original scope of work as defined in the applicable Definitive Agreement.

For any Change Order not initiated by HDSB senior management, the following conditions must be met prior to issuance:

a) Written approval from the HDSB must be obtained before any modifications are made to the applicable Definitive Agreement.
b) No work associated with a proposed Change Order shall commence without prior written approval from HDSB.

All Change Order requests or recommendations must clearly outline the anticipated impact on both project cost and schedule. HDSB reserves the right to engage external consultants or experts to assess the necessity of the Change Order and to validate its financial or scheduling impact.

No alterations to the original scope of work shall proceed without formal written authorization from the HDSB. All changes shall be initiated through HDSB-issued Work Orders or Purchase Orders, which must include the agreed-upon change cost and be signed by both the Supplier and the HDSB’s representative as authorization to proceed.

General contractor and all subcontractors are restricted to the following mark-ups on change orders:

a) General contractor on their own work 5% overhead and 5% profit;
b) General contractor on subcontractor work 5% overhead;
c) Subcontractor on their own work 5% overhead and 5% profit; and
d) Subcontractor on subcontractor work 5% overhead.

The mark-ups noted above cover all administrative costs and site supervision costs unless agreed upon by the HDSB. Mark-ups shall be calculated based on the net costs excluding all applicable taxes. All work intended to be expensed to/from a designated cash allowance are not subject to mark-ups.

Any work performed without a written, HDSB-signed change order will not be compensated, and that unauthorized changes may be grounds for termination.

Intellectual Property

The Supplier shall not use any intellectual property of HDSB including, but not limited to, logos, registered trademarks, or trade names of HDSB, at any time without the prior written approval of HDSB.

Force Majeure and Delay in Performance

Delays or failures in performance by either party under the Definitive Agreement shall not be considered a default or give rise to any claim for damages if caused by events beyond the reasonable control of the affected party. Such events include, but are not limited to government decrees, acts of God, fires, floods, riots, wars, rebellions, sabotage, and atomic or nuclear incidents. However, financial difficulties, strikes, lockouts, or other collective labor actions shall not be regarded as events beyond a party's control.

If either party reasonably determines that performance of the Definitive Agreement has been made impossible due to such an uncontrollable event, that party shall promptly notify the other in writing at which time HDSB may:

- Terminate the Definitive Agreement immediately without any further payments; or,
- Authorize the Supplier to continue performance of the Definitive Agreement with mutually agreed adjustments to accommodate the impact of the event.

Indemnification

The Supplier shall indemnify and hold harmless the HDSB, its trustees, officers, directors, employees, and agents from and against any and all liabilities, losses, damages, costs, and expenses (including legal, expert, and consultant fees), as well as

any claims, demands, actions, causes of action, or proceedings, whether in contract, tort, or otherwise, brought by any person, arising out of or in connection with:

a. the Supplier's failure to comply with applicable laws, regulations, codes, or recognized industry standards in Ontario;
b. labour, materials, or equipment provided in the performance of the Definitive Agreement;
c. infringement or alleged infringement of intellectual property rights, including inventions, copyrights, trademarks, or patents used in performing the Definitive Agreement or resulting from the use or operation of any deliverable upon completion of the work contemplated by the Definitive Agreement.

Insurance

The Supplier shall obtain and maintain, at its own expense, minimum insurance coverages as required by HDSB with insurers licensed to operate in the Province of Ontario.

The Supplier shall provide proof of insurance (Certificate of Insurance) prior to commencing any work or services and subsequently from time to time upon request by HDSB, and at least 30 days prior to each anniversary of the Definitive Agreement.

Certificates must be provided in a form acceptable to HDSB and confirm that all policies include the required clauses and naming of HDSB as an Additional Insured.

Proof of WSIB Coverage

If the Supplier is subject to the *Workplace Safety and Insurance Act* ("**WSIA**") or the *Workplace Safety and Insurance Amendment Act,* 2008 ("**WSIAA**"), the Supplier shall submit a valid clearance certificate of Workplace Safety and Insurance Board ("**WSIB**") coverage to the HDSB before commencing the performance of any work or services. In addition, the Supplier shall, from time to time during the term of the Definitive Agreement and at the request of the HDSB, provide additional WSIB clearance certificates.

The Supplier covenants and agrees to pay when due, and to ensure that each of its subcontractors pays when due, all amounts required to be paid by it or its subcontractors, from time to time during the term of the Definitive Agreement, under the WSIA and/or the WSIAA, failing which the HDSB shall have the right, in addition to and not in substitution for any other right it may have pursuant to the Agreement or otherwise at law or in equity, to pay to the WSIB any amount due pursuant to the WSIA or the WSIAA unpaid by the Supplier or its subcontractors and to deduct such amount from any amount due and owing from time to time to the Supplier pursuant to the Definitive Agreement together with all costs incurred by the HDSB in connection therewith.

Travel Expenses

The Supplier must obtain prior written approval from the HDSB for costs incurred as a result of accommodation or travel associated with the Definitive Agreement. These costs must be charged in accordance with the HDSB's travel policy, as may be amended from time to time. Suppliers may obtain applicable rates from the HDSB. All such pre-approved costs, where applicable, must be itemized separately on invoices.

HDSB shall not be responsible for any meal, hospitality, or incidental expenses incurred by the Supplier, whether incurred while travelling or otherwise including but not limited to:

a. Meals, snacks and beverages;
b. Gratuities;
c. Laundry or dry cleaning;
d. Valet services;
e. Dependent care;
f. Home management; and,
g. Personal telephone calls.

Invoicing/Payment/EFT

Invoices, whether submitted in paper or electronic format as agreed upon by HDSB, must be provided within twenty eight (28) calendar days of the completion of the work to which an invoice relates. Each invoice shall be itemized and include, at a minimum, the following details:

a. Invoice number;
b. Invoice Date;
c. HDSB's name and location, including the name of the requester/HDSB staff and the shipment destination;
d. HDSB purchase order number (if applicable) and order date;
e. Supplier's name or business number, address, telephone number and HST registration number;
f. Description of products or services provided including hourly rates, service/delivery dates, service location, quantities and rates;
g. Supplier's product number;
h. Attached copy of the service report/work order completed;
i. Manufacturer's product number, if applicable;
j. Terms of payment
k. HST and total cost;
l. Total amount payable;
m. Supplier HST #.

Supplier agrees and accepts HDSB's payment terms of Net 28 days. Payment may be made by HDSB via Electronic Funds Transfer (EFT), cheque or purchasing card at no additional cost to the HDSB.

The Supplier shall provide the HDSB with the necessary banking information to enable EFT, at no additional cost to the HDSB, for any related invoice payments including, but not limited to:

a. A void cheque or letter from the Supplier's bank;
b. Financial institution's name;
c. Financial institution's transit number;
d. Financial institution's account number; and,
e. Email address for notification purposes.

The Supplier will complete a "HDSB Vendor Information Form", an "Application of Vendor Direct Deposit", and any other documentation if required by HDSB together with ancillary deliverables contemplated thereby.

HDSB may withhold payment for any disputed amounts or pending completion by Supplier of deliverables.

Environmental, Social, Governance, Ethical and Sustainability Considerations

The Supplier shall possess and provide information, if requested by HDSB, related to its robust Environmental, Social and Governance ("ESG") business framework. The Supplier shall collaborate and support the HDSB to align with their ESG framework as it relates to currently available ESG processes, products/equipment, technologies and/or sustainable initiatives.

To the extent practicable and without compromising quality, Suppliers shall promote:

a. Environmental design principles as required by the HDSB (e.g., environmental sustainability, data security and privacy, lean construction practices, waste management, decarbonization, indoor air quality, comfort);
b. Sustainable social design principles as required by HDSB (e.g., social equity and equality, diversity, inclusive, accessibility, economic, and cultural impacts that achieve overarching HDSB goals that helps shape healthy, diverse and inclusive environments); and,
c. Governance practices to enhance positive impact to the HDSB (e.g., corporate oversight, risk management, staff retention and management, and leadership).

The Supplier shall keep HDSB informed about social procurement processes. Throughout the term of the Definitive Agreement, Supplier shall provide HDSB with information requested by HDSB to allow HDSB to assess Supplier's ESG commitments.

Governing Law/Attornment

Province of Ontario and applicable federal laws of Canada; attornment to Ontario courts.

Termination

HDSB may terminate any Definitive Agreement at anytime for convenience, with reasonable notice and payment to the Supplier for work performed to date.

Asbestos Management Requirements

In accordance with Ontario Regulation 278/05, Section 10(5), HDSB will provide access to site-specific asbestos inventories for all facilities where work is being performed. These inventories are available at each HDSB site.

Supplier shall review the applicable asbestos inventory prior to commencing any work to ensure full understanding of the site conditions in relation to their scope of work. Supplier shall comply with the HDSB's Asbestos Management Administrative Procedure is mandatory at all times. The procedure is available online at:

http://www.hdsb.ca/our-board/Policy/AsbestosManagementInFacilities.pdf

All work must be approved in advance by the relevant HDSB department. Supplier must thoroughly review the HDSB Asbestos Register and inspect site conditions for any suspected Asbestos-Containing Materials ("ACM") that may impact the work. If any unforeseen suspected ACM is encountered, work must cease immediately, and the HDSB or facility Owner must be notified without delay.

Where ACM is confirmed and impedes the completion of work, the Supplier shall coordinate with a HDSB-approved asbestos abatement contractor and arrange any required testing in consultation with HDSB Facility Services. Supplier is fully responsible for ensuring that their subcontractors comply with all related asbestos and health and safety requirements.

Workplace Hazardous Materials Information System

The Supplier shall ensure Workplace Hazardous Materials Information System ("WHMIS") Safety Data Sheets ("SDS") are onsite as required. Additionally, the Supplier will provide the HDSB's personnel WHMIS training, as it relates to the products and equipment, in accordance with the Ontario Occupational Health and Safety Act.

The Supplier shall provide the HDSB with online access to the SDS. If there are any changes or updates to the SDS, the Supplier shall update the documents within twenty-four (24) hours and provide notification to the HDSB that the SDS has been updated.

Electrical Requirements

The Supplier shall ensure electrical products are authorized or approved by the HDSB and in accordance with the Ontario Electrical Safety Code, the Canadian Standards Association Group ("CSA Group"), Underwriters Laboratories of Canada ("ULC"), a certification organization accredited with the Standards Council of Canada Act (Canada), and shall bear the certification organization's mark identifying the goods certified for use in Canada. Certification shall be to the standard that is appropriate for the intended use of the electrical products at HDSB's facilities.

Dangerous Goods Safety Requirements

Where applicable, the Supplier shall ensure its Products, documentation, labeling, transportation, storage, handling and usage meet industry standards and are compliant with all applicable regulatory laws and requirements including but not limited to the following:

a. Dangerous Goods Transportation Act, R.S.O. 1990, c.D.1;
b. Transportation of Dangerous Goods Act,1992, S.C. 1992, c.34;
c. Occupational Health and Safety Act, R.S.O. 1990, c.O.1;
d. Occupational Health and Safety Act, R.R. O. 1990, Regulation 860 Workplace Hazardous Materials Information System ("WHMIS");
e. Hazardous Products Act, R.S.C., 1985, c. H-3; and,
f. Restricted Components Regulations of the Explosives Act, R.S.C., 1985, c. E-17.

Reseller Authorization

The Supplier represents and warrants that it is an authorized reseller of all Products.

During the Term of the Definitive Agreement, the Supplier shall maintain the manufacturers' authorized reseller status for all Products and provide proof of its status upon HDSB's request. The Supplier must advise HDSB of any changes to its reseller status not less than thirty (30) days prior to such change.

HDSB Core List and Product Catalogue

The Supplier shall provide the following to HDSB when requested during the Term of the Definitive Agreement:

a. Canadian published catalogue (e.g. education catalogue, public sector catalogue, lowest price catalogue) with Product details and images, in printed and/or electronic format;
b. HDSB specific core Product list.

At the HDSB's request, the HDSB and the Supplier shall develop a Core List specific to the HDSB needs. Details of the core list, including Product description, catalogue/OEM

number, packaging, Rates, escalations, and Rate refresh frequency/timing shall be mutually agreed upon by the HDSB and the Supplier and outlined in Agreement.

The Supplier shall provide the HDSB with thirty (30) days written notice prior to any rate increase. Rate increases shall be no greater than the twelve (12) month average of the Customer Price Index (CPI) for the applicable year and occur on an annual basis unless otherwise agreed to in writing by the HDSB and the Supplier. The financial incentives the Supplier and HDSB agree to shall be incorporated into the Agreement and reviewed and adjusted (e.g., annually) as required.

Product Samples

During the Term of the Definitive Agreement, the Supplier shall provide HDSB Product samples, as requested, for testing and evaluation to ensure Products meet HDSB requirements and are suitable for its purpose. Product samples may also be required when evaluating new Products, substitutes or alternatives. These Product samples shall be provided to HDSB at no additional cost.

At the end of the evaluation, HDSB is under no obligation to purchase these samples. For Products that are not consumables, HDSB may, however, choose to purchase the samples at discounted rates or return the samples at the Supplier's cost.

Product Labelling and Information

The Supplier shall meet all applicable labeling requirements including but not limited to the following:

a. WHMIS labeling requirements;
b. Expiry date information; and,
c. Batch and/or lot number.

HDSB has the right to reject any shipment where the proper label is not affixed, and the Supplier shall be responsible for the return and shipping of new Products at no additional cost to the HDSB.

Delivery Lead Times and Product Delivery

The Supplier shall deliver Products according to the following delivery lead times unless otherwise agreed between the Supplier and HDSB:

a. Products will be delivered with two (2) Business Days of receipt of order by the Supplier, for regular Products in stock; and,
b. Customized Products will be delivered as mutually agreed upon between the Supplier and HDSB.

The Supplier shall coordinate directly with the HDSB regarding the status of orders, and delivery.

All Products shall be Delivered Duty Paid ("DDP") to inside the door or the dock of the HDSB location as requested by HDSB. Special handling fees, if required, will be charged separately. The Supplier shall deliver orders with correct Products and quantities within the lead time. All Products will be packaged appropriately to ensure safe delivery. All deliveries must include a packing slip specifying the HDSB's required information (e.g., name of the employee who placed the order, purchase order number, Products and quantities ordered/shipped/back ordered (if any), and catalogue number). Deliveries must be made by the Supplier's own transportation fleet or a reputable transportation company that allows for tracking of the shipments. Deliveries must take place during HDSB's regular business hours.

Special Handling

The Supplier shall ensure orders are delivered properly for Products that require special handling including but not limited to the following:

a. Chemicals;
b. Explosives;
c. Live specimens;
d. Temperature sensitive Products; and,
e. Time sensitive Products.

The Supplier shall notify the HDSB of any additional costs for special handling at the time of order.

Minimum Order Amounts

The Supplier shall provide delivery, at no additional cost to the HDSB, for any order with a minimum value of one hundred dollars ($150). Special handling fees, if required, may be charged separately. The Supplier shall notify the HDSB, prior to shipping, of any Products that have a minimum quantity requirement that has not been met (e.g. Product sold in packages of twelve (12) and only two (2) were ordered).

Order Management, Bulk Purchases, and Order Acknowledgement

The Supplier shall provide a variety of ways for HDSB to order Products including, but not limited to the following:

a. Electronic Data Interchange ("EDI");
b. Email;
c. Supplier's online ordering process;
d. Toll free phone; and/or,
e. Via purchase order through the HDSB's financial system.

The Supplier shall acknowledge the receipt of an order by the HDSB immediately or within one (1) Business Day if requested. The Supplier will include in this

acknowledgement, any Products ordered that cannot be fulfilled (e.g., back orders). The HDSB, at its sole discretion may:

a. Cancel some or the entire order;
b. Ask the Supplier to ship only available Products and cancel any backorders; and/or,
c. Agree to an alternative delivery schedule based on anticipated Product availability.

The Supplier shall support coordinated bulk purchases initiated by HDSB during the Term of the Agreement. If this occurs, HDSB may negotiate a lower Rate with the Supplier for bulk purchases. Lead time and/or delivery locations, per HDSB, for bulk purchases may differ and/or be for multiple locations. HDSB will ensure reasonable lead times for bulk purchases are requested. Once Products have been received at an HDSB location, the Supplier shall invoice accordingly.

Order Changes, Cancellations, Back Orders and/or Product Substitution

The Supplier shall accept new orders, order changes and/or cancellation as may be required, within timelines mutually agreed upon between the HDSB and the Supplier, at no additional cost to the HDSB.

Supplier shall confirm back orders at the time of the order confirmation with an estimated delivery date. HDSB, at its sole discretion and at no additional cost, will have an option to:

a. Cancel some or the entire order;
b. Ask the Supplier to ship only available Products and cancel any backorders; and/or,
c. Agree to an alternative delivery schedule based on anticipated Product and/or Service availability.

The Supplier will only substitute Products with approval from HDSB and only with Products of equivalent or greater specification at no additional cost to the HDSB.

Damaged or Defective Shipment

The HDSB may not accept the delivery of the Products if they are:

a. Damaged (or the packaging is damaged);
b. Not delivered as agreed; or,
c. Substituted without prior approval of the HDSB.

The Supplier shall accept returns and provide replacement of Products that are found to be defective at the time of unpacking within ninety (90) days from the delivery date. The Supplier shall be responsible for all shipping costs related to the return and replacement (e.g., immediately if required by HDSB) of any damaged or defective Products from the

HDSB's location. HDSB will not be responsible for any additional costs (e.g., restocking fees) due to damaged or defective Products received.

Product Availability and Discontinued Products

The Supplier will provide notice to HDSB within twenty-four (24) hours of the Supplier discovering any potential supply concern. The Supplier will provide HDSB with their resolution to the situation within twenty-four (24) hours of notification.

The Supplier shall not arbitrarily discontinue Products and shall provide the HDSB with sufficient notice (e.g., within sixty (60) days) prior to discontinuation. Further, the Supplier shall ensure that in the event a Product becomes unavailable and a replacement is proposed, the replacement Product shall have equal or greater functional capabilities/specifications than those of the retiring Product at a similar rate.

Recalls and Returns

The Supplier shall ensure that Products meet current safety standards and regulations and shall advise HDSB of any changes with regulatory agencies related to the Products, which may impact the future availability of Products, or service support of the Products. The Supplier shall within twenty-four (24) hours report recalled Products to HDSB advising HDSB of applicable details (e.g., model number, serial number, reason for recall). The Supplier shall comply with the requirements of any applicable law in respect of recalled Products, and repair or replace the Product at no additional cost to HDSB.

The Supplier shall accept all Products returned by the HDSB that were ordered incorrectly and not used within thirty (30) days of the date of Product receipt at the HDSB's location, at no additional cost (e.g., restocking or shipping fee) to the HDSB. The Supplier may charge a restocking fee, mutually agreed upon with the HDSB, for the return of non-stock Products or special orders where the Supplier has incurred additional costs for production or shipping, and the Product cannot be resold by the Supplier.

Process to Add Other Products/Services

During the Term of the Definitive Agreement the Supplier may request adding other Products and or/related services (e.g., newly available Products) to the Definitive Agreement to align with HDSB needs. HDSB will review and assess the request and may accept or reject based on Products in the current Agreement and its needs.

The Supplier shall provide written notice to HDSB of at least sixty (60) days if requesting a Product and/or Service refresh. Additional Product and Services requests from the Supplier must be accompanied by appropriate documentation (e.g., Product description, and rationale for the addition, proposed Rates, etc.).

Rates for newly added Products will be negotiated at the time of the request ensuring rate alignment with similar Products currently available in connection with the Definitive Agreement.

Product Trade-In and Promotional Discounts

The Supplier shall offer HDSB discounts or credits for the use of old Products.

The Supplier shall offer HDSB the same special promotions to kick off new Product lines, sell-off discontinued inventory, and/or end-of-line Products as offered to other customers.

Supplier Training, Knowledge Transfer and Support to HDSB

The Supplier shall provide effective support to HDSB including, but not limited to:

a. Providing a responsive account executive (with applicable back-up) assigned to the HDSB to support HDSB's needs by providing day-to-day and ongoing administrative support, and operational support;
b. Managing issue resolution in a timely manner;
c. Complying with agreed upon escalation processes to resolve outstanding issues;
d. Responding to HDSB's inquiries (e.g., to day-to-day activities) within one (1) Business Day;
e. Ensuring minimal disruption to HDSB;
f. Providing easy access to the Supplier (e.g., online, toll free telephone number, email, voicemail, chat or fax);
g. Providing training/demonstrations, knowledge transfer, and no-cost educational events (e.g., webinars), if available;
h. Establishing an ongoing communications program with the HDSB (e.g., new initiatives, innovation, sustainability);
i. Adhering to the HDSB's confidentiality and privacy policies (e.g., related to student's private information);
j. Providing written notice to HDSB on any scheduled shutdown that would impact services (e.g., inventory count, relocation of warehouse, website maintenance);
k. Provide HDSB reporting; and,
l. Attending meetings with HDSB, as requested.

Additionally, the Supplier shall provide training, knowledge transfer and reference materials where applicable regarding, but not limited to, the following:

a. Storage and handling of any hazardous Products, or Products that require any special handling or storage;
b. Use of the Products;
c. Health and safety issues related to the use of the Products;
d. Maintenance and care for equipment Products; and,
e. Workplace Hazardous Materials Information System ("WHMIS") training.

Finally, the Supplier should, at no additional cost, provide HDSB transition support (e.g., setting up a Supplier's account from the HDSB's current agreement/purchasing arrangement) with minimal service disruption.

Warranty Coverage & Warranty Support

All work performed by the Supplier shall be carried out in a professional and competent manner. All materials, goods, and services supplied must conform to the applicable specifications established by the HDSB, its consultant, or the manufacturer. The Supplier warrants that all materials, goods, services, and workmanship shall be free from defects and fully suitable for the intended purpose as defined by the HDSB.

All goods provided must be new, in proper working condition, free from defective materials, manufacturing flaws, and substandard workmanship, and must represent the latest available model complete with all standard manufacturer accessories.

Understanding that Products may have varying warranty terms and conditions, the Supplier shall at a minimum, provide standard Product original equipment manufacturer warranty coverage to the HDSB from the date of Product receipt at the HDSB's location. The Supplier shall register the Product for warranty and manage the OEM's warranty coverage upon delivery. All goods and/or services must be accompanied by written warranties and guarantees acceptable to the HDSB. Furthermore, any shipping costs associated with approved warranty exchanges shall be borne entirely by the Supplier at no additional cost to the HDSB.

The Supplier shall submit any special assembly, installation, care or maintenance instructions that must be followed to make a claim on the warranty directly to the HDSB upon purchase of the Product, unless directed otherwise by the HDSB.

Where a manufacturer's standard warranty applies to the Product, the Supplier shall be responsible for arranging Product exchanges and repairs. For all Products with warranty coverage, the costs of parts, labour, and shipping to and from the HDSB's location associated with repairs and/or replacement shall be at no additional cost to the HDSB.

All warranty related repairs for equipment Products shall be performed by a certified technician. Where possible, the Supplier shall complete repairs at the HDSB's location to minimize equipment downtime.

Warranty support from the Suppler to the HDSB shall include but is not limited to the following:

a. Customer telephone support during Business Days; and,
b. Toll-free telephone number.

Halton District School Board

Appendix G – HDSB List of Pre-Qualified Subcontractors

ASBESTOS

Vendor Name	Contact Name	Email Address	Telephone Numbe
A&O Contracting Inc.	Nikhil Thilakan	anthony@aandocontracting.com	905 828 6868
All Clear Environmental	Sidnei Casimiro	sidnei@allclearenvironmental.ca susan@allclearenvironmental.ca	(519) 577-0013
Alliance Environmental & Abatement Contractors Inc.	Robert Lewis	info@allianceenvironmental.com	416-298-4500
Caliber Environmental Construction Services Inc.	James Ball	info@caliberenv.com jball@caliberenv.com mball@caliberenv.com	905 884 5500
Environmental Response Team	David Bremner	info@erthazmat.com	416-255-6745
FPR Environmental	Nelson Multari	info@asbestosmouldexperts.com nelson.multari@asbestosmouldexperts.com	1-855-868-8222
Furcon Environmental Inc.	Sherry-Lynn Proulx	sherry@furconenviro.com	905-569-8311
Gardiner Environmental Services	Brittany Gardiner	brittany@gardinerenvironmental.ca	289-808-8411
Healthy Environmental & Insualation	Henry Kwasniak	henry@healthyenvironmental.ca	289-837-0444
Highpoint Environmental Services Inc.	Wei Xu	info@highpointenv.ca	416-279-0363
I&I Construction Services Limited	Jason Ward	jward@iandi.ca	905-884-1290
McGowan Insulations Ltd.	Robert McGowan	info@mcgowan.on.ca dfoley@mcgowan.on.ca	905 549 1844
QM Environmental	Mark Reinhardt	mark.reinhardt@QMenv.com	800.251.7773
Schouten Environmental	Brant Nicolson	Brant@schouten.ca	226.678.4715
Zero Environmental	Joel Van Es	info@zeroenvironmental.com	519-772-5500

ELECTRICAL

Vendor Name	Contact Name	Email Address	Telephone Number
B-Safe Electric	Dan More	dan@b-safe.ca brian@b-safe.ca	905-872-7233
Best Electric Co.	Gurmukh Sehmbi	gsehmbi@bestelectric.ca	416-677-3851
Black & McDonald Limited	Dennis Vila	dvila@blackandmcdonald.com	905-560-3100
Cahill Electric Inc.	Chris Cahill	estimating@cahillelectric.ca	905-388-0515
CEC Services Ltd.	Kyle Feinstein	estimating@beswickgroup.com	905-716-3711
EEL Line Corporation	Majeed Wraich	majeed@eelline.ca	416-540-8894
Electrobauer Systems Limited	Michael Bauer	michaelbauer@rogers.com	416-389-6804
Elite Electrical Solutions Ltd.	Amar Taneja	estimate@eliteelectrical.ca	905-789-5511
Gremar Electric Ltd.	Gennaro Di Gregorio	gennaro@gremar.ca	905-652-2641
Indcon Inc.	Nitesh Patel	indcon74@gmail.com	416-677-3303
Kraun Electric Inc.	Kevin Krause	estimating@kraun.ca	905-684-6895
LJ Barton Mechanical Inc.	Mike Van den Heuvel	estimating@ljbarton.com	905-304-1976
North Star Electric	Greg Harris	gharris@northstarelectric.ca	905-845-9063
Ozz Electric	Dave Burlo	estimating@ozzelectric.com	416-637-7237
Star Electrical Services	Harvinder Kahlon	info@starelectrical.ca	905-799-3883

MECHANICAL

Vendor Name	Contact Name	Email Address	Telephone Number
Ainsworth Inc.	Andre Lambert	BidPlatform@ainsworth.com	416.433.9678
Anvi Services Ltd.	Amit Bamba	amit@anviservices.com	905-660-6595
BAS Mechanical Inc.	Riaz Ahmad	estimator@basmechanical.ca	905-669-1126
Black & McDonald Limited	Dennis Vila	dvila@blackandmcdonald.com	905-560-3100
Black Creek Mechanical Ltd.	Nelson Pedreira	estimating@blackcreekmechanical.ca	416-604-7558
Brenner Mechanical Inc.	Michael Brenner	mbrenner@brenner.ca	519-746-0439
Canadian Air Tech Systems Inc.	Joan Blakeley	mail@ctas.ca	416-291-1296
CEC Mechanical Ltd.	Devin Brown	dbrown@beswickgroup.com	905-266-1500
Enercare Home and Commercial Services Inc.	Youssef Zagloul Hadi Zagarpourfardin	Youssef.Zaghloul@enercare.ca Youssef.Zaghloul@enercare.ca	437-214-7683
Glenn Richardson Plumbing & Heating Ltd.	Kyle Richardson	kyle@glennrichardsonplumbing.com	905-335-2945
Kirk Mechanical Limited	Robert Kirk	kirkmech@bellnet.ca	905-681-0140
LJ Barton Mechanical Inc.	Bruce Hunter	estimating@ljbarton.com	905-304-1976
Mattina Mechanical Limited	Domenic Mattina	dmattina@mattina.ca	905-544-6380
Mechfield Canada Inc.	Kaleem Ahmad Bhatti	salman@mechfield.com	289-597-7555
Mekcon Ltd.	Inaam Cheema	info@mekcon.ca	905-918-1899
Modern Niagara Southwestern Ontario Inc.	Rachel McGowan	rmcgowan@modernniagara.com rfqswo@modernniagara.com	289-768-1951
Superior Boiler Works & Welding Ltd.	Domenic Settimi	info@sbww.com	(905) 643-6628
VCI Controls Inc.	Jeff Morneau	jmorneau@vcicontrols.ca	905-850-4464
Velocity Mechanical Inc.	Peter Linseman	quotes@velocitymechanical.com	519-896-1119

ROOFING

Vendor Name	Contact Name	Email Address	Telephone Number
Atlantic Roofers Ontario Ltd.	Tony Pocobene	tpocobene@on.aibn.com	905-573-6202
Atlas-Apex Roofing	John McDowell	inquiries@atlas-apex.com	416 421 6244
Bothwell Accurate	Lenny Baptista	LBaptista@bothwell-accurate.com	905-673-0615
Crawford Roofing Corporation	Nelson Rites	nelson.rites@crawfordroofing.ca	416.787.0649
Dean-Chandler Roofin Limited	Ken Goodale	kengoodale@deanchandler.ca	416.751.7840
ED Roofing Limited	Kyle MacLean	k.maclean@edroofing.com	905-2733190
Eileen Roofing Inc.	Dianne Cabral	dianne@eileenroofing.com	416-762-1819
Flynn Canada Ltd.	Joseph Raposo	Joseph.Raposo@flynncompanies.com	905-643-9515
GRRC Roofing	George Roque	george@grrc.ca	905-393-7989
King Koating Roofing Inc.	Kevin Lawrie	sales@kingkoating.com	905-669-1771
Maxim Roofing	Josh Macedo	estimating@maximroofing.ca jmacedo@maximroofing.ca	416-452-5218
Nedlaw Roofing	Adam Duke	adam@nedlawroofing.com	519-648-2218
Nortex Roofing Ltd.	Sandra Furtado	sandra@notexroofing.com	416-236-6090
Semple Gooder Roofin Corporation	Mark Baxter	rcapretta@semplegooder.com	416-743-5370
Solar Roofing & Sheet Metal Ltd.	Sonia Gaio-Francisco	sonia@solarroofing.ca solarroofing@bellnet.ca	(416) 658 6045
T.Hamilton & Sons Roofing Inc.	Irina Valodzina	ivalodzina@thrtoronto.com	416-755-5522
Top-Line Roofing & Sheet Metal	Jason Bras	jason.bras@top-lineroofing.com a.kumar@top-lineroofing.com	905.602.0760
Trio Roofing Systems Inc.	Paulo Vieira	paulo@trioroofing.ca	905.456.1688
Triumph Roofing	Marco Peneda	info@triumphinc.ca	416-534-8877

Halton District School Board

Halton District School Board Standard Terms & Conditions

All Suppliers to the Halton District School Board will be bound by the standard terms and conditions set forth herein, except as specifically qualified in Special Terms and Conditions, issued in connection with any RFSQ, RFQ, RFP, RFI, Tender or any other type of request issued by the HDSB soliciting pricing and/or services, whether communicated formally or informally, including via email, phone, or verbal request.

1. *Submissions in English*

All Submissions are to be in English only. Any Submission received by HDSB that is not entirely in the English language may be disqualified.

2. *Rules of Interpretation*

Any HDSB RFX (as defined herein) shall be interpreted according to the following provisions, unless the context requires a different meaning:

a. Unless the context otherwise requires, wherever used herein the plural includes the singular, the singular includes the plural, and each of the masculine and feminine includes the other gender;
b. Words in the RFX shall bear their natural meaning;
c. References containing terms such as “includes” and “including”, whether or not used with the words “without limitation” or “but not limited to”, shall not be deemed limited by the specific enumeration of items but shall, in all cases, be deemed to be without limitation and construed and interpreted to mean “includes without limitation” and “including without limitation”;
d. Unless otherwise indicated, time periods will be strictly applied; and,
e. The following terminology applies:

    i. The terms “must” and “shall” relate to a requirement the Supplier will be obligated to fulfil. Whenever the terms “must” or “shall” is used in relation the provisions of Goods and/or Services for HDSB, the term indicates a binding obligation on the party identified (e.g., ‘HDSB shall’ or ‘Supplier shall’);
    ii. The term “should” relates to a requirement that HDSB would like the Supplier to fulfil; and,
    iii. The term “will” describes a procedure that is intended to be followed.

3. *Definitions*

When used in any RFSQ, RFQ, RFP, RFI, Tender, Addenda, and/or any other type of request issued by the HDSB soliciting pricing and/or services whether communicated

formally or informally, including via email, phone, or verbal request, the following words or expressions have the following meanings:

Addenda/Addendum	an addition/change made to a document, subsequent to its printing or publication.
Agreement	means an agreement to be made between the Supplier and the HDSB based on the RFX requirements and/or issuance of a Purchase Order, or other Agreement with negotiated changes, together with any and all schedules and appendices attached thereto and all other documents incorporated by reference therein, as amended from time to time by agreement between the HDSB and the Supplier.
Applicable Law and Applicable Laws	means any common law requirement and all applicable and enforceable statutes, regulations, directives, policies, administrative interpretations, orders, by-laws, rules, guidelines, approvals and other legal requirements of any government and/or regulatory authority in effect from time to time.
Authority	means any government authority, agency, body or department, whether federal, provincial or municipal, having or claiming jurisdiction over the Agreement; and “Authorities” means all such authorities, agencies, bodies and departments.
Authorized Reseller	means a Person, Organization and/or Business that is authorized by the Original Equipment Manufacturer (OEM) to market, advertise, sell and distribute the Products.
Best and Final Offer or “BAFO"	means a process during the negotiation stage in which a Supplier or Suppliers may be invited by HDSB to submit a best and final offer on a process or in the section of the solicitation to improve on their original proposed Submission. BAFO cannot be requested by a Supplier.
Bid/Submission/Proposal	an offer from a Supplier in response to a request from the HDSB which is subject to acceptance or rejection.

Bidder	means a Supplier that submits a bid in response to a solicitation document issued by HDSB.
Bid Submission	means the document as completed by the Supplier for the purpose of offering to sell to the HDSB the services and/or goods specified in the document, and includes but is not limited to Quotations, Tenders and Proposals.
Board/the Board/ HDSB/the HDSB	means the Halton District School Board.
Business Day or Day	means Monday to Friday between the hours of 8:00 a.m. to 4:00 p.m. (local time in Burlington, Ontario) unless otherwise specified or agreed to by the HDSB and the Supplier in writing, except when such a day is a public holiday, as defined in the Employment Standards Act (Ontario).
Closing Date	means the Solicitation's submission date and time as set out in RFX document and may be amended from time to time in accordance with the terms of the Solicitation.
Contract	means the Agreement, in writing, governing the performance of the Work and/or the purchase and sale of commodities and includes, without limitation, the document including standard terms and conditions, Submission and the written documentation accepting the Submission (including any notice of acceptance or award).
Consortium	means when more than one (1) business entities (i.e., Consortium members) agree to work together and submit one (1) Submission to satisfy the requirements of the RFX. One (1) of the Consortium members shall identify itself as the Supplier and assume full responsibility and liability for the work and actions of all Consortium members.
Deliverable	means all Products and/or related services to be provided or performed by the Supplier, under the awarded Agreement, and includes everything that is

	necessary to be supplied, provided or delivered by the Supplier within scope of the resulting Agreement.
Document	means the document describing the Goods and/or Services to be purchased and the terms upon which the Goods and/or Services are to be purchased and includes, without limitation, those documents referenced on the index of the document and such Addenda as may be issued by the HDSB.
Eligible Submission	means a Submission that meets or exceeds the prescribed requirement and is determined by HDSB to be eligible in its sole discretion.
Goods *or* **Services**	Means any product and/or any and all labour, vehicles or equipment used by a Supplier in fulfilling an Agreement.
HDSB Core List	refers to a predefined list of products that are regularly purchased by the HDSB and are considered essential to its ongoing operations. This list typically includes standard or high-volume items for which pricing, availability, and service expectations are established through the procurement process.
HST	means Harmonized Sales Tax.
Intellectual Property	means any trademark, copyright, moral right, patent, industrial design, trade name, domain name, trade secret, know how, integrated circuit topography or other intellectual property, industrial property or proprietary right owned by, licensed to, or used by any third person.
Requirement(s) ***or Mandatory*** **Requirement(s)**	refer to the mandatory or desirable conditions, specifications, qualifications, or outcomes that a Supplier is expected to satisfy or address in order to be considered for the procurement opportunity. These may include, but are not limited to, technical specifications, service levels, experience and qualifications, deliverables, and compliance obligations as set out by the Procuring Entity.

	Mandatory Requirements are identified through the use of terms such as “mandatory,” “must,” “shall,” “required,” and/or “will.” These represent non-negotiable conditions that a Supplier must fully meet in order to proceed to the next stage of the evaluation process.
Personal Information	has the same definition as in subsection 2(1) of FIPPA and in subsection 2(1) of MFIPPA, that is, recorded information about an identifiable individual or that may identify an individual and includes all such information obtained by the Supplier from the HDSB or created by the Supplier pursuant to the RFX.
Preferred Supplier or Preferred Suppliers	means a Supplier or Suppliers that are invited into negotiations in accordance with the evaluation process set out in this RFX.
Proponent	means an entity that submits a Proposal in response to this RFX and, as the context suggests, refers to a potential Proponent or Supplier for the HDSB.
Proposal	means all documentation and information submitted by a Supplier in response to the RFX.
Purchase Card or P-Card	means the corporate charge cards used by the HDSB, as may be changed from time to time.
Qualification Response	means the information the Supplier is required to submit within its response to an RFX issued by the HDSB as part of its Submission.
Rates	means the maximum prices, in Canadian funds, for the Products/Services as set out in the Supplier’s submitted response to an RFX.
Request for Information (RFI)	means a non-binding Request for Information (RFI) issued by the HDSB, together with all associated appendices and addenda.
Request for Proposal (RFP)	means a Request for Proposal (RFP) issued by the HDSB for goods or services of any value, including all related appendices and addenda.

Request for Quotation (RFQ)	means a Request for Quotation for goods or services issued by the HDSB with a value of $100,000 or less, including all appendices and addenda.
Request for Supplier Qualification or Request for Qualification (RFSQ)	means a Request for Supplier Qualification (RFSQ) issued by the HDSB, including all associated appendices and addenda, which results in the establishment of a list of pre-qualified Suppliers eligible to provide goods and/or services to the HDSB.
Request for Tender (RFT)	means a Request for Tender for goods or services issued by the HDSB with a value that is greater than $100,000, including all appendices and addenda.
Response	means the complete set of documents and information submitted by a Supplier in reply to a procurement solicitation issued by the HDSB (such as an RFP, RFQ, RFT, or RFI), in accordance with the instructions, requirements, and deadlines specified in the RFX documents.
RFX Document/RFX	refers to any Request for Quotation (RFQ), Request for Tender (RFT), Request for Proposal (RFP), Request for Information (RFI), Request for Supplier Qualification (RFSQ), or any other type of request issued by the HDSB soliciting pricing and/or services, whether communicated formally or informally, including via email, phone, or verbal request.
Specifications	means the stated requirements for the Goods and/or Services set out in the RFX or any other type of request issued by the HDSB.
Subcontractor	includes the Supplier's subcontractors or third-party providers or their respective directors, officers, agents, employees or independent contractors, who shall fall within the meaning of Supplier for the purposes of the Agreement as mutually agreed upon by the HDSB.
Supplier	means a person or group of persons that provides or could provide goods or services to the HDSB as part of an Agreement with the HDSB.

Term	the period of time for which the Agreement resulting from the RFX process will be in effect including an initial term and possible extension options.
Unfair Advantage	means any conduct, direct or indirect, by a Supplier that may result in gaining an unfair advantage over other Suppliers, including, but not limited to: a. possessing, or having access to, information in the preparation of its Submission that is confidential to the HDSB and which is not available to other Suppliers; b. communicating with any person with a view to influencing, or being conferred preferred treatment in, the RFX process; or, c. engaging in conduct that compromises or could be seen to compromise the integrity of the RFX process and result in any unfairness.
Vendor	means an individual, company, or organization that sells or offers to sell goods or services to the HDSB. A vendor may be a current Supplier, a Bidder, or a potential Supplier.
Work	means the Work to be undertaken by the Supplier pursuant to the provisions of the Agreement.

4. Supplier's Costs

The Supplier will bear all costs and expenses incurred relating to any aspect of its participation in an RFX process, including all costs and expenses relating to the Supplier's participation in:

a. The preparation and submission of its Response;
b. The Supplier's attendance at any meeting related to the RFX process, including any presentation or interview in relation to the RFX process;
c. The conduct of any due diligence on the Supplier's part, including any information gathering activity;
d. The preparation of the Supplier's own questions prior to the deadline for questions; and,
e. Any discussion and/or finalization, if any, in respect of the Agreement.

5. *Procurement Process Non-Binding*

All RFX processes are non-binding, and are not intended to create, and shall not create, a formal legally binding procurement process, and shall not give rise to the legal rights or duties applied to a formal legally binding procurement process. This procurement process shall instead be governed by the law applicable to direct commercial negotiations. For greater certainty and without limitation:

a. An RFX shall not give rise to any contract A-based tendering law duties or any other legal obligations arising out of any process contract or collateral contract; and,
b. Neither the Supplier nor HDSB shall have the right to make any breach of contract, tort or other claims against the other with respect to the award of an Agreement, failure to award an Agreement or failure to honour a response to an RFX.

6. *Non-Binding Rates*

While Rates will be non-binding prior to the execution of a written Agreement, such information will be assessed during the evaluation and ranking of Submissions. Any inaccurate, misleading, or incomplete information, including withdrawn or altered Rates, could adversely impact any such evaluation, ranking, or Agreement award.

7. *The Ontario Broader Public Sector Procurement Directive (BPS)*

The HDSB follows the Ontario Broader Public Sector Procurement Directive.

The Procurement Directive is available here: Broader Public Sector Procurement Directive***.***

8. *Trade Agreements*

HDSB procurements are undertaken within the scope of Chapter 5 of the Canadian Free Trade Agreement (“CFTA”), Chapter 19 of the Comprehensive Economic and Trade Agreement ("CETA"), and within the scope of the Trade and Cooperation Agreement between Quebec and Ontario and are subject to such agreements, although the rights and obligations of the parties shall be governed by the specific terms of the applicable RFX.

9. *Competition Act*

Under Canadian law, a Submission must be prepared without conspiracy, collusion, or fraud. For more information, refer to the Competition Bureau website at http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/home.

10. Financial Administration Act Section 28

The HDSB follows the Financial Administration Act ("FAA"). In accordance with the requirements of the Financial Administration Act ("FAA"), notwithstanding anything else in the Agreement, or in any other agreement between the HDSB and the Supplier executed to carry out the Products and/or Services provided for herein, the remedies, recourse or rights of the Supplier shall be limited to the HDSB and to the right, title and interest owned by the HDSB in and to all of its real or personal property, whether now existing or hereinafter arising or acquired from time to time.

For additional information, the Financial Administration Act is available here: Financial Administration Act.

11. *Municipal Freedom of Information and Protection of Privacy Act ("MFIPPA")*

The Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M. 56 applies to information provided by the Supplier. A Supplier should identify any information in its Submission, or any accompanying documentation supplied in confidence for which confidentiality is to be maintained by the HDSB. The confidentiality of such information will be maintained by the HDSB, except as otherwise required by law or by order of a court, tribunal, or the Ontario Privacy Commissioner.

By submitting a Submission, including any Personal Information requested in an RFX, the Supplier agrees to the use of such information for the evaluation process, for any audit of this procurement process, and for contract management purposes.

Additionally:

a. The Supplier acknowledges and agrees that the HDSB is subject to MFIPPA. The Supplier further expressly acknowledges and agrees that, upon the acceptance of a successful Submission and conclusion of this process (including execution and delivery of a Contract or Agreement between the HDSB and the successful Supplier), subject to subsection (b) below, the Submission shall not be considered confidential for the purposes of Section 10 of MFIPPA and, in the event of an access request or at the discretion of the HDSB, shall be subject to release in its entirety without redaction.
b. Notwithstanding paragraph (a) above, the Supplier and the HDSB acknowledge and agree that the information listed below is considered to be supplied by the Supplier to the HDSB in confidence:

    i. For Services: Hourly rates/fees and information from which such rates/fees could be reasonably deduced.
    ii. For Goods: Unit costs and information from which such unit costs could be reasonably deduced.

c. Notwithstanding the foregoing, the Supplier acknowledges and agrees that, because the HDSB is subject to MFIPPA, all or part of any Submission, including information supplied in confidence, may be subject to release in response to an access request submitted pursuant to MFIPPA. In the event that the HDSB receives a request for access to all or part of a Submission supplied in confidence, the HDSB shall deliver the relevant notice to the Supplier, who shall bear all costs, legal or otherwise, with respect to any objection the Supplier may have in respect of the release of any or all parts of the Submission pursuant to MFIPPA.

12. Accessibility for Ontarians with Disabilities (AODA)

The HDSB is committed to accessibility and preventing and removing barriers for persons with disabilities. Where practicable, the HDSB will incorporate accessibility features and criteria when procuring or acquiring goods, services and facilities, in which case, a Supplier must be capable of recommending and delivering same in an inclusive and accessible manner, consistent with the Ontario Human Rights Code ("OHRC"), the Ontarians with Disabilities Act, 2005 ("AODA") and its Regulations, in order to achieve accessibility for Ontarians with disabilities. If the HDSB determines that it is impractical to do so, an explanation will be provided upon request.

In accordance with Ontario Regulation 429-07 made under the AODA, the HDSB has established policies, practices and procedures governing the provisions of its services to persons with disabilities, which may be found at:

https://www.hdsb.ca/our-board/Pages/Accessibility.aspx

13. Agree to Abide by the Established Process

It is vital to the HDSB that the process leading to the recommendation of a Supplier, the execution of, and the conclusion of an Agreement for the provision of services be, and be seen to be, open and fair and that each of the potential Suppliers is treated equally.

No Supplier can be seen to be deriving, intentionally or otherwise, an advantage or information, which is not equally available to all other Suppliers. Nor is it acceptable that any advantage or information be sought or obtained from any unauthorized staff or representative of the HDSB, or any benefit derived from any special or personal relationships or contacts.

All communications, including requests for information, between Suppliers responding to this RFX and the HDSB should be between only the representative(s) of the HDSB who has been authorized and designated for that particular purpose. Suppliers must not rely on information from any other source.

Unless otherwise specified in the applicable RFX documents or the final agreement entered into between the HDSB and the successful Supplier(s), Responses shall be for a stipulated sum without escalator clauses or other qualifications (when applicable). Suppliers submitting a bid with escalator clauses or other qualifications that are not in accordance with the terms and conditions of the applicable RFX may have their bid rejected.

14. Reserved Rights of the HDSB

In addition to any other express rights or any other rights, which may be, implied in the circumstances, HDSB reserves the right to:

a. make public the names of any or all Suppliers;
b. request written clarification or the submission of supplementary written information from any Supplier and HDSB may incorporate such clarification or supplementary written information, if accepted, into the Submission, at HDSB's discretion, provided that any clarification or submission of supplementary written information shall not be an opportunity for the Supplier to correct errors in its Submission or to change or enhance the Submission in any material manner;
c. waive formalities and accept Submissions that substantially comply with the requirements of this RFX;
d. verify with any Supplier or with a third party any information set out in a Submission;
e. check references other than those provided by the Supplier;
f. assess a Supplier's Submission on the basis of a financial analysis determining the actual cost of the Submission when considering factors including quality, service, price and transition costs arising from the replacement of existing goods, services, practices, methodologies and infrastructure (howsoever originally established);
g. assess information provided by references;
h. assess the information provided by a Supplier pursuant to the HDSB exercising its clarification rights under this RFX process;
i. disqualify a Supplier that has experienced bankruptcy or insolvency;
j. disqualify a Supplier that makes and/or has made false declarations;
k. disqualify a Supplier who has experienced significant or persistent deficiencies in performance of any substantive requirement or obligation under a prior agreement or agreements;
l. disqualify a Supplier who has received final judgments in respect of serious crimes or other serious offence;
m. disqualify a Supplier or rescind an Agreement subsequently entered if a Supplier has participated in, or appears to have participated in professional misconduct or acts or omissions that adversely reflect on the commercial integrity of the Supplier;

n. disqualify a Supplier or rescind an Agreement subsequently entered if the Supplier's Submission contains misrepresentations or any other inaccurate, misleading or incomplete information;
o. disqualify any Supplier whose Submission is determined by HDSB to be non-compliant with the requirements of this RFX;
p. disqualify a Submission based upon the past performance or on inappropriate conduct in a prior procurement process, or where the Supplier has or the principals of a Supplier have previously breached an agreement with HDSB, or has otherwise failed to perform such agreement to the reasonable satisfaction of HDSB;
q. disqualify any Supplier, who, in relation to this RFX or the evaluation and selection process, has engaged directly or indirectly in any form of political or other lobbying whatsoever to influence the selection of the Supplier;
r. disqualify any Supplier or the Submission of any Supplier who has engaged in conduct prohibited by this RFX;
s. disqualify a Supplier for any conduct, situation or circumstance that constitutes a Conflict of Interest, as solely determined by the HDSB and at any time;
t. make changes, including substantial changes, to this RFX, provided that those changes are issued by way of addenda in the manner set out in this RFX;
u. select any Supplier other than the Supplier whose bid reflects the lowest cost to the HDSB;
v. review all Suppliers utilizing the HDSB Vendor Performance Management Administrative Procedure, which can include suspension of Suppliers who fail to meet the HDSB's expectations or who are involved in litigation or threatened litigation against HDSB. The HDSB Vendor Performance Management Administrative Procedure is found at the attached link:

www.hdsb.ca/our-board/Policy/VendorPerformanceManagement.pdf

w. Award to one or more Supplier according to HDSB requirements;
x. Cancel this RFX process at any stage without liability and issue a new RFX for the same or similar requirements, including where:
    a. HDSB determines it would be in the best interest of HDSB not to award an Agreement;
    b. the Submission prices exceed the bid prices received by HDSB for Products or Services acquired of a similar nature and previously done work;
    c. the Submission prices exceed the costs HDSB would incur by doing the work, or most of the work, with its own resources;
    d. the Submission prices exceed the funds available for the Products or Services, or,
    e. the funding for the acquisition of the proposed Products or Services has been revoked, modified, or has not been approved.

and where HDSB cancels this RFX, HDSB may do so without providing reasons, and HDSB may thereafter issue a new RFX, sole source, or do nothing;

x. accept any Submission in whole or in part;
y. reject any or all Submissions in HDBS's absolute discretion, including where a Supplier has launched legal proceedings against HDSB or is otherwise engaged in a dispute with HDSB;
z. accept or reject a Submission if only one (1) Submission is submitted;
aa. reject a Subcontractor proposed by a Supplier;
bb. discuss with any Supplier different or additional terms to those contained in this RFX or in any Submission;
cc. disqualify a Supplier who has been charged or convicted of an offence in respect of an agreement with HDSB, or who has, in the opinion of HDSB, engaged in any illegal business practices, including activities such as bid-rigging, price-fixing, bribery, fraud, coercion or collusion, unethical conduct, including lobbying as described above or other forms of deceitfulness, or other inappropriate communications offering gifts to any employees, officers, agents, elected or appointed officials or other representatives of HDSB, or where the Supplier reveals a Conflict of Interest or Unfair Advantage in its Submission or a Conflict of Interest or evidence of any Unfair Advantage is brought to the attention of HDSB;
dd. disqualify any Submission of any Supplier who has breached any Applicable Laws or who has engaged in conduct prohibited by this RFX, including where there is any evidence that the Supplier or any of its employees or agents colluded with any other Supplier, its employees or agents in the preparation of the Submission;
ee. if HDSB receives a Submission from a Supplier with Rates that are abnormally lower than the Rates in other Submissions, HDSB may verify with the Supplier that the Submission satisfies the conditions for participation and is capable of fulfilling the Agreement;
ff. to limit the number of pre-qualified Suppliers eligible to submit Submissions for any future projects. HDSB shall not be obligated to provide all pre-qualified Suppliers with the same opportunity to bid on all future projects within each stated category; and
gg. consider other relevant information that arises during this RFX process.

and these reserved rights are in addition to any other express rights or any other rights which may be implied in the circumstances and HDSB shall not be liable for any expenses, costs, losses or any direct or indirect damages incurred or suffered by any Supplier or any third party resulting from HDSB exercising any of its express or implied rights under this RFX.

By participating in this RFX, Suppliers acknowledge that there is no guarantee that a Supplier will receive any assignments, work or projects and that there is no expectation

that any specified number of projects will be made available during a pre-qualification or agreement term.

The successful Supplier shall permit the HDSB to audit, examine, and make copies, excerpts or transcripts from such records, and to make audits of data relating to matters covered by a Submission, any purchase order and/or any Agreement. The successful Supplier shall maintain and retain all records and other documents related to a Submission, any purchase order, and/or any Agreement for a period of seven (7) years from the date of final payment, except in cases where unresolved audit questions require a longer period of time for resolution, as determined by the HDSB.

15. Litigation with the HDSB

The HDSB may, in its absolute discretion, reject a Submission from a Supplier **prior to or after Submission opening, if the Supplier:**

(a) is or has in the past ten (10) years been a party to litigation with the HDSB;
(b) directly or indirectly, including by common ownership or control or otherwise, is related to a party currently in litigation with the HDSB or a party that has in the past ten (10) years been in litigation with the HDSB; or
(c) intends to use a subcontractor in respect of a specific project who is, or has in the past ten (10) years been a party to litigation with the HDSB, or who is related to a party currently in litigation with the HDSB or a party that has in the past ten (10) years been in litigation with the HDSB.

For the purposes hereof, the phrase “litigation with the HDSB” includes cases in which the Supplier or prospective Supplier or any of the parties named above, has advised the HDSB in writing of their intention to commence litigation, or have commenced or have advised the HDSB of their intention to commence an arbitral proceeding against the HDSB (excepting only construction lien demands, notices or proceedings or arbitrations under O. Reg 444/98 of the Education Act).

In determining whether or not to exercise its discretion as set out herein, the HDSB will consider whether the litigation (past or current) is likely to affect a Supplier’s ability to work with the HDSB, its consultants and representatives, and whether the HDSB’s experience with the Supplier, the related party or subcontractor, as the case may be, in the matter giving rise to the litigation, indicates that the HDSB is likely to incur increased staff and legal costs in the administration of the Contract or Agreement if it is awarded to the Supplier.

16. No Liability

The Supplier agrees that:

a. any action or proceeding relating to this RFX process shall be brought in any court of competent jurisdiction in the Province of Ontario and for that purpose the Supplier irrevocably and unconditionally attorns and submits to the jurisdiction of that Ontario court;
b. it irrevocably waives any right to and shall not oppose any Ontario action or proceeding relating to this RFX process on any jurisdictional basis; and,
c. it shall not oppose the enforcement against it, in any other jurisdiction, of any judgement or order duly obtained from an Ontario court as contemplated by this RFX.

The Supplier further agrees that if the HDSB commits a material breach of HDSB's obligations pursuant to this RFX, HDSB's liability to the Supplier, and the aggregate amount of damages recoverable against HDSB for any matter relating to or arising from that material breach, whether based upon an action or claim in contract, warranty, equity, negligence, intended conduct, or otherwise, including any action or claim arising from the acts or omissions, negligent or otherwise, of HDSB, shall be no greater than the Submission preparation costs that the Supplier seeking damages from HDSB can demonstrate.

In no event shall HDSB be liable to the Supplier for any breach of HDSB's obligations pursuant to this RFX, which does not constitute a material breach thereof. The Supplier acknowledges and agrees that the provisions of the Broader Public Sector Accountability Act, 2010 shall apply notwithstanding anything contained herein.

17. Irrevocability

Unless otherwise indicated, the Submission will be open for acceptance by the HDSB and irrevocable by the Supplier for a period of one hundred and twenty (120) calendar days from the Closing Date.

18. Ability to Negotiate/Contract Negotiations

The HDSB reserves the right to accept or reject any Submission, in whole or in part, and to waive any informalities, irregularities, or omissions, if, in its sole discretion, it is deemed to be in the best interest of the HDSB to do so.

The HDSB further reserves the right to enter into negotiations with any Supplier, at its sole discretion, including the right to negotiate concurrently with more than one Supplier. No liability shall accrue to the HDSB by reason of such negotiations or any resulting decision.

The selected Supplier(s) shall execute an Agreement or Purchase Order, including any negotiated amendments, and fulfill any other applicable conditions of this RFX within a timeframe mutually agreed upon by the parties. This provision is for the sole benefit of the HDSB and may be waived in whole or in part at the HDSB's sole discretion.

If the Supplier or Suppliers and HDSB cannot execute an Agreement within the mutually agreed upon timeframe, HDSB will be at liberty to:

1. extend the timeline;
2. request the Supplier or Suppliers to submit its Best and Final Offer;
3. terminate discussions/negotiations with the Supplier or Suppliers;
4. exclude the Supplier or Suppliers from further consideration and begin discussions with the next highest scoring Supplier or Suppliers without becoming obligated to offer to negotiate with all potential Suppliers;
5. publish one (1) or some of the Suppliers, who have executed Agreements; or,
6. exercise any other applicable right set out in this RFX including, but not limited to, cancelling the RFX and issuing a new RFX for the same or similar Products or Services.

The HDSB may, prior to and after Award, negotiate changes to the specifications, the type of materials or any conditions with the successful Supplier or with one or more of the Suppliers without having any duty or obligation to advise any other Supplier or to allow them to vary their bid prices as a result of such changes, and the HDSB shall have no liability to any other Supplier as a result of such negotiations or modifications.
HDSB may also cancel this RFX in the event the Supplier fails to obtain any of the permits, licences, and approvals required pursuant to this RFX.

19. *Right to Amend or Withdraw Submission*

A Supplier may withdraw or edit its Submission by submitting a request to the Purchasing Representative via email or through the Online Bidding System prior to the closing date and closing time. If the Supplier wishes to re-submit a Bid, the Supplier is solely responsible to:

a. make any required adjustments to their Submission;
b. acknowledge the addendum/addenda; and
c. ensure the re-submitted Bid is received by the HDSB's Purchasing Representative or the Online Bidding System no later than the closing date and closing time.

Suppliers must submit a written request to withdraw a Submission after the Closing Date via email to the HDSB Purchasing Representative. Any Supplier who withdraws a Submission may have a negative Performance Evaluation placed on record with the

HDSB in accordance with the Vendor Performance Management Administrative Procedure.

(www.hdsb.ca/our-board/Policy/VendorPerformanceManagement.pdf)

20. Acceptance of RFX

By submitting a response, the Supplier acknowledges and agrees to the terms and conditions outlined in the RFX, as well as all statements, terms, and conditions included in its own submission.

Each RFX and all Appendices thereto form an integral part of each such RFX. All provisions set forth in the RFX are considered accepted by each Supplier and are deemed to form part of every submission.

21. Submissions Will Not Be Opened Publicly

Suppliers are advised that there will not be a public opening of any HDSB RFX. HDSB will open Submissions at a time subsequent to the Closing Date.

22. Supplier's Submission

By submitting a Submission, the Supplier confirms that all components required to use and/or manage the Products/Services have been identified in its Submission and/or will be provided to HDSB at no additional cost. Any requirement that may be identified by the Supplier after the Closing Date or subsequent to signing an Agreement or the issuance of a Purchase Order shall be provided to the HDSB at the Supplier's expense.

All correspondence, documentation, and information provided in response to or because of this RFX may be reproduced for the purposes of evaluating the Submission. If a portion of a Submission is to be held confidential, such provisions must be clearly identified in the Submission. HDSB may in its sole and absolute discretion, reject Submissions that are not substantially compliant with the RFX.

23. Clarification of Submissions

HDSB shall have the right at any time after the Closing Date to seek clarification from any Supplier in respect of the Submission, without contacting any other Supplier.

HDSB will exercise this right in a similar manner for all Suppliers.

Any clarification sought shall not be an opportunity for the Supplier to either correct errors or to change its Submission in any substantive manner. Subject to the qualification in this provision, any written information received by HDSB from a Supplier

in response to a request for clarification from HDSB may be considered, if accepted, to form an integral part of the Submission.

HDSB shall not be obliged to seek clarification of any aspect of any Submission.

24. Verification of Information

HDSB shall have the right, in its sole discretion, to:

a. Verify any Supplier's statement or claim made in its Submission or made subsequently in a clarification, or discussion by whatever means HDSB may deem appropriate, including contacting persons in addition to those offered as references, and to reject any Supplier statement or claim, if such statement or claim or its Submission is patently unwarranted or is questionable, which may result in changes to the scores for the Supplier's Technical Response; and,
b. Access the Supplier's premises where any part of the work is to be carried out to confirm Submission information, quality of processes, and to obtain assurances of viability, provided that, prior to providing such access, the Supplier and HDSB shall have agreed on access terms including pre-notification, extent of access, security and confidentiality. HDSB and the Supplier shall each bear its own costs in connection with access to each other's premises. The Supplier shall cooperate in the verification of information and is deemed to consent to HDSB verifying such information, including references.

25. Irregularities and Errors in Submitted Pricing

In the event of an inconsistency or mathematical error between the unit price and an extended price based on estimated quantity, the unit price prevails and the extended price shall be corrected accordingly.

Additionally, the HDSB reserves the right to seek clarification from any Supplier in the event that the pricing submitted appears to be abnormally low in relation to the Deliverables or the marketplace. The Supplier shall provide, upon request, written clarification or additional information to demonstrate that the pricing is sustainable and reflective of a full understanding of the requirements.

If the Supplier fails to provide satisfactory clarification within the time specified by the HDSB, or if, in the sole opinion of the HDSB, the pricing is determined to be unrealistic, unsustainable, or indicative of an error or misunderstanding, the HDSB may reject the Submission and disqualify the Supplier from further consideration.

This right is in addition to and does not limit any other rights of the HDSB under the RFX or applicable procurement policies.

26. Breaking a Tie

In the event of a tie in the final scores, the contract may be awarded to the Supplier that provides the best overall value, as determined by the HDSB in its sole discretion.

27. Award

Building Ontario Business Initiative Act (BOBI):

A link to the Building Ontario Business Initiative Act (BOBI) can be found here: Building Ontario Business Initiative.

The Government of Ontario is committed to supporting Ontario businesses and intends to create a level playing field that reduces barriers and provides them with greater access to procurement opportunities with public sector entities, contributing to their growth to build their competitiveness for the global market. Under the Building Ontario Businesses Initiative Act, 2022, public sector entities (School Boards) are required to give preference to Ontario businesses, in accordance with the regulations of the Act, when conducting procurement processes for prescribed goods and services at the value of which are under the prescribed threshold amounts.

Procurement Restriction Policy

A link to the Procurement Restriction Policy can be found here: Procurement Restriction Policy.

The Supplier must not be a U.S. business, where 'U.S. business' means a supplier, manufacturer, or distributor of any business structure (including a sole proprietorship, partnership, corporation, or other business structure) that:

a. has its headquarters or main office located in the U.S., and
b. has fewer than 250 full time employees in Canada.

If a Supplier is a subsidiary of another corporation, part a of the definition above is met if that Supplier is controlled by a corporation that has its headquarters or main office located in the U.S. A Supplier's eligibility must be demonstrated before a Submission may be accepted via the completion of an attestation provided by HDSB within the RFX document.

Any final award will be based on (but not limited to) the initiatives listed above and /or the best value for money and quality service delivery from a Supplier who complies with the provisions of this Submission solicitation, including specifications, contractual terms and conditions, who can reasonably be expected to provide satisfactory performance on the proposed Agreement based on reputation, references, performance on previous

agreements and/or contracts, and sufficiency of financial and other resources, and provides a solution that is a fit with the HDSB's requirements. The lowest price or bid shall not be the sole, determinative factor.

28. Priority of Documents

In the event of any inconsistencies between the terms, conditions, and provisions of the main part of the RFX and the Appendices, the RFX shall prevail over the Appendices during the RFX process.

29. Agreement

If an Agreement is subsequently negotiated and awarded to a Supplier or Suppliers as a result of this RFX process, the Agreement may commence upon:

a. signature by the duly authorized representatives of the HDSB and the Supplier(s);
b. issuance of a Purchase Order by the HDSB to the Supplier(s); or,
c. signature of a Letter of Intent or Award Letter by the duly authorized representatives of HDSB and the Supplier(s) and receipt of any requested documentation (i.e. Bonds, Insurance, WSIB, etc.).

30. Failure to Execute an Agreement

Upon successful completion of the negotiation process, and in accordance with the evaluation methodology set out in this RFX, the selected Supplier(s) will be provided a mutually agreed-upon timeframe to execute a formal Agreement, unless otherwise directed by the HDSB.

If the Supplier(s) fail to execute the Agreement within the specified timeframe, the HDSB reserves the right to withdraw its invitation to finalize the Agreement. For clarity, and in accordance with the rules of the procurement process, no legally binding relationship shall exist between the HDSB and any Supplier unless and until a written Agreement is fully executed or a Purchase Order is formally issued by the HDSB.

31. Submission Acceptance

Neither the lowest-priced Submission nor any Submission is required to be accepted. While price is an evaluation criterion, other evaluation criteria as set out in the RFX will form a part of the evaluation process.

32. Notification to Other Suppliers

Once an Agreement, Purchase Order, Letter of Intent or Award Letter is executed, other Suppliers will be notified directly in writing via the Online Bidding System or via email of the outcome of the procurement process and the award of the contract.

33. Debrief Summary

Any Supplier may request a debrief within thirty (30) days of the notification of award. The intent of the debrief summary is to aid the Supplier in presenting a better submission in subsequent procurement opportunities. Any debrief summary provided is not for the purpose of providing an opportunity to challenge the procurement process.

34. Dispute Resolution

In the event that a Supplier wishes to review the decision of the HDSB in respect of any material aspect of the RFX process, and subject to having attended a debriefing, the Supplier shall submit a protest in writing to the HDSB Purchasing Contact ten (10) calendar days from such a debriefing.

Any request that is not received in a timely manner will not be considered, and the Supplier will be notified in writing.

A protest in writing shall include the following:

a. A specific identification of the provision and/or procurement procedure that is alleged to have been breached;
b. A specific description of each act alleged to have breached the procurement process;
c. A precise statement of the relevant facts;
d. An identification of the issues to be resolved;
e. The Supplier’s arguments and supporting documentation; and,
f. The Supplier’s requested remedy.

For the purpose of a protest, the HDSB will review and address any protest in a timely and appropriate manner. The HDSB will engage an independent and impartial third party should the need arise.

35. Disclaimer of Representations and Liabilities

a. The information provided in this RFX document or otherwise by the HDSB in any connection with this RFX, is provided on an "as is" basis, with no representations, warranties or covenants, implied or express, concerning the nature or the quality of such information, including without limitation its

completeness, accuracy, currency, reliability, authenticity or the HDSB's rights to disclose any such information.

b. All information provided in this RFX document is based on the HDSB's knowledge and intent as of the date this RFX is issued and may change during the course of the RFX process. The Supplier accepts and acknowledges its duty to investigate and conduct due diligence enquiries into the subject matter and circumstances of this RFX.
c. The HDSB and its officers, employees, agents, consultants, and advisors shall not be liable or responsible in respect of any aspect of this RFX, or for any oral or written information, or any advice, or any incompleteness, errors or omissions in this RFX document or information disclosed or otherwise provided to the Supplier under this RFX and all of the foregoing, in respect of which Supplier shall assume all risk.

36. No Guarantee of Volume of Work or Exclusivity

The HDSB makes no representation, warranty or guarantee as to the accuracy or comprehensiveness or exhaustiveness of the information contained in an RFX or issued by way of addenda. Any data contained in an RFX or provided by way of addenda are estimates only and are for the sole purpose of indicating to Suppliers the general size or scope of the work.

Nothing in any HDSB request for Goods and/or Services is intended to relieve the Supplier from forming its own opinions and conclusions with respect to the matters addressed in any HDSB request for Goods and/or Services. It is the Supplier's responsibility to avail itself of all the necessary information to prepare a submission in response to an RFX.

The HDSB makes no guarantee of the value or volume of work to be assigned to the Supplier and any award executed to a Supplier may not be an exclusive award for the provision of the Agreement. The HDSB may contract with others for the same or similar Goods and/or Services to those described in any HDSB Agreement.

37. No Publicity or Promotion

No Supplier shall make any public announcement or distribute any literature regarding this RFX or otherwise promote itself in connection with this RFX or any arrangement entered into under this RFX without the prior written approval of HDSB.

In the event that a Supplier makes a public statement either in the media or otherwise in breach of this requirement, in addition to any other legal remedy it may have in law, in equity or within the context of this RFX, HDSB may take reasonable steps, including disclosing information about a Submission, to provide accurate information or correct any false impression.

38. Conflict of Interest

Conflict of Interest includes, but is not limited to, any situation or circumstance where:

a. in relation to the RFX process, the Supplier has an unfair advantage or engages in conduct, directly or indirectly, that may give it an unfair advantage, including, but not limited to:

    i. having or having access to information in the preparation of its Submission that is confidential to HDSB and not available to other Suppliers;
    ii. communicating with any person with a view to influencing preferred treatment in the RFX process; or
    iii. engaging in conduct that compromises or could reasonably be seen to compromise the integrity of the open and competitive RFX process and render that process non-competitive and unfair; or,

b. in relation to the performance of its contractual obligations in an HDSB agreement, the Supplier's other commitments, relationships or financial interests:

    i. could or could reasonably be seen to exercise an improper influence over the objective, unbiased and impartial exercise of its independent judgement; or
    ii. could or could reasonably be seen to compromise, impair or be incompatible with the effective performance of its contractual obligations;

The Supplier shall:

a. avoid any Conflict of Interest in the Submission process and in the performance of its contractual obligations;
b. disclose to the HDSB without delay any actual or potential Conflict of Interest that arises during the Submission process or during the performance of its contractual obligations; and
c. comply with any requirements prescribed by the HDSB to resolve any Conflict of Interest.

In addition to all other contractual rights or rights available at law or in equity, the HDSB may immediately disqualify a Submission upon giving notice to the Supplier where:

a. the Supplier fails to disclose an actual or potential Conflict of Interest;
b. the Supplier fails to comply with any requirements prescribed by the HDSB to resolve a Conflict of Interest; or
c. the Supplier's Conflict of Interest cannot be resolved.

This paragraph shall survive any termination or expiry of the Agreement.

39. Criminal Record and Judicial Matters Checks

The Service Provider represents and warrants that all employees, contractors, or agents attending a school site or interacting with pupils shall comply with the Education Act and its regulations, specifically regarding the collection of personal information and criminal background checks. To ensure compliance with HDSB standards, the Service Provider shall obtain and maintain, at its own expense, the required level of police record check—including a Vulnerable Sector Check where applicable—covering offences under the Criminal Code, the Narcotics Control Act, and the RCMP's automated retrieval system. This requirement applies to any personnel who may have regular direct contact with students or access to sensitive student information, as determined by the HDSB's sole discretion.

Furthermore, the Service Provider must provide an Offence Declaration in an approved form and immediately notify the HDSB if any personnel are charged with or convicted of a Criminal Code offence. The HDSB reserves the right to require the immediate removal and replacement of any individual who fails to satisfy these screening requirements.

The Service Provider agrees to indemnify and hold the HDSB harmless from any claims, liabilities, or penalties resulting from a failure to provide these clearances. Should the Service Provider fail to deliver the necessary documentation, the HDSB maintains the right to terminate the agreement effectively and without prejudice to other legal remedies.

40. *Vehicle Operation on HDSB Property*

The successful Supplier shall exercise due care and caution when operating motorized vehicles on school property, particularly during times when students are entering or exiting the school building, or are present outside on school grounds or adjacent areas, including recess, lunch periods, and before or after the school day.

Additionally, while on HDSB property, drivers must turn off their vehicles and remove the keys during any stop. Vehicles must never be left idling while unattended, nor parked in designated accessible parking spaces. Vehicles should be locked when left unsupervised. The Halton District School Board (HDSB) assumes no responsibility for any theft of, or theft from, vehicles operated by the successful Supplier.

Asphalt play areas around the exterior of the school building are not constructed to handle heavy vehicles. Suppliers will be held responsible for any damage to HDSB property including but not limited to asphalt or natural surfaces as a result of using them for access of heavy vehicles. Making good of natural surfaces or asphalt areas that are damaged in the course of the work shall be to the original (new) condition irrespective of their condition prior to commencement of the work, or the condition of the adjacent unaffected areas. Vehicles are only permitted to access, stand or be parked in areas

designated by administrative staff of HDSB, which for the purposes of this provision does not include principals of schools.

41. Confidential Information

For the purposes of this RFX, “Confidential Information” refers to any information, whether or not expressly identified as confidential, that is disclosed by the HDSB and is relevant to the Deliverables, pricing, or evaluation process. This includes, but is not limited to, information relating to the business, operations, or affairs of HDSB or its directors, governors, trustees, officers, or employees, and:

- is marked or otherwise identified as confidential when provided in written or tangible form; or
- is disclosed orally and subsequently confirmed in writing as confidential.

For greater certainty, Confidential Information includes:

- any new information derived from such Confidential Information, whether developed by HDSB, the Supplier, or any third party;
- all information, including Personal Information, that HDSB is obligated or permitted to withhold under provincial or federal legislation; and
- any pricing or financial information submitted or received as part of the RFX process.

Confidential Information does not include information that:

- becomes publicly available through no fault or breach of the Supplier;
- is lawfully obtained from a third party without any obligation of confidentiality;
- was already in the Supplier’s lawful possession prior to disclosure by HDSB, as demonstrated through written records; or

- is independently developed by the Supplier without reference to the Confidential Information.

For clarity, these exclusions shall not affect the definition or treatment of Personal Information as governed by applicable law or the terms of the Contract.

42. Confidential Information of the Supplier

Except as otherwise provided in this RFX or as required by applicable law, the HDSB will treat all Submissions and any information obtained during the RFX process as confidential. This obligation does not extend to information that becomes publicly available through no fault of HDSB and not as a result of HDSB’s disclosure.

HDSB and its representatives or agents are under no obligation to enter into a separate confidentiality agreement at any stage of the RFX process.

Should a Supplier decline to participate in any required stage of the RFX process due to HDSB's refusal to sign a confidentiality agreement, the Supplier will forfeit any evaluation points associated with that stage.

43. Treatment of Personal Information

a. Submission of Personal Information
   Suppliers should not include any personal information relating to the qualifications or experience of individuals proposed to provide the Products or Services unless such information is specifically requested by HDSB. In cases where such information is requested, HDSB will retain it for a minimum of seven (7) years from the date of collection and will handle it in accordance with this section.
b. Use of Personal Information
   Any personal information, as defined under the Personal Information Protection and Electronic Documents Act (PIPEDA), provided at the request of HDSB will be used solely for the purpose of evaluating and selecting qualified individuals to deliver the Products or Services and for confirming that the work performed aligns with their stated qualifications.
c. Consent
   It is the Supplier's responsibility to obtain all necessary consents from the individuals whose personal information is being provided to HDSB. By submitting such information, the Supplier confirms that appropriate consent has been obtained for HDSB to collect, use, and disclose the information for the purposes described above.

44. Non-Disclosure Agreement

The HDSB reserves the right to require any Supplier to enter into a non-disclosure agreement, privacy agreement, and/or any other agreement relating to confidentiality or the protection of personal or sensitive information, in a form satisfactory to the HDSB.

45. *Proof of WSIB Coverage*

If the Supplier is subject to the Workplace Safety and Insurance Act ("WSIA") or the Workplace Safety and Insurance Amendment Act, 2008 ("WSIAA"), the Supplier shall submit a valid clearance certificate of Workplace Safety and Insurance Board ("WSIB") coverage to the HDSB before commencing the performance of any work or services. In addition, the Supplier shall, from time to time during the term of the Agreement and at the request of the HDSB, provide additional WSIB clearance certificates.

The Supplier covenants and agrees to pay when due, and to ensure that each of its subcontractors pays when due, all amounts required to be paid by it or its subcontractors, from time to time during the term of the Agreement, under the WSIA and/or the WSIAA, failing which the HDSB shall have the right, in addition to and not in substitution for any other right it may have pursuant to the Agreement or otherwise at law or in equity, to pay to the WSIB any amount due pursuant to the WSIA or the WSIAA unpaid by the Supplier or its subcontractors and to deduct such amount from any amount due and owing from time to time to the Supplier pursuant to the Agreement together with all costs incurred by the HDSB in connection therewith.

46. *Ownership*

The Submission, along with all correspondence, documentation and information provided to the HDSB by any Supplier in connection with or arising out of the Submission, once received by the HDSB, shall become the property of the HDSB and will not be returned to the Supplier, and may be appended to any Agreement and/or purchase order with the successful Supplier.

47. *Permits, Licenses and Approvals*

Suppliers shall obtain all permits, licences, rights to use and approvals required in connection with the supply of the Goods and/or Services. The costs of obtaining such permits, licences, and rights to use and approvals shall be the responsibility of, and shall be paid for by the Supplier.

Where a Supplier is required by any Applicable Law to hold or obtain any such licence, permit, or approval to carry on an activity contemplated in its Submission or in the Agreement, neither the acceptance of the Submission nor the execution of the Agreement by the HDSB shall be considered an approval by the HDSB for the Supplier to carry on such activity without the requisite licence, permit, consent or authorization.

Without in any way limiting the generality of the foregoing, any electrical Goods being proposed for consideration pursuant to this RFX must be authorized or approved in accordance with the Electrical Safety Code or by a certification organization accredited by the Standards Council of Canada and bearing the organization's certification mark for use in Canada. Certification shall be to the standard that is appropriate for the intended use of the electrical Goods at any of the HDSB's schools or facilities.

48. *Co-operative Purchasing Provisions*

This document is being issued by the HDSB to meet the HDSB's requirements. The successful Supplier acknowledges that the Provincial Government encourages cooperative procurement initiatives by HDSB. Suppliers shall indicate when asked if they are willing to extend pricing and submission terms to other District School Boards

in the province of Ontario where the scope of work is deemed similar or the same and where both parties are in agreement, in which case they shall be deemed to have granted consent to the HDSB to share the Submission, subject to HDSB agreeing to receive the Submission in confidence on the understanding that the Submission contains financial, commercial, technical and other sensitive information of the Supplier.

The Supplier will not be penalized if it does not agree to this provision. The HDSB will not incur any financial responsibility in connection with any purchase by another School Board. Each School Board shall accept sole responsibility for its own contract management such as placing orders and making payments to the successful Supplier.

49. Rates

The proposed Product and/or Service Rates shall be firm Rates for the entire term of the Agreement and shall be Rates per Category as detailed below:

a. Minimum percentage discount off Supplier's Published Canadian Price;
b. Maximum net Rates per service, for related Services;
c. In Canadian funds and shall include all applicable costs, including, but not limited to overhead, materials, fuel, fuel surcharge, duties, tariffs, travel and carriage, delivery, office support, profit, permits, licences, labour, insurance, and Workplace Safety Insurance Board costs and all other overhead, office support, profit, licenses including any fees or other charges required by law; and,
d. Exclusive of the HST, or other similar taxes.

The Supplier may, however, lower its Rates and/or increase the minimum percentage discount off Supplier's Canadian List Price for specific Products and/or Related Services when the HDSB and Supplier mutually agree without affecting the Rates in the Agreement.

In extenuating circumstances, HDSB may consider a Rate adjustment substantially affecting the provision of Products and/or Related Services resulting from new or changed municipal, provincial, or federal regulations, by-laws and fluctuations in foreign exchange rates as published by the Bank of Canada, tariffs, or ordinances. Any such request from the Supplier must be accompanied and supported by documentation deemed appropriate by HDSB. HDSB may use a third-party index (e.g. Consumer Price Index ("CPI")) in its Rates review. The Supplier must submit documentation (i.e. Rate impact analysis) demonstrating how the request affects the delivery of Products and/or Services in this Agreement. HDSB will not consider any fixed costs or overhead adjustments in its review of the Supplier's documentation.

The Supplier shall ensure that both the product offerings and their pricing – including Supplier's published Canadian list prices, the percentage (%) discount, and the discounted prices after the percentage (%) discount is applied/ Net Rates – are easily

accessible and visible to HDSB throughout the term of the agreement on the Supplier's online ordering platforms.

50. Environmental, Social, Governance, Ethical and Sustainability Considerations

The HDSB, when practically and financially feasible, will consider the acquisition of goods and services that will reduce the environmental footprint of the HDSB.

The Supplier shall possess and provide information, if requested by HDSB, related to its robust Environmental, Social and Governance ("ESG") business framework. The Supplier shall collaborate and support the HDSB to align with their ESG framework as it relates to currently available ESG processes, products/equipment, technologies and/or sustainable initiatives.
Wherever practical and without compromising quality, Suppliers are to promote:

a. Environmental design principles as required by the HDSB (e.g., environmental sustainability, data security and privacy, lean construction practices, waste management, decarbonization, indoor air quality, comfort);
b. Sustainable social design principles as required by HDSB (e.g., social equity and equality, diversity, inclusive, accessibility, economic, and cultural impacts that achieve overarching HDSB goals that help shape healthy, diverse and inclusive environments); and,
c. Governance practices to enhance positive impact to the HDSB (e.g., corporate oversight, risk management, staff retention and management, and leadership).

The Supplier shall keep HDSB informed about social procurement processes. Throughout the Term of the Agreement, HDSB may consult with the Supplier to assess ESG commitments.

51. Health and Safety

Suppliers must comply with the Occupational Health and Safety Act (OHSA) and all applicable regulations. Suppliers and their employees must have completed health and safety training relevant to their trade or scope of work. Upon request, proof of such training must be provided to the Halton District School Board (HDSB). Suppliers are also responsible for ensuring that all subcontractors, where permitted by HDSB, meet these same requirements. HDSB reserves the right to request documentation verifying health and safety training at any time.

All Suppliers must adhere to applicable HDSB policies, programs, and procedures while present on HDSB property. Suppliers are required to sign in upon arrival at HDSB facilities and sign out upon departure, both before and after conducting any work on site.

Suppliers will be held accountable for any fines or violations of legislation incurred by the HDSB as a result of the Supplier's actions or omissions.

52. *Governing Law*

The terms and conditions:

a. are included for greater certainty and are intended to be interpreted broadly and separately (with no particular provision intended to limit the scope of any other provision);
b. are non-exhaustive (and shall not be construed as intending to limit the pre-existing rights of the parties to engage in pre-contractual discussions in accordance with the common law governing direct commercial negotiations); and,
c. are to be governed by and construed in accordance with the laws of the Province of Ontario and the federal laws of Canada applicable therein.