Waterloo Region District School Board

REQUEST FOR TENDER

26-7842-RFT

Avenue Road Public School Renovations

ISSUE DATE: February 13, 2026

ELECTRONIC SUBMISSIONS will be received by the Bidding System no later than **2:00 p.m. local time, on March 10, 2025.**

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Not Used

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Not Used

00 01 00 Consultant/Professional Seals

1.1 The following professional seals and signatures are provided as required by Paragraph 1.21.1 (4) Division C of the Ontario Building Code and apply to the areas of expertise for which each consultant was commissioned.

1.1.1 Architect



1.1.2 Structural



1.1.3 Electrical



END OF SECTION

DIVISION 00 – BIDDING AND CONTRACT DOCUMENTS

00 21 13 Instructions to Bidders

1. Designated Representative

To contact the Board or ask questions in relation to this Procurement, bidders must initiate the communication electronically through the Bidding System. The Board will not accept any respondent's communications by any other means, except as specifically stated in the Procurement. Bidders must not communicate in any manner with anyone other than the Designated Representative.

For the purposes of this procurement process, the Designated Representative will be:

Procurement Lead: Ardith Inapan
Title: Buyer
Waterloo Region District School Board
Email: ardith_inapan@wrdsb.ca

2. Consultant

The Board has hired the following architect/consultant to assist in the preparation of this Tender: Martin Simmons Sweers Architects Inc.

The architect/consultant and any sub consultants are not to be contacted by any interested parties from the bid issue date to the bid award notification. The architect/consultant or any sub consultants will not respond to any direct communication.

The Consultant will be responsible for the contract administration of the project after the purchase order has been issued or the contract has been signed by the Board.

3. Blackout Period

A black out period shall exist between the deadline for questions and the date of award. During this period, there shall be no communication between the Bidders, the Board, or any Board consultants or employees, unless initiated by the Board's Designated Representative, noted above.

4. Communication and Question Protocol

Bidders and their representatives are NOT permitted to contact WRDSB Project Managers/Leads, agents of the Board; any member of the Board's governing body (such as Board of Trustees, or advisors); any employee, consultant, or agent of the Board's Clients, other than the Designated Representative listed above. Any attempt by a Bidder to bypass or influence the procurement process may result in disqualification of the Bidder and the rejection of the Bidder's submission.

The Board will not be responsible for any verbal statement, instruction, or representations. In case of difference between any verbal information and written document, the written document shall govern. Information obtained from any source, other than the Designated Representative, noted above in writing, shall not be relied upon.

The Board shall not be bound by any verbal instruction or information provided by any Board employee or consultant of the Board. Only responses provided in an Addendum shall form part of this Procurement Document.

All requests for information, instructions, or clarifications shall be through the Bidding System by clicking on the "Submit a Question" button found within the bid detail of the specified Procurement. Addenda will be issued accordingly.

It is the responsibility of the Bidder to seek clarification of any matter that they consider unclear before submitting their application. The Board is not responsible for any misunderstanding of the Procurement documents on the part of the Bidder.

5. Doing Business with the Waterloo Region District School Board

The Waterloo Region District School Board is a provincially funded institution reporting to the Ministry of Education of Ontario and is one of the larger school boards in Ontario, operating 122 school locations and serving approximately 64,000 students in the Region of Waterloo.

Bid opportunities above $10,001 CAD will be solicited through the electronic bidding system bids&tenders or the Board may also utilize Supplier roster lists awarded through a competitive process, participate in cooperative procurements with various public entities, or buying groups. These may include, but are not limited to, Ontario Education Collaborative Marketspace, Supply Ontario, and other Cooperative Group(s).

WRDSB competitive opportunities are posted on the Electronic Bidding System, bids&tenders/wrdsb.

The WRDSB only accept electronic Bid Submissions submitted through the Electronic Bidding System, bids&tenders/wrdsb

Bid opportunities may be posted as Public or by Invitation and are based on dollar thresholds outlined in Administration Procedure 4570 PROCUREMENT. Click here to access the Board's Administrative Procedures, Section 4000 – Business Services.

6. Anticipated Project Schedule

The following table represents the anticipated project timelines. This timeline is an estimate only and may be subject to change by the Board at any time.

DESCRIPTION	DATE
Issue Date of Tender	February 13, 2026
Non-Mandatory Pre-Bid Site Examination	Date: Thursday, February 19, 2026 Time: 4pm 40 Gail St, Cambridge, ON N1R 4M2 Front Entrance
Deadline for Questions	March 2, 2025
Closing Date and Time	March 10, 2026, 2:00 pm local time
Anticipated Contract Start / Work begins	July 2, 2026
Substantial Completion Date	August 25, 2026
Ready for Takeover	September 4, 2026
Deemed Complete Date	September 30, 2026

7. Pre-Bid Site Examination

Bidders are strongly encouraged to attend the non-mandatory pre-bid site examination and sign the attendance sheet. Date, time and location are provided above in the Anticipated Project Schedule. The Board may not provide another opportunity to visit the site. However, absence from this site meeting will not disqualify any Bidder.

Bidders shall attend the site meeting at their own risk and hold the Board harmless for any issues or damages arising out of their attendance of the site meeting.

The Owner will not consider any claims for additional payments during the execution of the Work for extra work or difficulties encountered resulting from conditions which were either visible or could be reasonably inferred from an examination of the Place of the Work and the available project information prior to the submission of Bids.

Bidders are encouraged to bring their own measuring tape, camera, or other portable tools as required to the site meeting. Bidders are solely responsible for making their own assessment of the site.

8. Secondary Site Examinations

Bidder may request a secondary site examination visit through the Bidding System by clicking on the “Submit a Question” button found within the bid details page of that

Procurement. Include the contact's name and email of the person who will visit the site.

Bidders shall attend the secondary site examination visit at their own risk and hold the Board harmless for any issues or damages arising out of their attendance of the site meeting.

Bidders not in attendance of a Mandatory Pre-Bid Site Examination meeting will not be provided an opportunity to a secondary stie examination visit.

Bidders must adhere to all communication protocols, as describe in Section 1.0, Sub Section 4. Communication Protocol.

The Owner will not consider any claims for additional payments during the execution of the Work for extra work or difficulties encountered resulting from conditions which were either visible or could be reasonably inferred from an examination of the Place of the Work and the available project information prior to the submission of Bids.

Bidders are encouraged to bring their own measuring tape, camera, or other portable tools as required to the site meeting. Bidders are solely responsible for making their own assessment of the site.

9. Examination of Bid Documents and Work and Submitting Questions

i. Bidders are required to fully acquaint themselves with the Procurement documents; fully inform themselves of all conditions, limitations and requirements involved in the Procurement; and obtain all information that may be necessary to complete those requirements before submitting a Bid.

ii. Submission of a Bid shall be considered conclusive evidence that the Bidder has satisfied itself as to the requirements of this Procurement.

iii. In the event a Bidder discovers any errors, discrepancies, inconsistencies, or omissions or requires clarification within this Procurement, they are to submit their observations and/or questions through bids&tenders by clicking on the "Submit a Question" button found within the bid detail of the specified Procurement by the Deadline for Questions specified in this paragraph.

iv. Bidders are strongly encouraged to ask clear and concise question(s) or statements citing the relevant section of the Bid Solicitation Document. The Board cannot guarantee a response to questions received by the Board after the Deadline for Questions.

v. The Board has endeavored to provide complete, correct information and estimates to enable Bidders to properly assess and determine the scope and complexity of the Work prior to submitting a Bid.

vi. Bidders are solely responsible for determining if they require additional information or if anything appears incorrect or incomplete. The onus is on the Bidder to contact the Designated Representative prior to the Deadline for Responses indicated in this document, if they have any questions or queries

whatsoever or find omissions from or discrepancies in this Bid Solicitation document, unnecessary restrictions in the terms of reference, or should they be in doubt as to the meaning of any part of this document.

vii. Written responses or clarifications to issues of substance will be shared with all Bidders in the form of an Addendum.

10. Electronic Bid Submission Only / Electronic Bidding System

Competitive opportunities including Requests of Prequalification (RFPQ) are posted on the Electronic Bidding System, bids&tenders/wrdsb.

The Bidder must submit their bid through the Bidding System only. Any other form of submittal will not be considered. It is the Bidder's responsibility to read the Procurement documents thoroughly including all attachments and addenda, if any, as these contain information that is highly pertinent to this Procurement and to clarify any details with the Designated Representative prior to their submission. To be considered, Bidders must respond to this Procurement.

i. In order to submit a bid, bidders must be registered with bids&tenders. The sole onus is on the bidder to have the most current correct information set-up in bids&tenders including but not limited to plan taker contact information, categories, and agency.

ii. All Bids shall be submitted through bids&tenders only. The onus is on the Bidder to ensure all requirements of the Bid Solicitations are submitted.

iii. If the bidder encounters technical issues, the onus is on the bidder to have this resolved prior to the closing date and time by contacting support@bidsandtenders.ca

iv. Bidder shall have a "Vendor account" in the Bidding System and shall ensure the account is created with the Bidders full legal company name and be registered as a "plan taker" for this bid solicitation. Only the plan takers will have access to download bid documents, receive addenda email notifications, download addenda and to submit their bid electronically through the Bidding System.

v. The onus is on the Bidder to ensure that the Bid is received in the Bidding System on or before the Closing Time. The Closing Time shall be determined by the Bidding System's web clock. The timing of the Bid submission shall be based on when the Bid is received by the Bidding System, not when a Bid is submitted by a Bidder.

vi. Bidders shall allow sufficient time to upload their Bid submission including all requirements as stated in this Procurement and to resolve any issues that may arise as Bid transmission can be delayed in an "internet traffic jam" due to file transfer size, transmission speed, and other electronic considerations

vii. All prices including provisional/supplementary pricing, if requested, shall be submitted in the Schedule of Prices forms available through the Bidding System.

viii. The Owner reserves the right to accept or reject any or all provisional bid prices submitted, and such prices shall remain in effect for the duration of the Contract. Failure to submit provisional prices where required may result in the Bid being declared non-compliant.

ix. Bids submitted by fax or paper copy, or any other format will not be accepted.

x. The Bidding System will not accept Bids after the Closing Time as determined by the Bidding System's web clock.

xi. The Board hereby consent to the use of an Electronic Signature for the signing of all documents requested hereunder. Acceptable forms of signatures include, but are not limited to, the typing of the Bidder's authorized signing officer's name or the inclusion of an image of the Bidder's authorized signing officer's signature, so long as the electronic signature is sufficient to identify the Bidder's authorized signing officer. The Bidder's authorized signing officer agrees that whatever form of electronic signature is provided constitutes a signature for the purpose of executing all documents requested hereunder.

xii. Upon submitting a Bid, the Bidding System will send a confirmation email to the Bidder advising that the Bid was submitted successfully. If a Bidder does not receive a confirmation email despite submitting a Bid, the Bidder should contact technical support of the service provider hosting the Bidding System via email: support@bidsandtenders.ca

xiii. There will be no public opening for this Bid.

xiv. If a Bid is a joint submission of two (2) or more firms, a single Bid is to be coordinated and submitted by the lead Bidder with the required information. If two or more parties submitted a joint response to this Bid Solicitation, they shall decide between them who is to be the Bidder, without any involvement of the Board.

xv. Your online Bid submission shall be taken as your statement that you understand the requirements and agree to comply with the requirements as well as terms and conditions stated in this Bid Solicitation document, including Board's Standard Terms and Conditions. Your Bid submission through the Bidding System confirms that you have checked and confirmed your pricing and by submitting the Bid online, you agree that you have not omitted any items from your Bid.

xvi. For construction projects with Bids above $200,000 the Successful Bidder will be required to execute a "Canadian Standard Form of Construction Contract to a Stipulated Sum" (CCDC 2 - 2020 including amendments thereto as set out in this Procurement.

11. Bid Prices

i. The amounts stipulated on the Schedule of Prices are intended to cover the cost of the complete Work as described in this Bid Solicitation Document.

ii. All prices shall be in Canadian Funds, Free On Board (FOB) Destination, Freight Prepaid (Board locations).

iii. Exclusive of the HST, or other similar taxes.

iv. Unit pricing shall be exclusive of Harmonized Sales Tax (HST), but shall include all applicable costs including but not limited to overhead, material, labour, travel, fuel, fuel surcharge, equipment, disbursements, expenses, customs, charges, freight, shipping and handling costs, and all other charges of every kind attributable to the services, equipment or goods provided.

v. The person submitting the Bid on behalf of the Bidder must have authority to bind the Bidder.

vi. Quantities may be estimated and subject to change, and therefore the Board, at its discretion, may purchase more or less of the commodity based on the unit price bid.

vii. All information required on the forms shall be completed in full including references and Sub-contractors that it proposes to use for Work described. Changes made to the list of nominated Sub-contractors after the closing of the Bid, must have prior written approval of the Board's Single Point of Contact.

viii. All price(s) submitted shall be a reasonable price for each particular item as determined by the Board and under no condition will an unbalanced Bid be considered. Submissions containing prices which appear to be so unbalanced as to likely affect the interests of the Board adversely will be clarified and may be rejected.

ix. Unit prices and/or optional pricing, if any will set the foundation for any approved increases or decreases in Work. The unit prices must remain fixed and firm for the term of the Contract, unless otherwise specified in this Bid Solicitation document.

x. Provisional or Optional Pricing may or may not be required for completion of the Work called for under the Contract. The Board will decide necessity of these items and quantities thereon based on the unit prices(s) included in their Bid. If Optional items are not purchased, or quantities are less than estimated, no adjustment or compensation will be awarded to the Bidder by the Board. Optional pricing is not used for comparison of Bids for award purpose.

12. References

NOT APPLICABLE

13. Addenda

All Addenda issued through the Bidding System shall form part of the Bid Solicitation Document.

The Board shall not be bound by any verbal instruction or information provided by any Board employee or consultant of the Board. Only responses provided in an Addendum shall form part of this Bid Solicitation Document.

Prior to bid closing any discrepancies, omissions, questions, or clarifications regarding the procurement documents must be sent immediately through the Bidding System by clicking on the "Submit a Question" button found within the bid details page of that opportunity.no later than the deadline noted in the Anticipated Project Schedule. Those that are deemed pertinent to the Bid Solicitation Document will be addressed in the form of an Addendum.

It is understood and acknowledged that while the Bid Solicitation document includes specific requirements, a complete review and recommendation is required. Minor items or details not herein specified, but obviously required for the Work shall be provided as if specified in conformance with modern practices. Any omissions or errors or misrepresentation of these requirements and specifications within the Bid Solicitation document shall not relieve the Bidder of the responsibility of providing the services or products as aforesaid

Bidders shall acknowledge the receipt of all Addenda in the Bidding System prior to the submission of a Bid. Where Addenda has been issued, the system will not allow the Bidder to submit a Bid prior to acknowledging said Addenda.

Where an Addendum is issued after a Bid has been submitted, the Bidding System will automatically withdraw the submitted Bid. The Bid status will change to incomplete and will not be accepted by the Board as a submitted Bid. It is the responsibility of the Bidder to make any required adjustments to their submission, acknowledge all Addenda and ensure the Bid has been received by the Bidding System. Bidders should check the Bidding System for Addenda up until the Bid Closing Date and Time.

Addenda cannot be acknowledged after the Closing Date and Time.

14. Edit and Withdrawal of Bid Submission

i. A Bidder who has submitted a bid may edit or withdraw its bid at any point up to the Closing Date and Time.

ii. Any edits to a bid submission will cause the submission to automatically be withdrawn. The bid submission must be re-submitted to be accepted.

iii. The Bidder is solely responsible for ensuring that its re-submission is received prior to Closing Date and Time. The closing time shall be determined by the web clock within the Bidding System. After such time, requests to withdraw Bid will not be considered.

15. Irrevocable Period

Bids will be irrevocable by the Bidder, and open for acceptance by the Board, for **60 (sixty) days** following the Closing Date.

16. Tie Bids

Where two (2) or more Bids have been received reflecting the same, lowest Bid price, the time stamp for date and time submission in the Bidding System will dictate the award (earliest submission shall prevail).

17. Bid Irregularities

Bids with one or more of the following may be declared informal and/or disqualified and/or non-compliant:

i. Bids that do not comply strictly with all terms and conditions of the Bid Solicitation Document.
ii. Bids that are incomplete, conditional, qualified, or obscure.
iii. Bids that are based upon an unreasonable period of time for completion of the Work.
iv. Bids received from Bidders involved in Claims with either of the Board or banned or on probation with the Board.
v. Bids received from any Bidder deemed to be unskilled or experienced in the work contemplated, or those who have defaulted on, or failed to satisfactorily complete other similar work in the past.
vi. Bids submitted by Bidders that are not prequalified, where applicable.

18. Bid Review

i. All Bids received on or before the Closing Time will be reviewed for compliance based on this Bid Solicitation document. Non-compliant Bids will be rejected. Bids not meeting any of the mandatory requirements included in this Bid Solicitation document will be disqualified. Bidders may be contacted to clarify their submissions.

ii. Should there be any error in extensions, additions or computations, the Board shall be entitled to correct such errors based upon the unit prices supplied, and the corrected total shall be considered as representing the intention of the Bidder and shall be used as the basis for comparison of Bids.

iii. It is the Bidder's responsibility to satisfy the Board that they can comply with the requirements contained within this Bid Solicitation document and that they possess the necessary inventory, equipment, facilities, resources, and staff to perform the work specified in this Bid Solicitation document. Bidders may be required to submit evidence of above in a form acceptable to the Board. Substitution of materials, equipment, or methods different from that outlined in the terms of reference will not be accepted unless provided for within this Bid Solicitation document or with the written approval of the Board.

iv. The Board also reserves the right to examine Bidder's facilities, equipment and visit the subcontractors or sub-consultants proposed and/or Bidder's existing and past clients. The award decision may be revised based on the above.

v. The Board will not be responsible for travel costs if travel is required. No additional charges will be accepted by the Board for any cost incurred by the Bidder or any other party in participating in the Bid evaluations.

vi. The Board may, in its sole discretion, check references, conduct credit checks, review the litigation history and history of professional liability or other insurance claims, and obtain any other type of information that might aid the Board in its selection. The Board reserves the right to consider all, or any information received from all available sources, whether internally or externally obtained. The Board may disqualify any Bid from further consideration based on results of reference or credit checks or review of litigation or claim history. The foregoing may include the Board's own experiences with the respective Bidder(s) or any of the subcontractors and sub-consultants proposed in their Bid.

vii. The Board may request a meeting with Bidders.

19. Post-Award Meeting

A post-award meeting may be held consisting of the successful Contractor, and their key personnel assigned to the contract, the Board's Project Manager/Lead and if applicable the Architect/Consultant, to discuss the program and exchange information before the contract commences. This meeting will be at the sole expense of the Bidder and shall be considered part of the contract. If applicable, the meeting date will be scheduled after the Award.

20. Intent to Award

Bidders are advised not to make any business decisions, assignments, or any sub-contract for the execution of the Work, before receiving a Purchase Order from the Board.

i. Subject to the reserved rights of the Board and availability of funds, the lowest compliant Bid will be recommended for award.

ii. There shall be no obligation on the Board as a result of seeking Bids or conducting the procurement process and the Board reserves the right to pursue other Bidders, cancel the Bid Solicitation, issue a revised request, or to pursue any other course of action which would aid in meeting their needs.

iii. If instructed, within twenty-four (24) hours, excluding hours occurring during a Saturday, Sunday, or a legal holiday, of receiving a request or intent to award from the Board, the Bidder (the "Recommended Bidder") shall provide a list of all Subcontractors/Subconsultants that it proposes to use for all Work described in this Procurement including the Company Name, Sub Trade Category and if applicable, related Divisions.

iv. Within **seven (7) calendar days** of receiving a request or intent to award from the Board, the Bidder (the "Recommended Bidder") shall provide the following mandatory requirements:

a. Insurance certificate with coverage specified in the Bid Solicitation Document.

b. WSIB clearance certificate valid on the date of award or an exemption letter (if applicable and requested).
c. Non-Disclosure Agreement (NDA) duly signed by the authorized signatory (to be renewed annually). The Board will provide this form.
d. Bonding Requirements, if applicable, as specified in the Bid Solicitation Document.
e. An executed Board issued Form of Agreement, if applicable, and duly signed by the authorized signatory.
f. Any other submittal specified in the Bid Solicitation Document or in the intent to award, as a requirement of award.
g. For construction projects above $200,000 the Successful Bidder will be required to execute a "Canadian Standard Form of Construction Contract to a Stipulated Sum" (CCDC 2 – 2020) including amendments thereto as set out in this Procurement.

v. The documents listed below will be incorporated as deemed necessary by the Board, into the Contract with the Bidder. If there is a discrepancy between the wording of one document and the wording of any other document that appears on the list, the wording of the document that first appears on the list shall take precedence:

a. Board approved change order(s) or Contract / Agreement / CCDC 2 -2020 amendment(s)
b. Purchase Order(s), Contract(s) Agreement(s) / CCDC 2 -2020 executed with the Bidder including exhibits
c. Bid Solicitation document issued by the Board, including addenda, if applicable
d. Bid submitted by the Bidder

21. Post Award

In addition to all of the Board's other remedies, if a recommended Bidder fails to satisfy the requirements and/or execute the Form of Agreement or any other applicable conditions within seven (7) calendar days of notice of selection, the Board may, in their sole and absolute discretion and without incurring any liability, rescind the selection of that Bidder.

The Bidder may protest within the five (5) day Notice of Intent to Award, after that, the protest will not be reviewed or accepted.

22. Award Posting Notification

For procurements valued at $121,200 or more, and in accordance with the Broader Public Sector Procurement Directive, once the Board is satisfied that all requirements are met, the project award notification will be posted in the same manner as the procurement

documents were posted. The notification will be posted after the purchase order and/or agreement between the successful bidder and the Board has been issued/executed. The award notification will list the name of the successful bidder, agreement start and end dates, and any extension options.

END OF SECTION

00 21 14– General Contractors, Subcontractors, Prequalified Rosters

1.1 General Contractors

1.1.1 Only invited prequalified General Contractors, by award through a competitive prequalification process, 7430-RFPQ, may submit a bid for this opportunity.

1.1.2 Invitations are based on awarded Project Size Categories. Only approved GCs (on the Roster) may bid on the project size categories based on their award.

1.1.3 A Site Supervisor and Project Manager, assigned to manage and supervise the Work, must be named in the Bidder's Contact Information Specification section through the electronic Bidding System only and include resumes. Personnel will be subject to approval by the WRDSB and cannot be changed without prior written approval from the WRDSB.

1.1.4 Refer to COR Certification Requirements, Clause 1.5.

1.2 Subcontractors/Subconsultants

1.2.1 Refer to specifications for products and suppliers that will be required.

1.2.2 The subcontractor/subconsultant list is not required at time of bid submission.

1.2.3 The subcontractor/subconsultant list is mandatory after the bid closing date from the Recommended Bidder within twenty-four (24) hours of receiving a request or intent to award from the WRDSB.

1.2.4 In the event the WRDSB has a Prequalified Roster List for a Trade Category required for this project, the General Contractors will select from the list below in *3.0 WRDSB Prequalified Roster Lists*. General Contractor's subcontracting other than the companies listed below or identified by Addendum will have their Bid ruled informal.

1.2.5 The Bidder (the "Recommended Bidder") shall provide a list of subcontractor/subconsultant that it proposes to use for all Work described in this Procurement including the specification sections, as per the following:

i. Bidders shall select experienced and qualified subcontractor/subconsultant or Suppliers in their field to perform or supply an item of Work indicated in this Procurement.

ii. The Bidder shall be fully aware of the capability of each subcontractor/subconsultant and/or Supplier included in its bid, including but not limited to technical ability, financial stability, and ability to maintain the proposed construction schedule.

iii. The WRDSB reserves the right to reject any proposed subcontractor/subconsultant or supplier, based on the following but not limited to unsatisfactory past performance, suspended/removed from doing business

with the WRDSB and/or outstanding/unresolved corrective action notice issued by the Owner to the subcontractor/subconsultant within the last three (3) years.

iv. The WRDSB reserves the right to obtain information from the Bidder and from third parties respecting the qualifications and experience of the Bidder's nominated list of subcontractor/subconsultant for such item of the Work.

v. The WRDSB reserves the right to examine Bidder's facilities, equipment and visit the subcontractor/subconsultant's proposed.

vi. The substitution of any subcontractor/subconsultant and/or suppliers after the list is submitted will not be accepted unless a valid reason is given in writing to and approved by the Owner, whose approval may be arbitrarily withheld.

vii. Where a bidder lists "own forces" in place of a subcontractor/subconsultant, the bidder shall conduct such item of the Work with its own forces.

viii. Where "own forces" have been listed by a bidder, the WRDSB reserves the right to obtain information from the bidder and from third parties respecting the qualifications and experience of the bidder's "own forces" for such item of the Work.

END OF SECTION

00 21 15 – Scope of Work

Renovations to an existing, occupied public school in three locations including the following:

1. Renovate elementary classrooms 21 – 23 to replace folding partitions with concrete block walls and refinish the spaces.
2. Renovations to middle school corridor to install additional lockers
3. Renovate special education classroom 13 to change entry, provide a universal washroom, pantry and upgrade the teaching kitchen.

END OF SECTION

00 31 34 – Subsurface Investigation Report – Not Applicable

END OF SECTION

Appendix 00 31 34A – Soil Report – Not Applicable

00 41 13A – Asset and Warranty Card

WRDSB PROJECT ASSET & WARRANTY CARD

Instructions:

a. The WRDSB Project Asset & Warranty Card shall be filled out and completed for any project or work that calls for the replacement or new installation of any asset that has a warranty and requires ongoing preventative maintenance, as well any asset that is being removed.

b. The information for the WRDSB Project Asset & Warranty Card shall be collected and coordinated by the General Contractor responsible for the overall project. The WRDSB Project Asset & Warranty Card shall be filled out and submitted to the Board electronically to FAC_maintenance@wrdsb.ca and carbon copy the project coordinator at the point in time where the project is deemed "Substantially Complete" or at the start of the Warranty Period for said asset. For any project without a General Contractor, the Contractor or Trade responsible for the installation and/or removal of the asset shall complete the WRDSB Project Asset & Warranty Card and submit it to the Board in the same manner as mentioned above.

c. All items shall include the asset identifier, asset description, location, manufacturer, model, serial number, and warranty end date (refer to example at bottom of page).

d. NO Warranty Period shall start without the written permission of the Board prior to the point of Substantial Completion of the project.

e. The Contractor that is responsible for the coordination and completion of the WRDSB Project Asset & Warranty Card shall ensure that the contractor or trade responsible for the installation of the item understands that the contractor or trade is responsible for the preventative and general maintenance of that item for the minimum 2 year warranty period as noted on the WRDSB Project Asset & Warranty Card.

f. All items installed under this contract that require ongoing preventative maintenance (PM) shall be included on the WRDSB Project Asset & Warranty Card. The following list contains examples to be included but not limited to;

Air Compressor	Chiller	Grease Trap
Air Handler- ERV, Heat Pump, RTU	Cooling Tower	Gym Equipment
AC Split -Indoor/Outdoor Unit	Elevator/Lift	Hoods- Kitchen/Fume
Automatic Doors	Eyewash Station-location only	Operable Partitions
Backflow Preventer	Fire Panel	Sprinkler System -area covered
Boiler		Tech Equipment

g. All maintenance during the warranty period shall be the responsibility of the contractor. This shall include, but not be limited to: air handling unit filter changes (3x min.per year), or as per manufacturers recommendations; servicing testable backflow preventors, including fees; and any and all required maintenance.

Sample:

To be filled out by Consultant				*To be filled out by Contractor*				
IDENTIFIER	ASSET	LOCATION (incl. Rm. No.)	REMOVED (R), OR NEW (N)	CONTRACTOR	MANUFACTURER	MODEL	SERIAL NUMBER	WARRANTY END DATE
Boiler 2	*Condensing Boiler*	*Boiler Rm. B005*	*R*	*Bob's Mechanical*	*Viessman*	*Vitocrossal 300 CA3B*	*1234x5678y90*	*Jan. 1, 2025*
HVAC 7	*New RTU*	*Roof D*	*N*	*Bob's Mechanical*	*Daiken*	*DPS020A*	*ABCD1EFGH2IJ*	*Jan. 1, 2025*
n/a	*Gym Partition*	*Gyms 122/123*	*R*	*Extreme Partitions*	*Hufcor*	*933EC*	*n/a*	*Jun. 30, 2028*

WRDSB Project Asset & Warranty Card

Project Name: _____

School / Location: _____

Date: _____

To be filled out by Consultant				*To be filled out by Contractor*				
IDENTIFIER	ASSET	LOCATION (include Room No.)	ASSET REMOVED (R) OR NEW (N)	CONTRACTOR	MANUFACTURER	MODEL	SERIAL NUMBER	WARRANTY END DATE

00 56 13 – Definitions Stipulated Price

1.1. Definitions Declaration

.1 CCDC 2-2020 Edition, Stipulated Price Contract as may be amended, forms the basis of Definitions between the Owner and Contractor.

.2 These Definitions are bound to the CCDC 2 Definitions and CCDC 2 General Conditions.

1.2. Supplementary Words and Terms to CCDC 2-2020

.1 The following words and terms are additional to the CCDC 2 Definitions.

.2 Addendum: A document that amends the Bid Documents during the Bidding Period and becomes part of the Contract Documents when a Contract is executed. (Plural: Addenda).

.3 Agreement: The signed and sealed legal instrument binding parties in a Contract, describing in strict terms their mutual arrangement, roles and responsibilities, commencement, and completion responsibilities.

.4 Authorities: Those having jurisdiction under law over Work or Parts thereof.

.5 Bid: To offer as a Bid stating for what price a Contractor will assume a Contract.

.6 Bid Documents: A set of documents consisting of the Instructions to Bidders, Bid Form, Contract Documents, and other information issued for the benefit of Bidders to prepare and submit a Bid.

.7 Bid Form: The specific and detailed form used to collect information about a Bid.

.8 Bidding: The process of preparing and submitting a Bid.

.9 Construction Documents: The Drawings and Project Manual. When combined with a Contract and Contract conditions, these documents form the Contract Documents.

.10 Contingency Allowance: An additional monetary amount added to a Project cost estimate and designated to cover unpredictable or unforeseen items of Work. The amount is usually based on some percentage of the estimated cost and expended and adjusted by Change Order. It is not intended to cover additions to the scope of Work.

.11 General Conditions: That part of the Contract Documents which sets forth many of the rights, responsibilities and relationships of the parties involved in a Contract.

.12 Exposed: Visible at completion of Work, in usable areas as well as interior of closets, cabinets, drawers, storage and service rooms, stairwells and exterior surfaces.

.13 Instructions To Bidders: Instructions contained in the Bid Documents to convey an Owner's expectations and criteria associated with submitting a Bid.

.14 Ready for Takeover: *Ready-for-Takeover* shall have been attained when the conditions set out in GC12.1, SC 55.1 , 12.1.1

.15 Section: A portion of a Project Specification covering one or more segments of the total Work or requirements. Sections are included in a Project manual as required to meet Project requirements.

.16 Standard: A document describing a grade or a level of quality, which has been established by a recognized agency or organization, utilizing an internal voting process.

.17 Separate Price: A separate price for work to be added to the base price if selected by the Owner. This price type is not a part of the base bid price.

.18 Stipulated Price: An amount set forth in a Stipulated Price Contract as the total payment for the performance of the Work. Sometimes referred to as a stipulated sum or a lump sum stipulated price.

.19 Tender: Refer to definition of Bid.

.20 Unit Price: The amount payable for a single unit of Work as stated in a Schedule of Prices.

.21 Install: To remove from site storage, move or transport to intended location, install in position, connect to utilities, repair site caused damage, and make ready for use.

.22 Supply: To acquire or purchase, ship or transport to the site, unload, remove packaging to permit inspection for damage, re-package, replace damaged items, and safely store on-site.

.23 Provide: To Supply and Install

.24 Wherever words 'approved', 'selected', 'satisfactory', 'directed', 'permitted', 'inspected', 'instructed', 'required', 'submit', 'ordered', 'reviewed', 'reported to', or similar words or phrases are used in Contract Documents, it shall be understood, unless context provides otherwise, that words 'by Consultant' or 'to Consultants' follow.

.25 Words 'by others' when used in Specifications or on Drawings shall not mean by someone other than Contractor. Only means by which something shown or specified shall be indicated as not being in Contract is by initials 'NIC' or words 'not in Contract', 'by Owner', or 'by Other Contractor'.

END OF SECTION

00 72 13 – Standard Terms and Conditions

1. Applicable Terms and Conditions (Supplier)

None of the standard or other terms, conditions, or policies of the Bidder, whether published or otherwise shall be of any effect unless accepted by the Board in writing. This includes, without limitations, terms in publications, web-site, sales invoice, delivery document as well as those commonly applied by the Bidder. Board's acceptance of goods, equipment or service, acknowledgement thereon or paying invoices shall not imply acceptance of such terms, conditions, or provisions.

2. Bankruptcy

If, during the term of the Contract, the Supplier makes an assignment for the benefit of creditors, or becomes bankrupt or insolvent, or makes a proposal to its creditors, the Contract with the Supplier shall immediately be terminated, and the Board shall be entitled to enter into an agreement with another party without the consent of the Supplier.

3. Basis of Award (Price factor)

Bidders shall be deemed to have included all costs related to the Work in the Total Price as provided in their Bid, except for items clearly identified as provisional in the Bid Solicitation document. In no case shall the invoicing for the entire Work performed exceed the Total Price, unless additional Work is ordered by the Board in writing. The unit prices as well as provisional pricing shall be used to invoice the additional or provisional work, as required by the Board. For the purpose of award, the Total Price will be considered as representing the intention of the Bidders and will be used as the basis for comparison of Bids for the price factor.

4. Bonding Requirements

Bonding is only required if the project is equal to or greater than $200,000.00.

Note: The Bidding System has flagged these fields as mandatory. If your bid is less than $200,000.00, you may upload a pdf document stating: Not Applicable.

i. Bid Amount

Bonding requirements are based on the total base bid amount INCLUSIVE of ALL applicable taxes.

ii. Bid Deposit Bond & Agreement to Bond

Bid submissions must be accompanied by a bid deposit in the form of a digital Bid Bond in an electronically verifiable and enforceable (e-Bond) format in the amount of 10% of the total base bid (inclusive of HST) made payable to the Waterloo Region District School Board (the 'Board") as surety that, if the Bid is accepted, a Contract will be entered into for the proper performance of the work. For more information, contact your surety company or visit the Surety Association of Canada website.

Bid Submissions must be accompanied by an Agreement to Bond in the form of a digital Bond in an electronically verifiable and enforceable (e-Bond), completed and executed by the Bidder's Surety, assuring the successful Supplier shall provide for a Performance Bond for 50% of the total Contract Price, and a Labour and Material Payment Bond for 50% of the total Contract Price.

Bidders shall upload their digital Bid Deposit Bond and Agreement to Bond separately to the Bidding System, in the bid submission files labeled "Bid Deposit Bond" & "Agreement to Bond". If both Bonds are within one (1) document, upload it in both files. All instructions and details for accessing authentication shall be included with the digital Bonds uploaded in the Bidding System. Do not include and/or upload Performance Bond and Labour and Materials Bond in this section.

Bids that do not contain the bid deposit(s) in the required amount will be declared non-compliant and will be rejected. A scanned PDF copy of bonds or original certified cheque, bank draft, money order, etc. are not acceptable as Bid deposit and will result in your Bid being rejected.

The bid deposit of the Bidder whose submission is accepted shall be forfeited by the Bidder should the Bidder fail to execute a Contract or provide the necessary documents as required within this Bid Solicitation document (including but not necessarily limited to: signed agreement, satisfactory security, insurance certificate, appropriate Workplace Safety and Insurance Board letter of clearance certificate) within the time stipulated as a written notice from the Board.

For bid amounts where Bonding is not requested, the Awarded Bidder agrees to pay to the Board the difference in costs between the bid submitted and the final contract should the Awarded Bidder fail to either execute or deliver the contract documents in accordance with the Bid Solicitation within seven (7) calendar days of written notification of the award of the contract.

iii. Performance and Labour & Materials Bonds

For bid amounts where bonding is required, inclusive of all taxes, the Supplier shall provide a digital Bid Performance and Labour and Materials Bond in an electronically verifiable and enforceable (e-Bond) format in the amount(s) of not less than 50% Performance Bond and a 50% Labour and Materials Bond of the total Contract Price made payable to the Waterloo Region District School Board (the 'Board") as surety that, if the Bid is accepted, a Contract will be entered into for the proper performance of the work and extends protection to Sub-contractors, Suppliers, and any other persons supplying labour or materials to the Project. For more information, contact your surety company or visit the Surety Association of Canada website.

If the Supplier fails to provide a performance bond and/or labour and materials bond when requested, the Board may declare the bid deposit forfeited and the Bidder will be held responsible for any increased costs or damages incurred by the Board. Any Bidder who fails to provide all required documents within the timelines provided, or otherwise fails to enter into an agreement with the Board upon notice of being the Supplier may be subject to future bidding constraints by the Board.

Performance bond shall guarantee all conditions as set out in the contract, including proper execution of the work and for all matters for which the Supplier is responsible for throughout the two (2) year period of maintenance and warranty.

Any costs associated with performance bond are the responsibility and cost of the Bidder.

Bonds must be submitted through the Bidding System within seven (7) calendar days of receiving the Intent to Award.

5. Business Code of Conduct for Board Employees

The Board will not knowingly purchase goods and/or services from Suppliers who operate in contravention of local and international laws. If a product and/or service supplied to the Board is discovered to be in contravention, the Board reserves the right to rectify the issue with the Supplier, including the cancellation of the contract.

The Board expects that all employees and Suppliers act within the parameters of the in Administration Procedure 4360 PRINCIPLES OF BUSINESS CONDUCT FOR BOARD EMPLOYEES. Click here to access the Board's Administrative Procedures, Section 4000 – Business Services.

6. Code of Conduct for Suppliers

These Guidelines cover any contractor, supplier, consultant, business, firm, company or individual doing work, providing a service or delivering goods on any Waterloo Region District School Board property, as well as the Supplier's employees, sub-contractors, agents, consultants, and others on site in connection with the Supplier's work or at the Supplier's express or implied invitation.

i. **Courtesy and Respect:** all Suppliers and their employees must conduct themselves in a manner that is lawful, courteous, respectful, businesslike, and free of bias to the Board, its officer, employees, students, guests, or visitors.

ii. **Language and Behavior**: Suppliers and their employees cannot engage in behavior that is rude, threatening, or offensive. Use of profane or insulting language is prohibited. Harassment of any type, including sexual harassment is strictly prohibited. Abusive, derogatory, obscene or improper language, gestures, remarks, whistling, cat calls or other disrespectful behavior cannot be tolerated.

Rough housing, fighting, fisticuffs, physical threats, destruction of property, vandalism, littering, or physical abuse of anyone on WRDSB property are not permitted under any circumstance.

iii. **No Weapons, Alcohol, or Drugs**: The use, possession, distribution, or sale of any weapon, alcohol, illegal drug, or controlled dangerous substance by any Supplier or Supplier's employee is prohibited. Offenders will be removed from WRDSB property and/or reported to the local Police Department.

iv. **Smoking**: Suppliers and their employees are not permitted to smoke on WRDSB property, in or near any buildings.

v. **Fraternization**: Suppliers and their employees may not fraternize or socialize with WRDSB students or employees.

vi. **Appearance**: Suppliers and their employees are required to wear appropriate work wear, hard hats and safety footwear, as the case may be, while on WRDSB property. Articles of clothing must be neat and tidy in appearance, and cannot display offensive or inappropriate language, symbols or graphics. WRDSB has the right to decide if such clothing is inappropriate.

vii. **Vehicles and Driving on Board Property:** Vehicles must clearly indicate the Supplier's company name, identifier number and telephone number. It must be readable from 8 meters (25 feet) away. Vehicles including movable Equipment/Machinery must not enter, leave or drive on Board premises during nutritional breaks, before and after school hours, or anytime there are students or staff outside of the building.

viii. **Reporting**: The Supplier is required to report any matter involving a violation of these rules of conduct, any matter involving health or safety, including any altercations, to WRDSB Facilities staff.

The Supplier is responsible for its employees, agents, consultants and guests. If prohibited conduct does occur, the Supplier will take all necessary steps to stop and prevent any future occurrence. Any breach of these conditions will result in the removal of the person responsible from the school premises and prohibited actions could result in the termination of any contract or agreement with WRDSB.

7. Compliance with Laws, Acts and Regulations

Suppliers shall abide by all applicable provincial and federal laws, as well as Board Policies. Some of the applicable laws are highlighted below for information purposes only. In case of any discrepancy between this Bid Solicitation Document and the provision of applicable laws, the latter shall prevail. This list is not intended to be a comprehensive summary of relevant laws or be a complete list of applicable regulations or interpretation of the provisions of any laws

- Accessibility for Ontarians with Disabilities Act (AODA)

- Architect Act
- Bill S-211 Fighting Against Forced Labour and Child Labour in Supply Chains Act
- Broader Public Sector Accountability Act, 2010
- Building Ontario Businesses Initiative (BOBI) Act, 2022
- Canada Revenue Agency (CRA) regulations
- Confidentiality Acts (MFIPPA, PIPEDA etc.)
- Construction Act
- Education Act
- Occupational Health and Safety Act
- Trade Agreements (CETA/CFTA etc.)
- Workplace Safety and Insurance Act (WSIB)
- WRDBS Procurement Services Policies website
- WRDSB Policies and Procedures

Non-compliance to provincial and/or federal laws, or Board Policies may result in rejection of the Bidder's Bid submission and/or termination of Contract.

Bidders shall make themselves aware of provisions in all applicable provincial and federal laws as well as Board policies and ensure full compliance. Non-compliance may result in rejection of Bid and/or termination of Contract.

The Supplier(s) will be required to comply with all applicable federal, provincial laws as well as Board policies in performing its obligations under the Contract including, without limitation, the Occupational Health and Safety Act, as amended, and the Workplace Safety and Insurance Act, 1997, as amended, and Accessibility for Ontarians With Disabilities Act, 2005, S.O. 2005, c.11, Accessibility Standards for Customer Services O. Reg. 429/07 requirements, under the Accessibility for Ontarians With Disabilities Act, 2005, as amended, or any successor legislation applicable, and to provide to the Board, upon request, periodic reports and evidences confirming such compliance.
By supplying the goods or equipment and/or providing services, the Supplier warrants that the goods or equipment supplied, and services provided to the Board conforms in all respects to the standards and codes set forth by federal and provincial agencies. Failure to comply with this condition will be considered a breach of this Contract.

The obligations of the parties and resolutions of any disputes shall be governed by and construed in accordance with the laws of the Province of Ontario and the federal laws of Canada, including the Construction Act, as to interpretation and performance, and shall be treated, in all respects, as an Ontario contract. The parties shall attorn to the exclusive jurisdiction of the courts of the Province of Ontario.

8. Confidential Information, MFIPPA, and PIPEDA

All information and documentation provided by the Board or to the Board in connection with this Procurement, before or after the issuance of this Procurement is the sole property of the Board and shall be treated as confidential, subject to the provisions of the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA).

Bidders shall identify any confidential information in their Bid Submission. The Board will make reasonable efforts to safeguard confidential information, subject to its disclosure requirements under MFIPPA or any other disclosure requirements imposed by law or by order of a court or competent tribunal. Bidders are advised that their Bid submissions may be disclosed, on a confidential basis, to advisers retained by the Board to advise or assist with the Bid process, including the evaluation of Bid submissions.

Bidders should be advised that when submitting a Bid, the name, title, and contact information will be made public upon request. Under MFIPPA, and as a record of the Board, the Bid prices submitted and agreed to under contract with the Board can also be made available through a Freedom of Information request. Bidders will be notified regarding requests for any other information submitted in a Bid; information may be disclosed to a requester in whole or part unless otherwise considered exempt from disclosure under MFIPPA.

The Supplier represents and warrants that if it is or becomes subject to any private sector privacy legislation during the Term it will be solely responsible for compliance with such legislation. Without limitation, the Supplier represents and warrants that if it is subject to the *Personal Information Protection and Electronic Documents Act*, S.C. 2000, c.5, including any further amendments thereto (PIPEDA):

(a) it and all of the Supplier's Sub-contractors shall ensure the PIPEDA compliance of all PIPEDA Protected Information it collects directly from individuals or indirectly from the Board, uses or discloses in the course of performing their obligations under this Agreement; and,

(b) without limitation, it shall ensure the PIPEDA compliance of all PIPEDA Protected Information it transfers or discloses to the Board.

9. Confirmation to Proceed

No work shall commence until the Board has issued a purchase order and/or contract, if applicable to the Supplier. Goods/Service or Work as described shall not commence until all the required documents have been submitted to Procurement Services and the Form of Agreement and/or the CCDC 2 - 2020 if applicable, are executed by the Supplier and the Board. For payment purposes, a Purchase Order shall be generated and issued to the Supplier. The Purchase Order number must appear on all invoices in order to ensure prompt payment.

10. Conflict of Interest

By submitting a Bid, the Bidder confirms that they have no conflict of interest with respect to other work and/or other clients. The Bidder shall ensure that all Sub-contractors, sub-consultants and suppliers also have no conflict with respect to other work and/or other clients.

The Supplier, Sub-contractors and Sub-suppliers and any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall not engage in any activity or provide any services where such activity or the provision of such services creates a conflict of interest (actually or potentially, in the sole opinion of the Owner) with the provision of the Work pursuant to the Contract. The Supplier acknowledges and agrees that a conflict of interest, as described in this section includes, but is not limited to, the use of Confidential Information where the Owner has not specifically authorized such use.

The Supplier shall disclose to the Owner, in writing, without delay, any actual or potential situation that may be reasonably interpreted as either a conflict of interest or a potential conflict of interest, including the retention of any Sub-contractor or Supplier that is directly or indirectly affiliated with or related to the Supplier.

The Supplier covenants and agrees that it will not hire or retain the services of any employee or previous employee of the Owner where to do so constitutes a breach by such employee or previous employee of the Owner's conflict of interest policy, as it may be amended from time to time, until after completion of the Work/Services under the Contract.

It is of the essence of the Contract that the Owner shall not have direct or indirect liability to any Sub-contractor or Supplier, and that the Owner relies on the maintenance of an arm's-length relationship between the Supplier and its Sub-contractors and Sub-suppliers. Consistent with this fundamental term of the Contract, the Supplier will not enter into any agreement or understanding with any Sub-contractor or Supplier, whether as part of any contract or any written or oral collateral agreement, pursuant to which the parties thereto agree to cooperate in the presentation of a claim for payment against the Owner, directly or through the Supplier, where such claim is, in whole or in part, in respect of a disputed claim by the Sub-contractor or Supplier against the Supplier, where the payment to the Sub-contractor or Supplier by the Supplier is agreed to be conditional or contingent on the ability to recover those amounts or a portion thereof from the Owner, failing which the Supplier shall be saved harmless from all or a portion of those claims. The Supplier acknowledges that any such agreement would undermine the required arm's-length relationship and constitute a conflict of interest. For greater certainty, the Supplier shall only be entitled to advance claims against the Owner for amounts pertaining to Sub-contractor or Supplier claims where the Supplier has actually paid or unconditionally acknowledged liability for those claims or where those claims are the

subject of litigation or binding arbitration between the Sub-contractor or Supplier and the Supplier has been found liable for those claims.

A breach by the Supplier, any of the Sub-contractors, Sub-suppliers or any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall entitle the Owner to terminate the Contract, in addition to any other rights and remedies that the Owner has in the Contract, in law, or in equity."

11. Construction Act Guidelines

For Work that is governed by the provisions of the Construction Act, the Construction Act shall apply where applicable including in respect to release of 10% holdback, 2% deficiency holdback, adjudication, and the provision of security.

12. Criminal Background Checks and Collection of Personal Information

The Board must comply with Ontario Regulation 521/01 (Collection of Personal Information) of the Education Act with respect to criminal background checks and offence declarations.

If required by the Board, the Supplier will provide to the Board, or designate, a Criminal Background check for pertinent individuals covering offences under the Criminal Code, the Controlled Drugs and Substances Act, and any other offences which would be revealed by a search of the automated Criminal Records Retrieval System.

An Offence Declaration on a Board-approved form for every employee of the Supplier who may come in direct contact with Board staff and/or students on a regular basis at any Board site prior to the occurrence and on or before September 1 each year thereafter may be required. Updated Offence Declarations may be required annually. The Board will determine in its sole discretion whether this is a requirement.

Termination of contracts may be the result of non-compliance to this requirement.

13. Damage Responsibility of Supplier

The Supplier, their agents and all workers and persons employed by them or under their control, shall use due care that no person or property is injured and that no rights are infringed in the prosecution of the work, and the Supplier shall be solely responsible for all damages by whomsoever claimable in respect of any injury to persons or to lands, buildings, structures, utilities, survey markers, fences, livestock, trees, crops, roads, ways, ditches, drains and in watercourses, whether natural or artificial, or property or whatever description and in respect of any infringement of any right, privilege or easement whatever occasioned in the carrying on of the work or any part thereof, or by any neglect, misfeasance or nonfeasance on the Supplier's part or on the part of any of his agents, workers and persons employed by them or under their control shall bear the full cost thereof and shall at his own expense make such temporary provisions as may be necessary to ensure the avoidance of any such damage, injury or infringement.

The Supplier shall indemnify and save harmless the Board from and against all claims, demands, loss, costs, damages, actions suits or other proceedings by whomsoever made, brought, or prosecuted in any manner based upon, occasioned by, or attributed to any such damage, injury, or infringement.

Notwithstanding the indemnity provisions contained in this section, where in the opinion of the Board Representative the Supplier has failed to rectify any damage, injury or infringement or has failed to adequately compensate any person for any damage, injury or infringement for which the Supplier is responsible under the Contract, the Board, following notice in writing to the Supplier of his intention so to do, may withhold payment of any monies due to the Supplier under this or any other Contract until the Supplier has rectified such damage, injury or infringement or has paid adequate compensation for such damage, injury or infringement.

14. Damage Reporting

If a utility structure or device, utility cable/conduit, or utility related infrastructure is damaged, the Supplier shall notify the Board representative the same working day of any service disruption or damage and the Supplier will immediately notify the utility company to initiate repair. The Supplier will additionally make every reasonable effort to advise impacted resident(s) of a service disruption.

It is understood that all damage caused by workers engaged in the work under these specifications will be repaired by the Supplier and at the Supplier's sole expense. Damaged turf areas will be levelled and seeded, all horticultural planting damaged beyond repair will be replaced and any damage to structures, utilities, signs, light fixtures, landscape furniture, irrigation systems etc. will be repaired or replaced. Repair work will be carried out by skilled workers acceptable to the Board representative. All repairs and replacements will be approved by a Board representative prior to final payment.

15. Debriefing Requests

For procurements valued at $121,200 or more, and in accordance with the Broader Public Sector Procurement Directive, unsuccessful Bidders are entitled to a debriefing to receive feedback with respect to their Bid submission. To obtain a debriefing, Bidders shall contact the Single Point of Contact listed in this Bid Solicitation Document in writing with their request within sixty (60) calendar days of the award notification.

16. Default

If the Supplier fails to properly, promptly, and fully carry out the Work required by these documents, the Board reserves the right to notify the Supplier to discontinue all Work under this Contract, to advertise for new Bids or carry out the Work in any way as the Board may, in their sole discretion, deem best.

The Supplier further agrees to indemnify and save harmless the Indemnified Parties from all loss, damage, liability, cost, charge, or expense whatsoever which it, they or any of them may suffer, incur or be put to by reason of such default or failure.

17. Delay Claims

The Supplier shall be responsible for all deliverables including lead times. The bidder shall include in their bid price any costs associated with an extended schedule beyond the stated substantial completion date due to delayed deliveries of items. Costing is to be inclusive of any afterhours work required due to the school being occupied by staff and students during the school year until completion.

The board will not accept or consider any "delay claim" requests for delayed deliverables outlined in the tender documents.

18. Delivery and Transportation Charges

Unless otherwise specified under the Special Provisions and/or Scope of Work and Deliverables sections of this document, prices documented shall be net prices including transportation and delivery charges fully paid by the Supplier and Free On Board (FOB) Destination, Freight Prepaid (any/all Board locations).

19. Designated Substances

The Occupational Health and Safety Act of Ontario (OHSA) allows for certain toxic substances to be especially designated. The OHSA defines a designated substance as “a biological, chemical, or physical agent or combination thereof prescribed as a designated substance to which the exposure of a worker is prohibited, regulated, restricted, limited, or controlled”. Ontario Regulation 490/09 - Designated Substances (O.Reg. 490/09), made under the Occupational Health and Safety Act outlines required steps to control exposure of workers to designated substances. Under O. Reg. 490/09 there are eleven (11) designated substances: acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica and vinyl chloride. This regulation applies to every employer and worker at a workplace where the designated substances are present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to the designated substance.

I. Asbestos

Asbestos-containing material (ACMs) were identified during the completion of the Asbestos Audit Update Report (AAU), prepared by MTE Consultants Inc. Each facility was surveyed, and if applicable, an AAU Report is available, refer to attached**,** Appendix 01 35 34A. If these materials, including those deemed or suspected, will be disturbed, or will likely be disturbed, during building maintenance, renovations, construction, or demolition activities, they must be handled and disposed of in accordance with the procedures prescribed by O. Reg. 278/05.

Should the Supplier encounter asbestos, not noted in the above AAU Report, which would be disturbed during the course of the Work they should stop the work in that immediate area and report the same to the Board Contact.

All asbestos work must be conducted by Suppliers approved by the Board, who are trained in the type of asbestos operations required and should be overseen by a qualified third-party Health, Safety and Environmental professional. To conduct Type 3 asbestos operations, Suppliers must be certified as Asbestos Abatement Workers AAW (Trade code 253W) and Asbestos Abatement Supervisors AAS (Trade code 253S) by The Ministry of Training, Colleges and Universities as prescribed by Section 20 of O. Reg. 278/05.

Unless otherwise specifically covered by Cash Allowance or Contingency Allowance for known asbestos materials, include in this contract for the removal under abatement, in compliance with O. Reg. 278/05, of all known asbestos containing materials, as identified in the audit, within 0.6 meter (2'-0") of all new services, materials, and equipment, and/or as required to complete the work. No claims for extra cost will be accepted for areas known to contain asbestos containing materials.

II. Lead

Lead was historically used in mortar pigments, ceramic glazing; plumbing solder, electrical equipment and electronics solder, in pipe gaskets as packing in cast iron bell and spigot joints of sanitary drains, flexible plumbing connections, flashing panels, acoustical dampeners, phone cable casing and some architectural applications. The assessment of lead for this assignment was limited to paint on interior and exterior surfaces which may be disturbed during the Work.

Preliminary paint, coatings or materials were collected within the work area to determine if lead-containing paints, including lead-based paints, are present. The analytical results, if applicable, including the location marked on the floor plans are available, refer to attached**,** Appendix 01 35 34B.

Should the Supplier encounter paint and coatings, not sampled, that would be disturbed during the course of the Work, they should stop the work in that immediate area and report the same to the Board Contact.

Unless otherwise specifically covered by Cash Allowance or Contingency Allowance for known lead-containing paint and coatings, include in this contract for the removal or disturbance of lead-containing materials, must be completed in compliance with "Lead on Construction Projects" guideline (April 2011). No claims for extra cost will be accepted for lead-containing paint or coatings in identified areas.

The classification of typical lead-containing construction tasks is based on presumed airborne concentrations obtained from the U.S. Occupational Safety and Health Administration (OSHA), the Ontario Ministry of Labour, and published research

studies. The classification of Type 1, Type 2, or Type 3 operations are grouped based on the following concentrations of airborne lead

Supplier shall inform all workers of the presence of paint finishes that are lead containing. Disturbance of lead-containing materials, paints or surface coatings shall be conducted in accordance with the procedures outlined in the Environmental Abatement Council of Canada (EACC) "Lead Guideline" (October 2014) and/or the Ministry of Labour (MOL) "Lead on Construction Projects" guideline (April 2011). The extent of procedures required depends on the type of work to be conducted. Waste to be handled and disposed of in accordance with O.Reg. 347.

III. Mercury

Mercury is typically used in building service applications such as thermometers, barometers, thermostats, gauges, electrical switches, and lighting products including fluorescent light bulbs and a variety of High Intensity Discharge (HID) lamps as mercury vapour, metal halide and high pressure sodium lamps. Lamps and other devices that require demolition are to be handled with care and kept intact to avoid potential exposure. Any mercury-containing lamps or other equipment that are demolished are to be recycled. Waste to be handled and disposed of in accordance with O.Reg. 347.

IV. Silica

Silica is present in rock, stone, soil, and sand. Masonry products such as concrete block, brick, and mortar, as well as concrete and associated products contain silica. Due to its ubiquitous nature, silica was historically used in a wide variety of building materials and is still used today in new construction.

All work involving the demolition silica-containing materials shall follow the procedures outlined in the MOL "Silica on Construction Projects" guideline. Type 1 operations may be necessary based on the type of work conducted and the Supplier shall implement dust suppression methods and protect workers.

V. Other Designated Substance

In addition to asbestos and/or lead, silica, and mercury are present in all WRDSB facilities. New construction, renovation or alterations require compliance by the Supplier with the applicable legislation. Other designated substances (i.e., acrylonitrile, arsenic, benzene, coke oven emissions, isocyanates, ethyl oxide, and vinyl chloride) are not encountered in WRDSB facilities as significant constituents or in a form that would represent an exposure concern. responsible for obtaining its own independent financial, legal, accounting, and technical advice with respect to any information included in the Bid Solicitation Document or in any data, materials, or documents provided or required by the Board.

20. Dispute Resolution

All disputes arising out of or in connection with this Contract, or in respect of any legal relationship associated with or derived from this Contract, other than with respect to the Board's right to terminate this Contract, shall first be mediated pursuant to the National Mediation Rules of the ADR Institute of Canada, Inc. Despite this agreement to mediate, the Supplier or the Board may apply to a court of competent jurisdiction or other competent authority for interim measures of protection at any time. All disputes remaining unsettled after mediation shall be arbitrated and finally resolved before a single arbitrator pursuant to the National Arbitration Rules of the ADR Institute of Canada, Inc. The place of mediation and arbitration shall be Toronto, Ontario, Canada. The language of the mediation shall be English.

21. Electrical Safety Requirements

All electrical equipment and components must be C.S.A. or Electrical Safety Association (E.S.A.) certified. A certification sticker must be affixed to the equipment in a visible location.

22. Emergency and Maintenance

The care of the Works until completed, delivered to and accepted by the Board rests solely with the Supplier who shall assume all risk of damage to the work.

For the purpose of emergency and maintenance measures, the name, address, and telephone number of a responsible official of the contracting firm shall be given to the Board's contact person in charge of the project, if requested. This official shall always be available and have the necessary authority to mobilize workers and machinery and to take any action as directed by the Board in the event emergency or maintenance measures are required, regardless of the fact that the emergency or requirement of maintenance may have been caused by the Supplier's negligence, Act of God, or any cause whatsoever.

Should the Supplier be unable to carry out the required immediate remedial measures, the Board may carry out the necessary repairs and the costs for this work shall be deducted from payments due to the Supplier.

23. Equivalent or Brand Name

Any reference to a brand name or a particular manufacturer shall be understood to have been made solely for the purpose of establishing and describing required performance and quality levels of the product to be supplied, unless specified otherwise.

No reference to the brand name of a particular manufacturer shall be construed to restrict Bidders to that manufacturer. Bidders are invited to Bid equivalent and comparable equipment or items of any manufacturer, pending approval from the Board in the form of an Addendum. It is the Bidder's responsibility to demonstrate that the item meets the specifications.

Bidders shall request through the Bidding System by clicking on the "Submit a Question" button found within the bid details page of that Procurement that a proposed product be

considered an approved equivalent prior to the Deadline for Questions in the Anticipated Project Schedule.

The request must include enough detail to determine equivalency by comparing the Board's specifications to the alternate product. It will not be the Board's responsibility to perform this comparison.

The Board/ Consultant may, depending on the nature of the product request site visits within a reasonable distance (preferable within 100 km of the Board) showing product and installation based on a certain age, minimum 18 months in use, room use, room size, etc. based on same or similar purpose as described in this Procurement.

The Board/Consultant will endeavor to complete a review and make a decision prior to the Closing Date, and, if required, the Board reserves the right to extend the Closing Date to complete its review. However, in the event additional time is required beyond a suitable extension to the Closing Date, the request will be pending until the product is thoroughly vetted, therefore, it may not be approved for this particular Procurement.

If the Board is willing to consider the product with its differences, it will be communicated in the form of an Addendum prior to the Closing Date.

The cost of any testing requirements to establish acceptable equivalent or comparable products will be borne by the Bidder, unless otherwise stated by the Board.

24. Evidence of Quality

It is the Bidder's responsibility to prove their product/service quality meets the Board's requirements and Bidders may be required to submit evidence in a form acceptable to the Board. Substitution of materials equipment or methods different from that outlined in the specifications / terms of reference will not be accepted unless provided for within the Bid Solicitation document or without the written approval of the Board.

25. Force Majeure

If either party is delayed in the performance of their obligations under this Contract by Force Majeure, then the Contract Time shall be extended for such reasonable time as the Owner and the Supplier shall agree. The extension of time shall not be less than the time lost as a result of the event causing the delay, unless the parties agree to a shorter extension. Neither party shall be entitled to payment for costs incurred by such delays. Upon reaching agreement on the extension of the Contract Time attributable to the Force Majeure event, the Owner and the Supplier shall execute a Change Order indicating the length of the extension to the Contract Time and confirming that there are no costs payable by the either party for the extension of Contract Time. However, if at the time an event of Force Majeure arises a party is in default of its obligations under the Contract and has received a notice of default shall not excuse a party from its obligation to cure the default(s). For greater certainty, the defaulting party, to the extent possible, must continue to address and cure the default notwithstanding an event of Force Majeure."

Any cause, unknown at the effective date of the Contract and beyond either party's

control, other than financial difficulties, bankruptcy or insolvency, which prevents the performance by a party, or both, of any of their respective obligations under the Contract and the event of Force Majeure did not arise from a party's default and could not be avoided or mitigated by the exercise of reasonable effort or foresight. Force Majeure includes Labour Disputes; fire; unusual delay by common carriers or unavoidable casualties; delays in obtaining third-party licenses, permits, agreements, or approvals (excluding approvals of any Sub-contractors or Suppliers of any tier); civil disturbance; emergency acts, orders, legislation, regulations or directives or revoking of funding from any government or other public authority; acts of a public enemy; war; riot; sabotage; blockage; embargo; lightning; earthquake; adverse weather conditions but only if substantially beyond the weather norms of the Place of the Work; acts of God; or declared epidemic or pandemic outbreak or other public health emergency (e.g. SARS, COVID-19)

If in the reasonable opinion of either party to this Contract that performance of the Contract is made impossible by force majeure, then either party shall notify the other in writing and the Board shall either terminate the Contract forthwith without any future payments being made or authorize the Bidder to continue performance of the Contract with such adjustments as may be required by the existence of the force majeure and agreed upon by both parties.

26. Hold Back or Set Off

The Board may hold back payment or set off against payment if, in the opinion of the Board, the Supplier has failed to comply with any requirements of the Contract.

27. Hot Work Procedure

Take all precautions to Work safely and to provide the necessary protection to persons and property from Hot Work. This includes, but is not limited to Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch Applied Roofing and Welding. With all such activity these steps are to be followed:

i. Whenever possible, complete Hot Work in a welding shop or out of doors at the school.
ii. Flammable liquids, dust lint and oily deposits to be removed from within 50-ft (15m) of Work. Remove other combustibles where possible. Otherwise protect with fire-resistive tarpaulins or metal shields.
iii. Explosive atmosphere in area eliminated. Floors swept clean. Combustible floors wet down, covered with damp sand or fire-resistive tarpaulins.
iv. All wall and floor openings covered. Fire-resistive tarpaulins suspended beneath Work.
v. For on-site Work (indoor and out of doors), advise the Head Custodian, Principal, Consultant (if assigned) and Project Coordinator/Lead prior to Work being performed, and of related dangers.

vi. Where the Fire Alarm system is required to be set to stand-by to discourage false alarms from smoke detectors provide a firewatch throughout the building or structure being worked on. NEVER put the fire alarm system in stand-by mode when the building is occupied by staff or students.

vii. In the event of a fire as a result of the Hot Work, notify the fire department immediately. Report incident to the head custodian, the Consultant, if assigned, and Project Coordinator immediately, whether extinguished or not. Provide a fire incident report to the Board.

viii. Barriers must be set up to protect staff and students (i.e. pylons, shields, and caution tape) from exposure to arc flash and smoke migration.

ix. Have all necessary doors, windows and/or drapes closed. Confer with the Head Custodian to shut down all fan systems in the area to reduce or eliminate smoke distribution.

x. Provide and keep fire extinguishers handy and in good Working condition. Temporarily cover all smoke detectors in the area during time of Work.

xi. Provide a fire watch/spot check for several hours after Work is completed. Uncover smoke detectors.

xii. On new construction, the requirements of the Hot Wok permit may be waived, until such time as either Substantial Completion or Occupancy is granted, whichever comes first.

xiii. On additions to existing buildings, the requirements for Hot Work permits shall remain in place.

27.1 Hot Work Permit

i. Each permit is valid for seven (7) days only and must be renewed prior to its expiration date

ii. The contractor must obtain Hot Work Permits from the School Board's representative prior to the start of work.

iii. The contractor must complete the form as required and must keep the form on site.

iv. Return each completed form to the School Board's representative on the date of expiration.

v. The most current version of the Permit and its requirements shall be used for the purposes of the Work.

28. Incurred Costs

The Board will not be liable, nor reimburse any Bidder for costs incurred in the preparation of the Bid, or any other services that may be requested as part of the procurement process.

29. Indemnification

The Bidder will indemnify and save harmless and defend the Board, and their respective elected officials, officers, employees, agents and their respective successors and assigns, from and against all actions claims and demands whatsoever which may be brought against or made upon any of the Indemnified Parties and against all losses, liability, judgments, claims, costs, demands or expenses which the Indemnified Parties may sustain, suffer, or be put to resulting from or arising out of the Bidder's failure to exercise reasonable care, skill or diligence in the performance or rendering of any Work or service required hereunder to be performed or rendered by the Bidder, its agents, servants, employees or Sub-contractors, or any of them as well as for the infringement of or use of any intellectual property rights including any copyright or patent arising out of the reproduction or use in any manner of any plans, designs, drawings, specifications, information, negatives, data, material, sketches, notes, documents, memoranda, or computer software furnished by the Bidder in the performance of this Contract.

30. Inspection of Supplier's Work.

The Board reserves the right to have all work including maintenance and repair work reviewed by a third-party Contractor, Agency or Consultant to confirm that work within this Contract is being completed satisfactorily.

31. Insurance Requirements

If selected, it is the responsibility of the Supplier and its Insurance Broker to review all potential operations and exposures to determine if the coverage and limits noted below are sufficient to address all insurance related exposures presented by the specification of the Project, Work, or Supply. The Supplier shall insure its undertaking, business, and equipment under the following coverage to protect and indemnify and save harmless the Board.

Throughout the term of this Contract (including any renewal thereof), the Supplier shall obtain, upload through bids&tenders and maintain at its own expense, including the cost of any applicable deductible or self-insured retention, the following policies of insurance:

i. **Commercial General Liability Insurance** shall be in the name of the Supplier, and shall name the **Waterloo Region District School Board** and any other person or party identified in the contract documents, as an **additional insured**, with limits of not less than $5,000,000.00 inclusive per occurrence for bodily injury, death, and damage to property, including loss of use thereof, for itself and each of its employees, *Subcontractors* and/or agents. To achieve the desired limit, umbrella, or excess liability insurance may be used. The policy shall be endorsed to provide the *Owner* with not less than 30 days' notice, in writing, in advance of any cancellation and of change or amendment restricting coverage.

ii. **Automobile Liability Insurance** in respect of licensed vehicles with limits of not less than $2,000,000.00 inclusive per occurrence for bodily injury, death and damage to

property, covering all licensed vehicles owned or leased by the Supplier, and endorsed to provide the Owner with not less than 30 days' notice, in writing, in advance of any cancellation, change or amendment restricting coverage. Where the policy has been issued pursuant to a government-operated automobile insurance system, the Supplier shall provide the Owner with confirmation of automobile insurance coverage for all automobiles registered in the name of the Contractor

iii. **If applicable, Broad Form Contractor's Equipment Insurance**: The General Contractor shall provide and maintain during the term of the Agreement, coverage for construction machinery and equipment used by the Contractor for the performance of the work. Such insurance shall be in a form acceptable to the Board and shall not allow subrogation claims by the Insurer against the Board.

iv. **If applicable**, the General Contractor shall provide and maintain during the term of the Agreement an **All Risk Installation Floater Insurance** policy covering the installation of any machinery and equipment associated with the construction project. Coverage shall be in an amount equal to the value of the machinery and/or equipment and shall include coverage while it is in transit to, while stored at a temporary location, and awaiting installation at the work site.

v. **If applicable**, the General Contractor shall **ensure** its professional consultants, architects, landscape architects, planners, and engineers providing a professional service in connection with the contract, maintain until three (3) years after the Agreement, **Professional Liability Insurance** to a limit not less than $1,000,000 per claim providing coverage for acts, errors and omissions arising from their professional services performed under this Agreement. The policy SIR/deductible shall not exceed $100,000 per claim and if the policy has an aggregate limit, the amount of the aggregate shall be double the required per claim limit. Certificates evidencing such coverage shall be supplied to the Board prior to the completion of the project and in accordance with the provisions stated above.

vi. **If applicable, (i.e., for projects with environmental liability concerns)** the General Contractor shall take out and keep in force **Contractor's Pollution Liability** (CPL) coverage to ensure that its work does not exacerbate any pre-existing environmental condition during construction. Coverage shall be in an amount of not less than $5,000,000 per claim or per occurrence, or such greater amount as the Board may from time to time require, naming the Board as an additional insured, whose coverage shall be maintained in force for 1 year following the termination of the Contract. The policy SIR/deductible shall not exceed $100,000 per claim and if the policy has an aggregate limit, the amount of the aggregate shall be double the required per occurrence limit.

vii. **Provisions:** Prior to the commencement of work, the Supplier shall forward a Certificate of Insurance evidencing this insurance with the executed Agreement. The

Certificate shall state that coverage will not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days (ten (10) days if cancellation is due to non-payment of premium) prior written notice by certified mail to the Board.

It is also understood and agreed that in the event of a claim any deductible or self-insured retention under these policies of insurance shall be the sole responsibility of the General Contractor and that this coverage shall preclude subrogation claims against the Board and any other person insured under the policy and be primary insurance in response to claims. Any insurance or self-insurance maintained by the Board and any other person insured under the policy shall be considered excess of the Contractor's insurance and shall not contribute with it. The minimum amount of insurance required herein shall not modify, waive or otherwise alter the Contractor's obligation to fully indemnify the Board under this Agreement.

The Board reserves the right to modify the insurance requirements as deemed suitable.

viii. **Third Party Claims Process:**

a. The Board's claims process for Third Party claims is to refer the claimant directly to the Supplier and to leave the resolution of the claim with the Supplier. This applies regardless of whether or not it is an insured loss.

b. As the Board has a responsibility to the taxpayers, we must ensure that claimants are dealt with in a fair and efficient manner. Claims reported to the Supplier, either directly by a third party or through the Board shall be promptly investigated by the Supplier. The Supplier shall contact the third party claimant within 48 hours of receipt of notice of a claim. The Supplier shall initiate an investigation of the claim immediately upon notice, and advise the third party claimant in writing, with a copy to the Board, of its position regarding the claim within 21 calendar days of the notice. The Supplier shall include in its response the reasons for its position.

c. Should this position not resolve the claim and be accepted by the third party claimant, the Supplier shall immediately report the claim to its Insurer for further review. (Insurer for this purpose is defined as either the Claims Department of the Supplier's Insurance Company or the Claims Administrator at the Supplier's Insurance Broker.) The Supplier's Insurer upon receipt of this claim shall advise the third party claimant by letter, with a copy to the Board, that it is now investigating the claim. When a final position on the claim has been determined, the Supplier's Insurer shall advise the third party claimant by letter, with a copy to the Board. Failure to follow this procedure shall permit the Board to investigate and resolve any such claims.

d. Nothing herein shall limit the right of the Board to investigate and resolve any such claims notwithstanding the response of the Supplier and/or its Insurer

and to seek indemnification from the Supplier or to exercise any other rights under the Contract.

e. The Board may, without breaching this contract, retain from the funds owing to the Supplier an amount that, as between the Board and the Supplier, is equal to the balance in the Board's favour of all outstanding debts, claims or damages, whether or not related to this contract.

32. Invoicing and Payment Terms

a) **Submit all invoices** to finance-ap@wrdsb.ca for payment at the completion of the Work or after receipt of goods, unless otherwise stated. Not Applicable for Credit Card orders.

b) **Fiscal Year End**: All work scheduled within a single school year (Sept 1-Aug 31) must be completed and invoiced received by the Board no later than August 31 of that same school year, unless budgets dictate that work must extend into the following school year and/or mutually agreed upon both parties.

c) **New Account,** in advance of invoicing, upon request, Suppliers will provide:
   i. necessary company information to set up a WRDSB account and
   ii. banking information to receive payment by Electronic Funds Transfer (EFT).

d) **Requests to change company information** must be submitted in writing accompanied with a legal document/letter signed by a lawyer on the law firm's letterhead.

e) **Invoices must contain** the following information, where applicable, in order to be deemed complete:
   i. Purchase Order Number
   ii. Invoice Date
   iii. Unique Invoice Number
   iv. Supplier name and address
   v. Quantity, Unit Price, Unit of Measure and Extended Price
   vi. Description for each line item
   vii. Date of Service Call, if applicable
   viii. HST
   ix. Payment Terms
   x. Work Order Number, if applicable
   xi. WRDSB Project Lead, if available, and

f) **Payment terms** shall be net twenty-eight days (28) days after receipt of proper invoice where the Construction Act is applicable, unless otherwise agreed by the Board in writing. All other payment terms will reflect Net 30. An early payment discount, if offered, may be considered on a mutual agreement basis. Payment may be delayed if the invoice is incorrect or the goods, equipment and/or services are not acceptable to the Board. The Board will not pay any interest, penalty, or late fee for delayed payments. The Board preferred payment method is Credit Card or EFT, however alternate payment methods may be approved. Suppliers are required to invoice promptly, without delay.

32.1 Construction Act – Proper Invoice

The Board will pay such invoice within twenty-eight (28) calendar days of the Board's receipt of such proper invoice if the work has been performed to the satisfaction of the Board For Work that is governed by the provisions of the Construction Act and the Regulations thereto, the Supplier shall submit its invoices in the form of a Proper Invoice. For the purposes of this section, a "Proper Invoice" shall include the following:

i. the Supplier's name, address, telephone number and mailing address.
ii. the date of the Proper Invoice and the period during which the services or materials for which payment is being applied for were supplied.
iii. information identifying the authority, whether in the contract or otherwise, under which the services or materials were supplied.
iv. a description, including quantity where appropriate, of the services or materials that were supplied during the payment period.
v. the amount payable for the services or materials that were supplied during the payment period, with a clear identification of the portions of the amount that are holdbacks, and HST.
vi. the name, title, telephone number and mailing address of the person to whom payment is to be sent.
vii. the payment terms as specified by the Board in the Contract.
viii. the invoice number and if applicable, the revision number.
ix. the Supplier's HST number.
x. invoices and time sheets from all subtrades whose work is included in the Proper Invoice, if required in the Contract.
xi. backup documentation to support any cash allowances and extra work claimed in the Proper Invoice.
xii. a schedule of values indicating:
    a. for lump sum contracts, the percentage of work completed per division with each division further subdivided to show the percentage of work completed for each subtrade,
    b. for unit price contracts, the tender quantity, unit of measure, previous quantity, current quantity, to-date quantity,
    c. an updated list of change orders, showing the percentage of work completed under each change order, and
    d. an updated cash allowance list, showing the percentage of work completed in respect of each cash allowance, if required by the Contract.
xiii. a Statutory Declaration where required by the Contract attesting to the truth of the statements made therein.

33. Licenses and Permits

The Supplier will be responsible for applications and fees associated with any and all licenses and permits required by any and all governing bodies. The Supplier will attach a

copy of all permits, and any other required documentation to the applicable assigned work order for Board records.

34. Locates, if applicable

All required utility locates must be obtained before any on-site work commences, be available for Supplier operator/employee review, and are the sole responsibility of the Supplier. Any damage to any utility installation arising from work performed by the Supplier or their employees shall be the Supplier's responsibility.

The Supplier will obtain all utility locates in advance of work and all cost(s) associated with obtaining the utility locates will be the Supplier's responsibility.

The Supplier shall possess the ability to supply and or share with the Board Representative utility locates for the sole purpose of Quality Control inspections. This is to be done at no additional cost to the Board.

35. Log Reports

If required, the Supplier must submit a completed Log Report with invoices. The Board may request more frequent log submissions if deems necessary.

36. Materials - Specifications

Only new materials in perfect condition will be accepted. Demonstrators, seconds or defective materials are unacceptable. Any materials found not to be in a new condition or as specified will be returned to the Supplier at the Supplier's expense.

37. Material Safety Data Sheets (M.S.D.S.)

Where applicable, a materials safety data sheet (M.S.D.S.), musts accompany all purchased goods, that fall under the requirements of the Occupational Health and Safety Act. The Board will not accept any additional charges or surcharges related to the supplying of M.S.D.S.

38. Mathematical Errors (Unit Prices Prevail)

Should there be any error in extensions, additions or computations, the Board shall be entitled to correct such errors based upon the unit prices supplied, and the corrected total shall be considered as representing the intention of the Bidder and shall be used as the basis for comparison of bid submissions.

39. No Branding

The Supplier shall not place any sign at the site, public meetings, any public or private property or along curbside prior, during or after the Work without prior written permission of the Board.

40. No Collusion

Bidders including any of their agents are prohibited from engaging in any comparison of figures or arrangement with any other individual, corporation or person submitting a Bid for the same Work and shall be fair in all respects and shall be without collusion or fraud.

41. No Lobbying

Any attempt by the Bidder or its agents to contact any of the following persons, directly or indirectly, with respect to this procurement may lead to disqualification:

i. any elected or appointed officer.
ii. any staff of the Board except the Single Point of Contact as identified in the Bid Solicitation Document; or
iii. any other person connected in any way with the procurement.

42. No Smoking and Scent-Free Environment

The Province of Ontario has legislated under the Smoke Free Ontario Act that smoking is not permitted on any Board owned properties. Furthermore, most Board properties are "scent free". Smoking will not be permitted on-site. Offenders will be asked to leave the site, and infractions could result in corrective action and or fine.

43. Non-Assignment

No assignment by the Supplier shall relieve the Supplier of any responsibility for the full performance of all its' obligations under this contract.

The Supplier shall not change its corporate name without the prior written approval of the Board.

44. Non-Disclosure Agreement (NDA)

The Board requires all service providers to sign off on a non-disclosure agreement and for the service provider to complete the Software Privacy and Security Standards Document (if necessary) in accordance with Board procedure AP4790. Prior to any sharing of Board personal, sensitive, or confidential information, the Supplier will be subject to further privacy and security reviews as required. This agreement will be renewed on an annual basis.

45. Ownership of Work

For the purposes of this paragraph:

" Deliverables " means all material prepared by the Bidder forming the Work under this Contract including, without limitation, all electronic media, reports, documents and instruments of service.

" Intellectual Property Rights " means any and all rights provided under: (a) patent law; (b) copyright law; (c) trade-mark law; (d) industrial design law; (e) any other statutory provision or common law principle applicable to this Contract, including trade secret law; and (f) any and all registrations and licenses in relation to the foregoing; and

" Personnel " means employees, representatives, agents and Sub-contractors.

The Bidder and the Board acknowledge and agree that the development of the Deliverables and the provision of the Work may result in the creation or development of new intellectual property and may contain or utilize the existing intellectual property of

the Bidder or of third parties. Accordingly, the Bidder and the Board agree as follows.

i. Except as set out in paragraph (b) below, the Bidder hereby assigns and agrees to assign to the Board all right, title and interest, including all Intellectual Property Rights, in and to each Deliverable from the moment of creation, and will cause its Personnel to assign the same. The Bidder will cause its Personnel to waive all moral rights they may have in each Deliverable.

ii. To the extent that a Deliverable contains or utilizes the intellectual property of the Bidder or a third party ("Retained Materials"), and the Bidder expressly identifies such Retained Materials, the Bidder and the applicable third party will, subject to the following sentence, retain all their respective right, title and interest, including all Intellectual Property Rights, which each may have in such Retained Materials. To the extent that a Deliverable contains or utilizes Retained Materials, the Bidder hereby grants to each of the Board a royalty-free, irrevocable, perpetual, world-wide, non-exclusive license to make, use, sell, modify, prepare derivative works, disclose, publish, sublicense, copy and communicate by electronic means such Retained Materials.

iii. The Supplier agrees to always cooperate fully, and will cause its Personnel to cooperate fully at all times, with respect to signing such documents and doing such acts and other things reasonably requested by the Board to confirm the transfer of ownership rights in the Deliverables.

46. Patent, Copyright and Other Proprietary Rights

The Bidder (by responding) agrees that the Bid on acceptance by the Designated Representative, become the property of the Board. The copyright for respective purchased concepts and/or materials will become the property of the Board unless otherwise mutually agreed upon by the Bidder and the Board.

All Bids, other documents as well as correspondence are subject to the provisions of the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA).

47. Performance

i. Where the Supplier is in default in carrying out any of its obligations under the contract, the Board may issue a verbal warning outlining the deficiency in supply or other aspects of performance and requiring the Supplier to correct those deficiencies within such period of time as stated.

ii. If the deficiency is not corrected within the time specified, or there is a further instance of deficient performance, the Board may issue a written notice to the Supplier, identifying the deficiency in performance and setting a final date or time period for its correction.

iii. If corrective steps are not taken by the final date or within that time, the Board may terminate the Contract and take corrective action.

iv. Termination of any Contract can be immediate depending on the severity of the default.

v. The Supplier shall have no right to perform the services contemplated under this agreement beyond the time when such services become unsatisfactory to the Board; and in the event that Supplier shall be discharged before all the services contemplated hereunder have been completed, or the services are for any reason terminated, stopped or discontinued because of the inability of the Supplier to serve under this agreement they shall be paid only for that portion of the Work which shall have been satisfactorily completed at the time of termination.

vi. Where deemed appropriate, a performance evaluation shall be completed by the Board. The evaluation report shall be reviewed with Procurement Services, and a copy of the completed evaluation forwarded to the Supplier for their records. Dependent on the evaluation scoring, the Board may request a corrective action plan and/or project size/value may be affected on future bid opportunities for your company.

48. Permits and Licenses

Unless stated otherwise, the Supplier shall apply for all required permits and licenses, supply all necessary notices required for the Work and pay all required fees. These costs shall be included in the Total Price. A copy of all permits, and any other required documentation shall be provided the Board upon request.

49. Proceedings Against the Board

The Bidder represents and warrants that the Bidder is not a party to any legal suits, actions, litigation proceedings, arbitrations, alternative dispute resolutions, investigations, or claims (Hereinafter collectively referred to as “Claims”) by or against or otherwise involving the Board and the Bidder. The Board may reject any Bid in the event of potential, current, pending, or threatened litigation, arbitration, alternative dispute resolution or disputes involving the Board and the Bidder.

50. Protection of Board Assets

The Supplier (the Supplier / Sub-contractor) shall be informed of and protect all Board assets including existing structures and vehicles, to the satisfaction of the Board. Any damage shall be reported to the Board and subsequently repaired and/or replaced by the Supplier, at their expense, to the satisfaction of the Board. The Supplier shall not cause any inconvenience to Board operations, staff, public or users of the Board facilities, within reason. Communication between the successful Supplier and the school (or Board representative if school contact is not available) must be timely and effective to ensure all stakeholders are considered / aware of work to be completed.

51. Public Health Safety Protocol

Best practices include but not limited to wearing a medical grade mask and maintaining physical distancing (2m/6.5ft).

Recommended practices are subject to change at any time For information and updates, refer to the following resources and website: Waterloo Region District School Board and Regional of Waterloo Public Health Services

52. Records, Inspection, Audits

The Board will have the right, upon reasonable notice, to full access to the accounts and records of the Supplier in respect of the goods, services and equipment provided by it under the Contract, for the purposes of inspection and/or audit. The Supplier shall make and retain such records during the term of the Contract and for a minimum of seven (7) years following its termination, cancellation, or expiry.

53. Reserved Rights of the Board

The Board reserve the right, in their respective sole and unfettered discretion, to:

i. Reject any Bid received from a Bidder which is party to any potential, current, past or existing suits, actions, and litigation proceedings, arbitrations, alternative dispute resolutions, investigations, Bidder performance evaluations that are below expectations, significant or persistent deficiencies in performance of any substantive requirement or obligation under a prior agreement or agreements or claims by or against or otherwise involving either of the Board and the Bidder.
ii. waive formalities and accept Bids which substantially comply with the requirements of this tender.
iii. accept any Bid in whole or in part.
iv. accept, reject, or cancel any or all Optional pricing.
v. discuss with any Bidders different or additional terms to those contemplated in this Bid Solicitation Document or in any Bid submission.
vi. make public the names of any or all Bidders.
vii. accept or reject equivalent or alternative brand names.
viii. check references other than those provided by any Bidder.
ix. Verify with any Bidder or with a third party any information set out in a Bid.
x. reject any, or any part of, any or all Bids, or cancel the bidding process at any stage and/or issue a new Bid call for the same or similar deliverables.
xi. disqualify any Bidder:
    a. whose Bid contains misrepresentations or any other, inaccurate, or misleading information, or any qualifications within its Bid,
    b. who has engaged in conduct prohibited by the Bid Solicitation Document,
    c. with inadequate credentials or due to unsatisfactory past performance,
xii. reject Bid(s) from Bidder who has engaged in lobbying or has contravened any of the terms of the Bid Solicitation Document.
xiii. reject a Bid based on:
    a. information provided by references or credit check or other due diligence

efforts,

b. the information provided by a Bidder pursuant to the Board exercising its clarification rights under the procurement process, or
c. other relevant information that arises during the procurement process.

xiv. choose to reject a Bid if only a single Bid is received and cancel the bidding process or enter into direct negotiations with the sole Bidder.

xv. accept a Bid other than the lowest or highest scoring and/or to not accept any Bid for any reason whatsoever.

xvi. award the contract as split-order, lump sum or individual-item basis, or such combination as shall best serve the interests of the Board.

xvii. negotiate in circumstances permitted for in the Bid document or by relevant policies, or directives, and include additional terms and conditions during the process of negotiations.

xviii. no longer consider a Bidder if a satisfactory outcome is not reached as part of negotiation, as determined by the Board in their sole discretion and move to the next highest ranked Bid in such event.

xix. select a Bidder other than the Bidder whose Bid reflects the lowest cost to the Board and/or award the Contract to any Bidder.

xx. award any business/Work described in this Bid Solicitation to more than one (1) Bidder.

xxi. not award the Contract if the costs of completing the Work exceed budget funding; or do not respond to all requirements or do not represent fair market value or where necessary internal approvals are not obtained, and

xxii. If the Board receives a bid from a Supplier with Rates that are abnormally lower than the Rates in other Bids, the Board may verify with the Bidder that the Bidder satisfies the conditions for participation and is capable of fulfilling the Agreement.

These reserved rights are in addition to any other expressed rights or any other rights which may be implied in the circumstances. The Board shall not be liable for any expenses, costs or losses suffered by any Bidder or any third party resulting from the Board exercising any of its express or implied rights under this bidding process.

54. Responsibilities of the Supplier

Acceptance of a purchase order issued by the Board and/or a signed agreement shall constitute a contract (the “Contract”) between the Board and the Supplier, which shall bind the Supplier on their part to furnish and deliver the goods, equipment and services at the prices given and in accordance with the conditions of the Bid solicitation document.

The Supplier shall:

i. perform the Contract in accordance with the specifications, terms and conditions under which it is awarded.

ii. act in a professional manner at all times when dealing with Board staff, with the public, and while working on site.

iii. not, except with the consent of the Board in writing, release information relating to any subsequent order for advertising, promotional or technical purposes or otherwise give it publicly in any fashion, nor shall the name of either of the Board be used for, or in connection with, any advertising or promotional purpose of the Supplier.

iv. treat information gained while working with the Board confidentially and not use it for any other project and return it to the Board if requested.

v. submit to Finance – Accounts Payable, an invoice for payment at the completion of the Work, unless otherwise stated. All applicable taxes including HST are to be itemized separately on invoices. Include the purchase order number on each invoice; and

vi. provide necessary information if they wish to receive payment by Electronic Funds Transfer (EFT).

55. Site and Work Examination

i. Bidders will accept the site conditions, and the requirements of the Work, as is. No modifications to the Bid will be accepted after the Closing Time.

ii. No claim for extras will be allowed for Work or difficulties encountered due to conditions of the site which were visible, knowable, or reasonably inferable, prior to the time of submission of Bid. Bidders shall accept sole responsibility for any error or neglect on their part in this regard.

iii. Before submitting a Bid, each Bidder shall:

a. carefully examine this entire Bid Solicitation Document to determine the extent of the Work, and various provisions including the maps, drawings, reports and specifications.

b. immediately report all discrepancies between the various documents and site conditions.

c. provide Sub-contractors, sub-consultants, and suppliers to whom the Bidder intends to sublet a portion or portions of the Work with complete information as to the requirements of the Work. This is to include maps, drawings, reports, specifications, and all requirements of the Bid Solicitation Document including any addenda.

iv. In the event of discrepancies between the maps, drawings, reports, and the specifications with regard to quantity or quantities of materials or items, and in the absence of Addenda in clarification of said discrepancies, the Bidder is to include for the larger quantity or quantities.

v. No additional payments will be made for any costs incurred through failure of the Bidder to abide by provisions stipulated in all of the articles and sub-articles of this

item.

vi. Any soils investigation, environmental, geotechnical or other reports prepared or obtained with respect to the Place of the Work (collectively the "Reports") are available from the Consultant. Where the Work involves existing buildings, structures, facilities, plant or equipment, any reports, data or as-built drawings concerning such buildings, structures, facilities, plant or equipment (collectively the "Data") are available from the Consultant. The Reports should not be considered a representation of the site conditions of the entire Place of the Work, and the Reports and Data are provided for general information and guidance purposes only. Neither the Owner nor the Consultant guarantees the accuracy or completeness of the Reports or the Data, nor does either assume any responsibility for any interpretations or conclusions that bidders may make or draw from the Reports or the Data.

vii. Each Bidder is solely responsible, at its own cost and expense, to carry out its own independent research and due diligence, or to perform any other investigations considered necessary by the Bidder to satisfy itself as to all existing conditions. The Bidders' obligations set out in this paragraph apply irrespective of any Reports, Data or any information contained in the Bid Documents.

viii. No allowances will be made for additional costs and no claims will be entertained in connection with conditions which could reasonably have been ascertained by investigation or other due diligence undertaken prior to the Submission Deadline, and/or in connection with Work which is required and which is reasonably inferable from the Bid Documents, the Reports and/or Data as being necessary.

56. Site Existing Services, if applicable

The position of utility pole lines, underground conduits and services, watermains, sewers and other underground and over ground utilities and structures are not necessarily known, and the accuracy of the position of such utilities and structures on any reference documents is not guaranteed. The Board will not be responsible for damages or extra work caused or occasioned by the Supplier relying on this or any other information or records.

Before starting work, the Supplier shall familiarize themselves of the exact location of all such utilities and structures and shall assume all liability for damage to them. Where extra measures are required to support utility poles during construction either by the utility involved or the Supplier themself, the costs involved shall be borne by the Supplier. The Supplier will be responsible for any fees that may be associated with these services.

57. Site Inspection and Control

A representative of the Board (appointed by the Board) reserves the right to enter the site at any time for the review & inspection. The presence of a said representative does not indicate satisfaction or compliance unless these comments are made by the representative and submitted to the Supplier in written form

58. Site Investigation

Bidders shall not rely solely upon information furnished by the Board but shall do their own investigation of the locations, and quantity of the work to be completed under this contract.

The Bidder assumes all risk of conditions, existing or arising, in the course of the work, which might or could make the work or any items therefore more expensive in character, or more onerous to fulfill, than was contemplated or known when the Bid was made, or the Contract signed.

59. Site Safety and Clean Up

For safety of students, staff, and community members alike, it is expected that cleanup operations will progress with the job.

Repair work will be carried out by skilled workers acceptable to the Board Representative, under the liability of the Supplier.

The Board Authorized Representative must approve all repairs and replacements prior to final payment.

60. Suspension of Bidders

At the sole discretion of the Manager of Procurement Services, any Bidder may be suspended from consideration for default of delivery, unsatisfactory performance, safety concerns, lobbying or contravention of the Bid Solicitation Document.

61. Sustainable Purchasing

The procurement needs of the Board represent a significant level of responsibility to demonstrate leadership and support for greener business practices. Integrating environmental performance and impact into supply chain decisions is a commitment to improvement of the environment and the quality of life.

Green procurement shall be viewed in the context of achieving value for money for the total life-cycle costs. It requires the inclusion of environmental impact considerations into the procurement process, including planning, acquisition, use and disposal. Value for money shall include the consideration of many environmental tangible and intangible factors when determining the total life-cycle costs and environmental impact.

62. Termination

If the Supplier fails to comply with any provision of this agreement or otherwise fails to perform its obligations hereunder in a competent manner satisfactory to the Board, the Board may give the Supplier notice in writing of such failure. If the Supplier has not remedied its failure within ten (10) working days of the said notice, the Board shall be entitled to exercise any one or more of the following remedies:

i. The Board may terminate the contract without further notice, and exercise its rights to the Contract security provided by the Supplier.

ii. The Board may withhold any payment due to the Supplier hereunder until the Supplier has remedied its failure.
iii. The Board may engage the services of another Bidder to remedy the Supplier's failure, and obtain reimbursement therefore from the Supplier. The said reimbursement may be obtained either through deduction from any amounts owing to the Supplier hereunder, or through any other legal means available to the Board; or
iv. The Board may assert any other remedy available to it in law or equity.

Unless the Board expressly agrees to the contrary, any failure of the Board to exercise any of the foregoing remedies, or the granting of any extension or indulgences, shall not be prejudicial to any right of the Board to subsequently obtain such remedies.

63. Termination for Convenience

The Board may terminate the Contract, in whole or in part, whenever the Board determine that such termination is in the best interests of the Board without showing cause, upon providing written notice to the Supplier. The Board shall pay all reasonable costs incurred by the Supplier/Contract up to the date of termination considering the Work performed and/or services were provided in accordance with the Contract and to the complete satisfaction of the Board. Payment shall be in accordance with prices as per Contract. However, in no event shall the Supplier be paid an amount, which exceeds the Total Bid Price. The Supplier will not be reimbursed for any profits which may have been anticipated but which have not been earned up to the date of termination.

64. Termination for Lack of Funding

Should the Board fail to appropriate funds to enable payments including multi-year agreements, the Board may cancel the contract without termination charges, provided the Supplier receives thirty (30) days written notice of such termination from the Board.

65. Tools and Equipment

All equipment and methods used to carry out this Contract shall be in accordance with best practices, guidelines, regulations, and standards with respect to safety and quality.

No equipment, tools or materials are to be stored or left overnight within Board property.

At the time of bid, if requested, the bidders will indicate the type of equipment that will be used to fulfill the terms and conditions of this contract. Prior to the Board entering into an agreement with the Supplier, or at any time during the Contract, the Board may, at their discretion, request an inspection of the equipment proposed for use.

It is the responsibility of the Supplier, in the event of a major mechanical equipment breakdown, to have available substitute equipment of similar capability. It shall be supplied and put into service to fulfill the timeline terms of this tender. Failure to provide alternative equipment within timeline expectations specified within this tender, may result in termination of the contract. It is the responsibility of the Supplier to ensure work

continues and deadlines are met, despite any unforeseen interruption as a result of equipment failure.

It is the Supplier's responsibility to ensure that the equipment and the operator, are licensed in accordance with the Ministry of Transportation. The Board may, at their discretion, require the Supplier to provide proof that the equipment has passed a recent (within the last 12 months) government safety inspection and that the operators are suitably licensed prior to commencement of the contract. All vehicles, tools, equipment, and voltage rated gloves requiring dielectric testing shall have current certification and all applicable documentation.

The equipment must be in good working order and the Supplier is responsible for all general and preventative maintenance, fuel, and repair and those costs shall be included in the bid. All preventative maintenance and repairs are to be conducted off peak hours. No other charges to the Board shall apply.

66. Traffic/Pedestrian Safety

Vehicles, including Couriers and movable Equipment/Machinery must take all precautions to avoid entering or driving on Board premises during nutritional breaks, before and after school hours, or anytime there are students or staff outside of the building.

67. Traffic Control and Site use

Supplier's activities shall be limited to areas for work and storage as directed by the Board. Except where expressly permitted by the Board, materials and/or equipment must not be stored within four metres of the travelled portion of any roadway. Notwithstanding the foregoing, the Supplier shall, at their own expense, remove any equipment or material, which, in the Board's opinion, constitutes a traffic hazard.

The Supplier shall plan and schedule the routes of vehicles transporting all materials to, from or within the job, so that vehicular movements are accomplished with minimum interference and interruption to traffic. This will necessitate vehicles to "slip off" or "slip on" in the direction of traffic lanes.

The Supplier shall maintain the adjacent side streets in a condition free from debris resulting from their operations, such as materials spilling from trucks. It is expected that the Supplier shall regularly inspect the surface condition of these streets and promptly dispose of all the debris.

Should the Supplier be unable to carry out the required remedial measures, the Board may carry out the necessary maintenance and the costs for the work shall be deducted from payments due to the Supplier.

The Supplier shall, at his own expense and to the satisfaction of the Board, provide all vehicular traffic control equipment, material, and labor required to perform the work in a safe manner in accordance with the "Occupational Health and Safety Act" and the "Ontario Traffic Manual" (Book 7). The Supplier shall assure that all required

forms are completed and on-site for inspection. In the event a traffic control company is contracted for the purpose of signage, information regarding the Supplier must be included in the quotation and included with the bid price.

The Supplier shall be responsible for the supply of traffic flag person(s) where required under the "Ontario Traffic Manual" (Book 7), with all costs included in the base unit price.

68. Usage Reports

The Board, at no additional cost, may request detailed usage reports or activity log reports in Excel (unprotected) to be provided annually or upon request. Reports may include but not limited to descriptions, codes, quantities, extended quantity, price.

69. Variation of Bid Prices

No variation in the Total Price, unit prices and/or provisional pricing will be permitted after Closing Time, except in the instance of variation solely due to an increase or decrease in the rate of eligible taxes, beyond the control of the Bidder, occurring after the time of submission of their Bid. An increase or a decrease in the rate of eligible taxes, under these circumstances, shall alter the price of the Bid, but only to the extent of the tax increase or decrease.

70. Volume and Exclusivity

Quantities and/or Board sites may be added, deleted or adjusted at the discretion of the Board due to but not limited to unintentional omissions, inventory adjustments, new schools/school closures and/or budget restraints.

The Board makes no guarantee of value or volume of work to be assigned to the Supplier. Any agreement executed with the Supplier may not be an exclusive contract for the provision of the described goods/services. The Board reserves the right to contract with other Supplier for good(s) and/or service(s) of the same as or similar to the deliverables or may obtain such good(s) and service(s) internally.

71. Waiver

No term or provision of the Bid Solicitation Document shall be deemed waived, and no breach consented to, unless such waiver or consent is in writing and signed by an authorized representative of the party claimed to have waived or consented to the breach. No consent by a party to, or waiver of, a breach under the procurement process shall constitute consent to, waiver of, or excuse for any other, different, or subsequent breach.

The Board does not accept responsibility for any information or any errors or omissions which may be contained in the Bid Solicitation Document, or the data, materials or documents disclosed or as provided to the Bidders pursuant to the procurement. The Board make no representation or warranty, either expressed or implied, in fact or in law with respect to the accuracy or completeness of the Bid Solicitation Document or such data, materials or documents and the Board shall not be responsible for any actions, costs, losses or liability whatsoever arising from any Bidder's reliance or use of the Bid

Solicitation Document or any other technical or historical data, materials or documents provided by the Board. The Bidder is responsible for obtaining its own independent financial, legal, accounting, and technical advice with respect to any information included in the Bid Solicitation Document or in any data, materials, or documents provided or required by the Board.

72. Warranty and Maintenance

The Supplier, at the time of substantial completion, shall furnish a written warranty covering material, maintenance, and work performed under the contract for a minimum period of two (2) years from the date of completion, unless otherwise stated. Individual sections may extend warranties beyond the two (2) year time frame. The Supplier is responsible for all required maintenance complete with materials and labour during the warranty period.

73. Work Continuity

The Supplier shall take adequate care to protect the Work, the Board's property, adjacent properties and shall be fully responsible for any damage or injury due to their act or neglect or is attributable to the acts or omissions of the Supplier, its Sub-contractors, sub-suppliers, agents, employees, officers, directors, and all other persons and other entities for whose acts the Supplier may be liable or for whom it is responsible in law and their respective officers, directors, agents and employees.

The Supplier shall ensure minimal to no disturbance to the user(s) of the surrounding facilities. Replacement and repairs due to any damage caused to any existing structure, Board equipment, public assets or private property during the Work shall be the responsibility of the Supplier.

74. Work Requirements

The Supplier shall perform entire work with minimal to no disturbance to the routine operations of the respective facility. Further, the Supplier shall ensure safety of WRDSB assets, students, staff as well as public at all times.

75. Workplace Safety Insurance Board (WSIB) Certificate

The Board requires all Suppliers and service providers be in full compliance with all requirements imposed upon them by the Workplace Safety Insurance Board. All certificates of training and Safety Policies and Manuals must be available for presentation upon request.

Prior to a formal award and commencing the services covered by this Bid Solicitation, the recommended Bidder(s) make available to the Board a copy of certificates of good standing with the Workplace Safety and Insurance Board ("WSIB Certificates") listing appropriate NAICS Code and Code Description stating that the Supplier/consultant and all of its sub-contractors/consultants have complied with the requirements of the Workplace Safety and Insurance Act and in particular, that all requisite premiums under such Act

have been paid. Where the Bidder is exempt from registration with the WSIB, the Bidder must provide evidence of such by way of written confirmation from WSIB.

WSIB Certificate evidencing renewal or replacement of Certificates listing appropriate NAICS Code and Code Description shall be uploaded through the Bidding System within 72 hours of the expiration or replacement of the current certificate, without demand by the Board.

END OF SECTION

00 73 00 "The Supplementary Conditions"

SUPPLEMENTARY CONDITIONS & AMENDMENTS TO STANDARD CONSTRUCTION DOCUMENT CCDC2 -2020 STIPULATED PRICE SUBCONTRACT

(the "Supplementary Conditions")

AGREEMENT, DEFINITIONS, AND

GENERAL CONDITIONS

The Standard Construction Document CCDC 2 2020 for a Stipulated Price Contract, English version, consisting of the Agreement Between *Owner* and Contractor, Definitions and General Conditions of the Stipulated Price Contract, Parts 1 to 13 inclusive, governing same, together with the changes with the new *Construction Act* is hereby made part of these *Contract Documents*, with the following amendments, additions and modifications:

AGREEMENT BETWEEN OWNER AND CONTRACTOR

ARTICLE A-1 – THE WORK

SC17.1	A-1.3	Amend Article A-1.3 by deleting all of the words after *"Contract Documents"* and replace them with the following" "attain .1 *Substantial Performance of the Work* by the 25th day of August in the year 2026. .2 (if applicable) *Occupancy* by the 25th day of August in the year 2026, and .3 *Ready-for-Takeover* by the 4th day of September in the year 2026."

ARTICLE A-3 – CONTRACT DOCUMENTS

SC2.1	A-3.1	Add the following documents to the list of *Contract Documents* in Article A-3.1: • Waterloo Region District School Board's Supplementary Conditions & Amendments to Standard Construction Document CCDC 2-2020 Stipulated Price Subcontract, May 2022 Version, including any Special Supplementary Conditions listed in Appendix 2 thereto • *Drawings* • *Specifications* • Performance Bond (Form 32 -Performance Bond under Section 85.1 of the *Act*) if applicable • Labour and Material Payment Bond (Form 31 – Labour and Material Payment Bond under Section 85.1 of the *Act*), if applicable

ARTICLE A-4 – CONTRACT PRICE

SC3.1	A-4.4	Delete Article A-4.4 and replace it with the following: "4.4 The *Contract Price* shall remain fixed for the duration of the *Contract Time*, subject only to adjustments as provided for in the *Contract Documents*. For certainty, and without limiting the general application of the preceding sentence, the *Contractor* assumes all risks in connection with cost increases for overhead, *Products, Labour*, and *Construction Equipment* prescribed by the *Contract Documents* for the performance of the *Work*, and the *Contractor* assumes all responsibility for liabilities and additional costs that may arise as a result of the *Contractor's* inclusion of any *Product, Construction Equipment, Supplier*, or *Subcontractor* in its calculation of the *Contract Price*."

ARTICLE A-5 – PAYMENT

SC4.1	A-5.1	Delete Article A- 5.1 in its entirety including all subparagraphs and replace it with the following: "5.1 Subject to the provisions of the *Contract Documents* and the *Construction Act*, the *Owner* shall:

		.1 make progress payments to the *Contractor* on account of the *Contract Price* when due together with such *Value Added Taxes* as may be applicable to such payments, .2 upon *Substantial Performance of the Work* as certified by the *Consultant*, and on the 61st day after the publication of the certificate of *Substantial Performance of the Work*, in accordance with the *Construction Act*, there being no claims for lien registered against the title to the *Place of the Work* and no written notices of lien delivered to the *Owner*, pay the *Contractor* the unpaid balance of the 10% holdback, together with such *Value Added Taxes* as may be applicable to such payment, less any amount stated in the *Owner's Notice of Non-Payment*. .3 after *Ready-for-Takeover* has been achieved in accordance with the *Contract Documents* and the *Work* is complete, there being no claims for lien registered against the title to the *Place of the Work* and no written notices of lien delivered to the *Owner*, pay the *Contractor* any unpaid balance of the *Contract Price* in accordance with GC 5.5 – FINAL PAYMENT, excluding *Deficiency Holdback*, together with such *Value Added Taxes* as may be applicable to such payment."
SC 4.2	A-5.2.1	Delete subparagraph 5.2.1 in its entirety and replace it with the following: ".1 Should either party fail to make payments as they become due under the terms of the *Contract* or in an award by arbitration or court, interest shall also become due and payable on such unpaid amounts at the prejudgment interest rate prescribed by the *Courts of Justice Act* (Ontario), as it may change from time to time."

***NEW* ARTICLE A-9 – CONFLICT OF INTEREST**

SC3.1	A-9	Add new ARTICLE A-9 CONFLICT OF INTEREST as follows: "**ARTICLE A-9 CONFLICT OF INTEREST** 9.1 The *Contractor*, *Subcontractors* and *Suppliers* and any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall not engage in any activity or provide any services where such activity or the provision of such services creates a conflict of interest (actually or potentially, in the sole opinion of the *Owner*) with the provision of the *Work* pursuant to the *Contract*. The *Contractor* acknowledges and agrees that a conflict of interest, as described in this Article A-9, includes, but is not limited to, the use of *Confidential Information* where the *Owner* has not specifically authorized such use. 9.2 The *Contractor* shall disclose to the *Owner*, in writing, without delay, any actual or potential situation that may be reasonably interpreted as either a conflict of interest or a potential conflict of interest, including the retention of any *Subcontractor* or *Supplier* that is directly or indirectly affiliated with or related to the *Contractor*. 9.3 The *Contractor* covenants and agrees that it will not hire or retain the services of any employee or previous employee of the *Owner* where to do so constitutes a breach by such employee or previous employee of the *Owner's* conflict of interest policy, as it may be amended from time to time, until after completion of the *Work* under the *Contract*. 9.4 It is of the essence of the *Contract* that the *Owner* shall not have direct or indirect liability to any *Subcontractor or Supplier*, and that the *Owner* relies on the maintenance of an arm's-length relationship between the *Contractor* and its *Subcontractors and Suppliers*. Consistent with this fundamental term of the *Contract*, the *Contractor* will not enter into any agreement or understanding with any *Subcontractor or Supplier*, whether as part of any contract or any written or oral collateral agreement, pursuant to which the parties thereto agree to

		cooperate in the presentation of a claim for payment against the *Owner*, directly or through the *Contractor*, where such claim is, in whole or in part, in respect of a disputed claim by the *Subcontractor or Supplier* against the *Contractor*, where the payment to the *Subcontractor or Supplier* by the *Contractor* is agreed to be conditional or contingent on the ability to recover those amounts or a portion thereof from the *Owner*, failing which the *Contractor* shall be saved harmless from all or a portion of those claims. The *Contractor* acknowledges that any such agreement would undermine the required arm's-length relationship and constitute a conflict of interest. For greater certainty, the *Contractor* shall only be entitled to advance claims against the *Owner* for amounts pertaining to *Subcontractor or Supplier* claims where the *Contractor* has actually paid or unconditionally acknowledged liability for those claims or where those claims are the subject of litigation or binding arbitration between the *Subcontractor or Supplier* and the *Contractor* has been found liable for those claims. 9.5 Notwithstanding paragraph 7.1.2 of GC 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT, a breach of this Article A-9 by the *Contractor*, any of the *Subcontractors*, or any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall entitle the *Owner* to terminate the *Contract*, in addition to any other rights and remedies that the *Owner* has in the *Contract*, in law, or in equity."

***NEW* ARTICLE A-10 TIME OF THE ESSENCE**

SC6.1	Article A-10	Add the following new Article A-10 as follows: **"ARTICLE A-10 TIME OF THE ESSENCE** 10.1 It is agreed that one of the reasons the *Contractor* was selected by the *Owner* for this *Contract* is the *Contractor's* representation and covenant that it will attain *Substantial Performance, Occupancy (*if applicable), and *Ready-for-Takeover* within the *Contract Time* stated in Article A-1 of this *Contract*. 10.2 The *Contractor* acknowledges and agrees that it is responsible to marshal its resources and those of its *Subcontractors and Suppliers* in a manner which will permit timely attainment of *Substantial Performance, Occupancy (*if applicable), and *Ready-for-Takeover*. The *Contractor* agrees that time is of the essence of this *Contract*."
SC6.2		

DEFINITIONS

Revisions to Existing Definitions		
SC5.1	Consultant	Amend the definition of "Consultant" by adding the following to the end of the definition: "For the purposes of the *Contract*, the terms "*Consultant"*, "*Architect*" and "*Engineer*" shall be considered synonymous."
SC5.2	Payment Legislation/Construction Act	Delete the Definition of *Payment Legislation* and replace it with "Construction Act" as follows: "**Construction Act** *Construction Act* means the *Construction Act*, R.S.O. 1990, c. C.30, as amended, including all regulations passed under it that are enforceable as of the date of execution of this *Contract*. For certainty, the first procurement process for the *Project* (*i.e*., the "improvement" as that term is defined in the *Construction Act*) commenced on or after October 1, 2019."
SC5.3	Ready-for-Takeover	Amend the Definition of *Ready-for-Takeover* by deleting all the words after "as verified" and replacing them with "and approved by the *Owner*."
New Definitions		
	Adjudication	Add the following definition: "**Adjudication** *Adjudication* means construction dispute interim adjudication as defined under the *Construction Act*."
	Close-Out Documentation	Add the following new definition: "**Close-Out Documentation** *Close-Out Documentation* has the meaning given to it under GC 5.4.2."
	Confidential Information	Add the following definition: "**Confidential Information** *Confidential Information* means all the information or material of the *Owner* that is of a proprietary or confidential nature, whether it is identified as proprietary or confidential or not, including but not limited to information and material of every kind and description (such as drawings and move-lists) which is communicated to or comes into the possession or control of the *Contractor* at any time, but *Confidential Information* shall not include information that: .1 is or becomes generally available to the public without fault or breach on the part of the *Contractor*, including without limitation breach of any duty of confidentiality owed by the *Contractor* to the *Owner* or to any third party, but only after that information becomes generally available to the public; .2 the *Contractor* can demonstrate to have been rightfully obtained by the *Contractor* from a third party who had the right to transfer or disclose it to the *Contractor* free of any obligation of confidence;

		.3 the *Contractor* can demonstrate to have been rightfully known to or in the possession of the *Contractor* at the time of disclosure, free of any obligation of confidence; or .4 is independently developed by the *Contractor* without use of any *Confidential Information*."
	Construction Schedule	Add the following definition: "**Construction Schedule** *Construction Schedule* means the schedule for the performance of the *Work* provided by the *Contractor*, and approved by the *Owner*, pursuant to GC 3.4.1, including any amendments to the *Construction Schedule* made pursuant to the *Contract Documents*."
	Construction Schedule Update	Add the following definition: "**Construction Schedule Update** *Construction Schedule Update* means an update to the *Construction Schedule* by the *Contractor* using Microsoft Project (or other approved scheduling software) that accurately depicts the progress of the *Work* relative to the critical path established in the *Construction Schedule* approved in GC 3.5.1 (or any approved successor *Construction Schedule*), aligns with the currently approved date for *Substantial Performance of the Work*, shows up-to-date projected major activity sequences and durations, and shows any changes or delays in anticipated completion dates of major activities in the *Work* relative to the last *Construction Schedule Update,* and includes the following minimum deliverables: (a) a record version of the updated *Construction Schedule* in .pdf format; (b) an editable copy of the updated original digital file of the *Construction Schedule* (*e.g.*, .mpp format files for Microsoft Project)."
	Deficiency Holdback	Add the following definition: **Deficiency Holdback** - a value applied to the total contract value to cover the cost of completing deficiencies in, or correcting defects in The Work.
	Direct Costs	Add the following definition: "**Direct Costs** *Direct Costs* are the reasonable costs of performing the contract or subcontract including costs related to the additional supply of services or materials (including equipment rentals), insurance and surety bond premiums, and costs resulting from seasonal conditions, that would not have been incurred, but do not include indirect damages suffered, such as loss of profit, productivity or opportunity, or any head office overhead costs."
	Day	Add the following definition: **"Day** *Day* means a calendar day."

	EFT	Add the following definition: "**EFT** *EFT* has the definition given to it under GC 5.3.2."
	Excess Soil	Add the following definition: "**Excess Soil** *Excess Soil* means "excess soil" as that term is defined under section 3 of the *Excess Soil Regulation*."
	Excess Soil Regulation	Add the following Definition: "**Excess Soil Regulation** *Excess Soil Regulation* means O. Reg. 406/19: On-Site and Excess Soil Management to the *Environmental Protection Act,* R.S.O. 1990, c. E.19."
	Final Pre-Invoice Submission Meeting	Add the following ne definition: "**Final Pre-Invoice Submission Meeting** *Final Pre-Invoice Submission Meeting* has the meaning given to it in GC 5.5.1."
	Force Majeure	Add the following definition: "**Force Majeure** *Force Majeure* means any cause, unknown at the effective date of the *Contract* and beyond either party's control, other than financial difficulties, bankruptcy or insolvency, which prevents the performance by a party, or both, of any of their respective obligations under the *Contract* and the event of *Force Majeure* did not arise from a party's default and could not be avoided or mitigated by the exercise of reasonable effort or foresight. *Force Majeure* includes *Labour Disputes*; fire; unusual delay by common carriers or unavoidable casualties; delays in obtaining third-party licences, permits, agreements, or approvals (excluding approvals of any *Subcontractors* or *Suppliers* of any tier); civil disturbance; emergency acts, orders, legislation, regulations or directives or revoking of funding from any government or other public authority; acts of a public enemy; war; riot; sabotage; blockage; embargo; lightning; earthquake; adverse weather conditions but only if substantially beyond the weather norms of the *Place of the* Work; acts of God; or declared epidemic or pandemic outbreak or other public health emergency (*e.g*. SARS, COVID-19)."
	Hazardous Material	Add the following definition: "**Hazardous Material** *Hazardous Material* means collectively, any contaminant, waste or subject waste (as defined in the Environmental Protection Act ("based on the respective provincial legislation or authority having jurisdiction "), as amended or re-enacted from time to time (the "EPA")), toxic substance (as defined in the Canadian Environmental Protection Act, as amended or re-enacted from time to time (the "CEPA")), dangerous goods (as defined in the Transportation of Dangerous Goods Act (Canada) as amended or re-enacted from time to time ("TDGA")) or pollutant (as defined in the EPA), or any other substance which when released to the natural environment is likely

		to cause in some immediate or foreseeable future time, material harm or degradation to the natural environment or material risk or harm to human health. Whenever the terms "toxic and hazardous substances" is used in the Contract, it shall be deemed amended to read "*Hazardous Material*".
	Install	Add the following definition: "**Install** *Install* means install and connect. *Install* has this meaning whether or not the first letter is capitalized."
	Labour Dispute	Add the following definition: "**Labour Dispute** *Labour Dispute* means any lawful or unlawful labour problems, work stoppage, labour disruption, strike, job action, slow down, lock-outs, picketing, refusal to work or continue to work, refusal to supply materials, cessation or work or other labour controversy which does, or might, affect the *Work*."
	Make Good, Made Good	Add the following definition: "**Make Good, Made Good** *Make Good, Made Good* means repairing, restoring, refurbishing, rehabilitating, or performing filling operation on any existing components disturbed due to work of this Contract, to at least the condition existing at the commencement of the Work, in terms of construction integrity, finishes, alignment with existing adjoining surfaces, compatibility of materials, sound attenuation criteria, exfiltration/infiltration requirements, fire separations, air/vapour barrier and thermal continuity."
	Notice of Non-Payment	Add the following definition: "**Notice of Non-Payment** *Notice of Non-Payment* means a notice of non-payment of holdback (Form 6) or a notice of non-payment (Form 1.1) under the *Act*, as applicable to the circumstances."
	OHSA	Add the following definition: "**OHSA** *OHSA* means the *Occupational Health and Safety Act*, R.S.O. 1990, c. O.1, as amended, including all regulations thereto."
	Overhead	Add the following definition: "**Overhead** *Overhead* means all site and head office operations and facilities, all site and head office administration and supervision; all duties and taxes for permits and licenses required by the authorities having jurisdiction at the *Place of the Work*; all requirements of Division 1, including but not limited to submittals, warranty, quality control, calculations, testing and inspections; meals and accommodations; and, tools, expendables and clean-up costs."
	Payment Period	Add the following definition:

		"**Payment Period** *Payment Period* has the definition given to it under GC 5.2.1."
	Pre-Invoice Submission Meeting	Add the following definition: "**Pre-Invoice Submission Meeting** *Pre-Invoice Submission Meeting* has the definition given to it under GC 5.2.1."
	Products	Add the following definition: "**Products** *Products* means material, fixtures, equipment and machinery forming the Work but does not include construction machinery or equipment used to prepare, fabricate, convey, erect or perform the Work that is not incorporated into the Work.
	Proper Invoice	Add the following definition: "**Proper Invoice** *Proper Invoice* means a "proper invoice" as that term is defined in Section 6.1 of the *Act*, including the minimum requirements set out in Appendix "1" of the Supplementary Conditions."
	Proper Invoice Submission Date	Add the following definition: "**Proper Invoice Submission Date** *Proper Invoice Submission Date* has the definition given to it under GC 5.2.2.1."
	Request for Information (RFI)	Add the following definition: "**Request for Information (RFI)** *Request for Information* or *RFI* means written documentation sent by the *Contractor* to the *Owner* or to the *Owner's* representative or the *Consultant* requesting written clarification(s) and/or interpretation(s) of the *Drawings* and/or *Specifications*, *Contract* requirements and/or other pertinent information required to complete the *Work* of the *Contract* without applying for a change or changes to the *Work*."
	Restricted Period	Add the following definition: "**Restricted Period** *Restricted Period* means the (inclusive) period of time between December 1 to January 8 and August 15 to September 15 of any given year throughout the duration of the *Contract*."
	Subcontractor	Add the following definition: "**Subcontractor** *Subcontractor* means a person, firm or corporation having a direct Contract with the Contractor to perform a part or parts of the Work at the Place of the Work, or to supply Products worked to a special design for the Work.

	Submittals	Add the following definition: "**Submittals** *Submittals* means documents or items required by the Contract Documents to be provided by the Contractor, such as: Shop Drawings, samples, models, mock-ups to indicate details or characteristics, before the portion of the Work that they represent can be incorporated into the Work; and Record Drawings and manuals to provide instructions to the operation and maintenance of the Work.
	Supplier	Add the following definition: "**Supplier** *Supplier* is a person, firm or corporation having a direct Contract with the Contractor to supply Products for the Work.
	Supply	Add the following definition: "**Supply** *Supply* means completion of the following activities, including the associated labour, services, plant, construction machinery and equipment required to: .1 Fabricate or purchase Products, .2 Deliver Products to the Place of the Work, .3 Unload Products, .4 Store Products in accordance with manufacturers' instructions.
	Total Performance of the Work	Add the following definition: "**Total Performance of the Work** *Total Performance of the Work* means when the entire Work has been performed to the requirements of the Contract Documents and the Consultant has issued a written confirmation to the Owner confirming that the Work has been completed in accordance with the requirements of the applicable lien legislation in the jurisdiction of the Place of the Work.
	Work	Add the following definition: "**Work** *Work* is the total construction, including but not limited to all labour, material, plant and services required by the Contract Documents.
	WSIB	Add the following definition: "**WSIB** The Workplace Safety & Insurance Board (WSIB) for Ontario or the Workplace Safety Agencies in the respective provinces and territories of Canada.

GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT

Where a General Condition or paragraph of the General Conditions of the *Contract* is deleted by these amendments, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, unless stated otherwise herein, and the numbering of the deleted item will be retained, unused.

PART 1 GENERAL PROVISIONS

GC 1.1 CONTRACT DOCUMENTS

SC5.1	1.1.3	Delete GC 1.1.3 in its entirety and replace it with the following: "1.1.3 The *Contractor* shall review the *Contract Documents* and shall report promptly to the *Consultant* any error, inconsistency, or omission the *Contractor* may discover. Such review by the *Contractor* shall be undertaken with the standard of care described in GC 3.13.1. Except for its obligation to make such a review and report the result, the *Contractor* does not assume any responsibility to the *Owner* or to the *Consultant* for the accuracy of the *Contract Documents*. Provided it has exercised the degree of care and skill described in this GC 1.1.3, the *Contractor* shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the *Contract Documents*, which the *Contractor* could not reasonably have discovered through the exercise of the required standard of care."
SC5.2	1.1.4	Delete GC 1.1.4 in its entirety and replace it with the following: "1.1.4 Except for the obligation to complete the review prescribed in GC 1.1.3, and report the results as set out in this GC 1.1.4, the *Contractor* is not responsible for errors, omissions or inconsistencies in the *Contract Documents*. If there are errors, omissions or inconsistencies discovered by or made known to the *Contractor* as part of its review under GC 1.1.3 or at any time during the performance of the *Work*, the *Contractor* shall immediately notify the *Consultant*, and request instructions, a *Supplemental Instruction*, *Change Order*, or *Change Directive*, as the case may require, and shall not proceed with the *Work* affected until the *Contractor* has received corrected or additional information from the *Consultant*. The *Contractor* shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the *Contract Documents*, which the *Contractor* could not reasonably have discovered through the exercise of care and skill described in GC 3.13."
	1.1.5.1	Delete GC 1.1.5.1 and replace with the following: ".1 the order of priority of documents, from highest to lowest, shall be: .1 Supplementary Conditions; .2 the Agreement between the Owner and the Contractor; .3 the Definitions; .4 the General Conditions; .5 Division 01 of the *Specifications* .6 technical *Specifications;* .7 material and finishing schedules; and .8 the *Drawings*.
	1.1.5.5	Delete GC 1.1.5.5 and replace with the following: ".5 Noted materials and annotations on the *Drawings* shall govern over the graphic representation of the *Drawings.*"

	1.1.5.6 to 1.1.5.8	Add the following new GC 1.1.5.6 to 1.1.5.8 as follows: ".6 Finishes in the room finish schedules shall govern over those shown on the *Drawings.* .7 Architectural drawings shall have precedence over structural, plumbing, mechanical, electrical and landscape drawings insofar as outlining, determining and interpreting conflicts over the required design intent of all architectural layouts and architectural elements of construction, it being understood that the integrity and installation of the systems designed by the *Consultant* or its sub-*Consultants* are to remain with each of the applicable drawing disciplines. .8 Should reference standards contained in the *Specifications* conflict with the *Specifications*, the *Specifications* shall govern. Should reference standards and *Specifications* conflict with each other or if certain requirements of the *Specifications* conflict with other requirements of the *Specifications*, the more stringent requirements shall govern."
	1.1.9	Add the following to the end of GC 1.1.9: "The *Specifications* are divided into divisions and sections for convenience but shall be read as a whole and neither such division nor anything else contained in the *Contract Documents* will be construed to place responsibility on the *Owner* or the *Consultant* to settle disputes among the *Subcontractors* and *Suppliers* with respect to such divisions. The *Drawings* are, in part, diagrammatic and are intended to convey the scope of the *Work* and indicate general and appropriate locations, arrangements and sizes of fixtures, equipment, outlets and other elements. The *Contractor* shall obtain more accurate information about the locations, arrangements and sizes from study and coordination of the *Drawings,* including *Shop Drawings* and shall become familiar with conditions and spaces affecting those matters before proceeding with the *Work.* Where site conditions require reasonable minor changes where the change requires only the additional labour two hours or less, the *Contractor* shall make such changes at no additional cost to the *Owner.* Similarly, where known conditions or existing conditions interfere with new installation and require relocation, the *Contractor* shall include such relocation in the *Work.* The *Contractor* shall arrange and install fixtures and equipment in such a way as to conserve as much headroom and space as possible. The schedules are those portions of the *Contract Documents*, wherever located and whenever issued, which compile information of similar content and may consist of drawings, tables and/or lists*.*"
	1.1.13	Add new paragraphs 1.1.13 as follows: 1.1.13 The *Contractor* shall keep one copy of the current *Contract Documents*, *Supplemental Instructions*, contemplated *Change Orders*, *Change Orders*, *Change Directives*, cash allowance disbursement authorizations, reviewed *Shop Drawings*, submittals, reports and records of meeting at the *Place of the Work*, in good order and available to the *Owner* and *Consultant*."

GC 1.3 RIGHTS AND REMEDIES

SC6.1	1.3.2	In paragraph 1.3.2 delete the word "No" from the beginning of the paragraph and replace it with the words: "Except with respect to the requirements set out in paragraphs 6.4.1, 6.5.4, 6.6.1 and 8.3.2, no…"

***NEW* GC 1.5 EXAMINATION OF DOCUMENTS AND SITE**

SC8.1	1.5	Add new GC 1.5 – EXAMINATION OF DOCUMENTS AND SITE as follows: "**GC 1.5 EXAMINATION OF DOCUMENTS AND SITE** 1.5.1 The *Contractor* declares and represents that in tendering for the *Work*, and in entering into a Contract with the *Owner* for the performance of the *Work*, it has investigated for itself the character of the *Work t*o be done, based on information generally available from a visit to the *Place of the Work* and to the standard set out under GC 3.14.1 and further represents and warrants and acknowledges that it considered and took into account in the *Contract Price* all reasonably known impacts and restrictions arising from the COVID-19 pandemic, including without limitation corresponding legislative changes that may impact performance of the *Project*, various weather conditions that may affect the *Work*, the availability of supplies and labour or other conditions or risks that the *Contractor* knew about or reasonably ought to have known about prior to the date of the *Contract.* The *Contractor* has assumed and does hereby assume all risk of known conditions now existing or arising in the course of the *Work* which might or could make the Work, or any items thereof more expensive in character, more onerous to fulfill than was contemplated or known when the tender was made or the *Contract* signed. 1.5.2 The *Contractor* also declares that prior to commencement of the *Work*, where in tendering for the *Work* and in entering into this *Contract*, the *Contractor* relied upon information furnished by the *Owner* or any of its agents or servants respecting the nature or confirmation of the ground at the site of the Work, the Contractor shall review to the standard specified in GC 3.14.1, the accuracy of the information furnished by the *Owner*. If a condition is materially different than what is stated in the information furnished by the *Owner*, the *Contractor* shall, no later than five (5) *Working Days* after the first observation of such condition(s), deliver to the *Owner* and to the *Consultant* a *Notice in Writing* specifying the materially different condition and the *Contractor* shall not proceed with the affected part of the Work until receiving written direction from the *Owner* or the *Consultant*. Where the *Contractor* fails to provide prompt *Notice in Writing* in accordance with this GC 1.5.2, the *Contractor* expressly waives and releases the *Owner* from all claims with respect to the said information with respect to the *Work*.

PART 2 ADMINISTRATION OF THE CONTRACT

GC 2.2 ROLE OF THE CONSULTANT

SC11.1	2.2.5	Delete paragraph 2.2.4 and replace it with the following: "2.2.4 Upon receipt of an application for payment that satisfies the requirement of a *Proper Invoice*, based on the *Consultant's* observations and evaluation of the *Contractor's* application for payment, the *Consultant* will determine the amounts owing to the *Contractor* under the *Contract* and will issue certificates for payment as provided in Article A-5 - PAYMENT, GC 5.3 - PAYMENT, GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK, and GC 5.5 - FINAL PAYMENT. If the *Consultant* determines that the amount payable to the *Contractor* differs from the amount stated in a *Proper Invoice*, the *Consultant* shall notify the *Owner* as provided in GC 5.3.1.2 and prepare a draft of the applicable *Notice of Non-Payment* for the amount in dispute."
	2.2.6	In the first sentence of paragraph 2.2.6, delete the words "Except with respect to GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER".
	2.2.12	At paragraph 2.2.12, insert the following at end of that paragraph:

		"If, in the opinion of the *Contractor*, the *Supplemental Instruction* involves an adjustment in the *Contract Price* or in the *Contract Time*, it shall, within ten (10) *Working Days* of receipt of a *Supplemental Instruction*, provide the *Consultant* with a notice in writing to that effect. Failure to provide written notification within the time stipulated in this paragraph 2.2.12 shall be deemed an acceptance of the *Supplemental Instruction* by the *Contractor*, without any adjustment in the *Contract Price* or *Contract Time*."

GC 2.3 REVIEW AND INSPECTION OF THE WORK

SC10.1	2.3.2	Amend paragraph 2.3.2 by adding the words "and *Owner*" after the words "*Consultant*" in the second and third lines.
	2.3.3	Delete paragraph 2.3.3 in its entirety and replace it with the following: "2.3.3 The *Contractor* shall furnish promptly two copies to the *Consultant* and one copy to the *Owner* of all certificates and inspection reports relating to the *Work*."
	2.3.4	In paragraph 2.3.4 add the word "review" after the word "inspections" in the first and second lines of paragraph 2.3.4.
	2.3.5	In paragraph 2.3.5 in the first line after the word "*Consultant*", add "or the *Owner*".
	2.3.8	Add a new paragraph 2.3.8 as follows: "2.3.8 The *Consultant* will conduct periodic reviews of the *Work* in progress, to determine general conformance with the requirements of the *Contract Documents*. Such reviews, or lack thereof, shall not give rise to any claims by the *Contractor* in connection with construction means, methods, techniques, sequences and procedures, nor in connection with construction safety at the *Place of Work*, responsibility for which belongs exclusively to the *Contractor*."

GC 2.4 DEFECTIVE WORK

SC11.1	2.4.1	Amend GC 2.4.1 by inserting ", the *Owner* and/or its agent" in the first sentence following "rejected by the *Consultant*".
	2.4.1.1 to 2.4.1.2	Add new paragraphs 2.4.1.1 and 2.4.1.2 as follows: "2.4.1.1 The *Contractor* shall rectify, in a manner acceptable to the *Consultant* and to the *Owner through the Consultant* all defective work and deficiencies throughout the *Work*, whether or not they are specifically identified by the *Consultant*. 2.4.1.2 The *Contractor* shall prioritize the correction of any defective work, which, in the sole discretion of the *Owner through the Consultant*, adversely affects the day to day operations of the *Owner* or which, in the sole discretion of the *Consultant*, adversely affects the progress of the *Work*."
	2.4.2	Delete paragraph 2.4.2 in its entirety and replace it with the following: "2.4.2 The *Contractor* shall promptly pay the *Owner* for costs incurred by the *Owner*, the *Owner's* own forces or the *Owner's* other contractors, for work destroyed or damaged or any alterations necessitated by the *Contractor's* removal, replacement or re-execution of defective work."

	2.4.4	Add new paragraph 2.4.4 as follows: "2.4.4 Neither acceptance of the *Work* by the *Consultant* or the *Owner*, nor any failure by the *Consultant* or the *Owner* to identify, observe or warn of defective *Work* or any deficiency in the *Work* shall relieve the *Contractor* from the sole responsibility for rectifying such defect or deficiency at the *Contractor's* sole cost, even where such failure to identify, observe or warn is negligent."

PART 3 EXECUTION OF THE WORK

GC 3.1 CONTROL OF THE WORK

SC12.1	3.1.2	Amend paragraph 3.1.2 by inserting the words "Construction Schedule" after the word "sequences".
SC12.2	3.1.3 & 3.1.4	Add new paragraphs 3.1.3 and 3.1.4 as follows: "3.1.3 Prior to commencing individual procurement, fabrication and construction activities, the *Contractor* shall verify at the *Place of the Work*, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the *Work* and shall further carefully compare such field measurements and conditions with the requirements of the *Contract Documents*. Where dimensions are not included or exact locations are not apparent, the *Contractor* shall immediately notify the *Consultant* in writing and obtain written instructions from the *Consultant* before proceedings with any part of the affected *Work*. 3.1.4 Notwithstanding the provisions of paragraphs 3.1.1 and 3.1.2, the *Owner* shall have access to the site at all times to monitor all aspects of construction. Such access shall in no circumstances affect the obligations of the *Contractor* to fulfill its contractual obligations."

GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

SC13.1	3.2.2.1	Delete subparagraph 3.2.2.1 and replace it with "[Intentionally left blank]".
	3.2.3.2	Delete subparagraph 3.2.3.2 and replace it with the following: ".2 co-ordinate and schedule the activities and work of other contractors and the *Owner's* own forces, including where other contractors or the Owner's own forces are used after the *Owner* and the *Contractor* cannot reach agreement on the value of a change, with the *Work* of the *Contractor* and connect as specified or shown in the *Contract Documents*."
	3.2.3.4	Delete the period at the end of subparagraph 3.2.3.4 and replace it with a semicolon.
	3.2.3.5	Add new subparagraph 3.2.3.5 as follows: ".5 Subject to GC 9.4 CONSTRUCTION SAFETY, for the *Owner's* own forces and for other contractors, assume overall responsibility for compliance with all aspects of the applicable health and safety legislation in force at the *Place of the Work*, including all of the responsibilities of the "constructor", pursuant to the *OHSA*."

GC 3.3 TEMPORARY WORK

SC14.1	3.3.2	In paragraph 3.3.2, in the second line after the words "where required by law", insert "or by the *Consultant*".

GC 3.4 CONSTRUCTION SCHEDULE

SC17.1	3.4.1	Delete GC 3.4.1 in its entirety and replace it with the following: "3.4.1 The *Contractor* shall: 1 within five (5) calendar days of receiving written confirmation of the award of the *Contract*, prepare and submit to the *Owner* and the *Consultant* for their review and approval, a construction schedule in the format indicated below that indicates the timing of the activities of the *Work* and provides sufficient detail of the critical events and their inter-relationship to demonstrate the *Work* will be performed in conformity with the *Contract Time* and in accordance with the *Contract Documents.* Such schedule is to include a delivery schedule for *Products* whose delivery is critical to the schedule for the *Work* or are required by the *Contract* to be included in a *Products* delivery schedule. The *Contractor* shall employ construction scheduling software, being the latest version of "Microsoft Project"*,* that permits the progress of the *Work* to be monitored in relation to the critical path established in the schedule. The *Contractor* shall provide such schedule and any successor or revised schedules in both original digital file format (*e.g.,* .mpp format for Microsoft Project), portable data file (PDF) format, and hard copy. Once accepted by the *Owner* and the *Consultant*, the construction schedule submitted by the *Contractor* shall become the baseline "**Construction Schedule**"; .2 provide the expertise and resources, such resources including manpower equipment and tools, as are necessary on a best efforts basis to maintain progress under the accepted baseline *Construction Schedule* or revised construction schedule accepted by the *Owner* pursuant to GC 3.4 CONSTRUCTION SCHEDULE, which includes without limitation, the *Contractor*'s use of all possible and, if necessary, extraordinary measures, to bring the progress of the *Work* into compliance with the *Construction Schedule*, such as (i) increasing the presence of its own forces at the *Place of the Work*; (ii) directing any *Subcontractors* or *Suppliers* to increase their labour forces and equipment; (iii) working overtime and extra shifts; and (iv) providing any additional supervision and coordination of the *Project*, all at the *Contractor's* own cost and expense save and except where GC 6.5.1, 6.5.2, or 6.5.3 apply; and, .3 monitor the progress of the *Work* on a weekly basis relative to the baseline *Construction Schedule*, or any revised *Construction Schedule* accepted by the *Owner* pursuant to GC 3.4 CONSTRUCTION SCHEDULE, deliver a *Construction Schedule Update* to the *Consultant* and *Owner* with each application for payment, at a minimum, or as may be reasonably required by the *Consultant* and advise the *Consultant* and the *Owner* weekly in writing of any variation from the baseline or slippage in the schedule; and, .4 if after applying the expertise and resources required under paragraph 3.4.1.2, the *Contractor* forms the opinion that the slippage in schedule reported in paragraph 3.4.1.3 cannot be recovered by the *Contractor*, it shall, in the same notice provided under paragraph 3.4.1.3, indicate to the *Consultant* if the *Contractor* intends to apply for an extension of *Contract Time* as provided in PART 6 —CHANGES IN THE WORK; and, .5 ensure that the *Contract Price* shall include all costs required to phase or stage the *Work*."

	3.4.2	Add new GC 3.4.2 and GC 3.4.3 as follows: "3.4.2 If, at any time, it should appear to the *Owner* or the *Consultant* that the actual progress of the *Work* is behind schedule or is likely to become behind schedule, or if the *Contractor* has given notice of such to the *Owner* or the *Consultant* pursuant to GC 3.4.1.3, the *Contractor* shall, either at the request of the *Owner* or the *Consultant*, or following giving notice pursuant to GC 3.4.1.3, take appropriate steps to cause the actual progress of the *Work* to conform to the schedule or minimize the resulting delay. Within 5 calendar days of the request by the *Owner* or the *Consultant* or the notice being given pursuant to GC 3.4.1.3, the *Contractor* shall produce and present to the *Owner* and the *Consultant* a plan demonstrating how the *Contractor* will recover the performance of the *Work* to align with the currently approved *Construction Schedule*. 3.4.3 The *Contractor* shall not amend the *Construction Schedule* without the prior written consent of the *Owner*.. Any revisions to the *Construction Schedule* approved by the *Owner* shall not be deemed to be an extension of the *Contract Time*. All requests by the Contractor for a revision to the Construction Schedule that include an extension to the *Contract Time* must be approved by the *Owner* through an executed *Change Order*."

GC 3.5 SUPERVISION

SC17.1	3.5.1	Delete GC 3.5.1 and replace it with the following: "3.5.1 The *Contractor* shall employ a competent full-time superintendent, acceptable to the *Owner* and *Consultant*, who shall be in full time attendance at the *Place of the Work* while the *Work* is being performed. The superintendent shall not be changed by the *Contractor* without valid reason which shall be provided in writing and shall not be changed without prior consultation with and agreement by the Owner and the *Consultant*. The *Contractor* shall replace the superintendent within 7 *Working Days* of the *Owner's* written notification, if the superintendent's performance is not acceptable to the *Owner*. The *Contractor* shall provide the *Owner* and the *Consultant* with the names, addresses and telephone numbers of the superintendent referred to in this GC 3.5.1 and other responsible persons who may be contacted for emergency and other reasons during non-working hours. ."
	3.5.2	Delete GC 3.5.2 and replace it with the following: "3.5.2 The superintendent, and any project manager appointed by the *Contractor*, shall represent the *Contractor* at the *Place of the Work* and shall have full authority to act on written instructions given by the *Consultant* and/or the *Owner*. Instructions given to the superintendent or the project manager shall be deemed to have been given to the *Contractor* and both the superintendent and any project manager shall have full authority to act on behalf of the *Contractor* and bind the *Contractor* in matters related to the *Contract*."

	3.5.3 to 3.5.6	Add new GC 3.5.3, 3.5.4, 3.5.5 and 3.5.6 as follows: "3.5.3 The *Owner* may, at any time during the course of the *Work*, request the replacement of the appointed representative(s). Immediately upon receipt of the request, the *Contractor* shall make arrangements to appoint an acceptable replacement, which is approved by the *Owner*. 3.5.4 The supervisory staff assigned to the *Project* shall also be fully competent to implement efficiently all requirements for scheduling, coordination, field engineering, reviews, inspections and submittals defined in the *Specifications,* and have a minimum 5 years documented "Superintendent/Project Management" experience. 3.5.5 The *Consultant and Owner* shall reserve the right to review the record of experience and credentials of supervisory staff assigned to the *Project* prior to commencement of the *Work*. 3.5.6 A superintendent assigned to the *Work* shall be "Gold Seal Certified" as per the Canadian Construction Association; or a superintendent that can demonstrate the requisite experience and success related to the *Project* to the sole satisfaction of the *Owner*."

GC 3.6 SUBCONTRACTORS AND SUPPLIERS

SC18.1	3.6.1.1	In paragraph 3.6.1.1 add to the end of the second line the words "including any warranties and service agreements which extend beyond the term of the *Contract*."
	3.6.1.2	In subparagraph 3.6.1.2 after the words "the *Contract Documents*" add the words "including any required surety bonding".
	3.6.2	Delete paragraph 3.6.2. in its entirety and replace it with the following: "3.6.2 The substitution of any *Subcontractor* and/or *Suppliers* after submission of the *Contractor's* bid will not be accepted unless a valid reason is given in writing to and approved by the *Owner*, whose approval may be arbitrarily withheld. The reason for substitution must be provided to the *Owner* and to the original *Subcontractor* and/or *Supplier* and the *Subcontractor* and/or *Supplier* shall be given the opportunity to reply to the *Contractor* and *Owner.* The *Contractor* shall be fully aware of the capability of each *Subcontractor* and/or *Supplier* included in its bid, including but not limited to technical ability, financial stability and ability to maintain the proposed construction schedule."
	3.6.7, 3.6.8, 3.6.9 & 3.6.10	Add new paragraphs 3.6.7, 3.6.8, 3.6.9, and 3.6.10 as follows: "3.6.7 The *Contractor* represents and warrants that it has confirmed the availability of its *Subcontractors* for the *Project* and, in particular, for the performance of their respective portions of the *Work* to ensure completion of the *Project* within the *Contract Price* and the *Contract Time*. 3.6.8 The *Consultant* or the *Owner*, acting reasonably, may from time to time require the *Contractor* to remove from the *Project* any personnel of the *Contractor*, including project managers, superintendents or *Subcontractors*. Such persons shall be replaced by the *Contractor* in a timely fashion to the satisfaction of the *Consultant* or the *Owner*, as the case may be, at no cost to the *Owner*. 3.6.9 Where provided in the *Contract*, the *Owner* may assign to the *Contractor*, and the *Contractor* agrees to accept, any contract procured by the *Owner* for *Work* or services required on the

		Project that has been pre-tendered or pre-negotiated by the *Owner*, and upon such assignment, the *Owner* shall have no further liability to any party for such contract. 3.6.10 The *Contractor* covenants that each subcontract or supply contract which the *Contractor* enters into for the purpose of performing the *Work* shall expressly provide for the assignment thereof to the *Owner* (at the option of the *Owner*) and the assumption by the *Owner* of the obligations of the *Contractor* thereunder, upon the termination of the *Contract* and upon written notice by the *Owner* to the other parties to such subcontracts or supply contracts, without the imposition of further terms or conditions; provided, however, that until the *Owner* has given such notice, nothing herein contained shall be deemed to create any contractual or other liability upon the *Owner* for the performance of obligations under such subcontracts or supply contracts and the *Contractor* shall be fully responsible for all of its obligations and liabilities (if any) under such subcontracts and supply contracts."

GC 3.7 LABOUR AND PRODUCTS

SC19.1	3.7.1	Amend paragraph 3.7.1 by adding the words, "…, agents, *Subcontractors* and *Suppliers*…" after the word "employees" in the first line.
SC19.2	3.7.2	Delete paragraph 3.7.2 and substitute with the following: "3.7.2 *Products* provided shall be new and shall conform to all current applicable specifications of the Canadian Standards Association, Canadian Standards Board or General Standards Board, ASTM, National Building Code, provincial and municipal building codes, fire safety standards, and all governmental authorities and regulatory agencies having jurisdiction at the *Place of the Work*, unless otherwise specified. *Products* which are not specified shall be of a quality consistent with those specified and their use acceptable to the *Consultant*. *Products* brought on to the *Place of the Work* by the *Contractor* shall be deemed to be the property of the *Owner*, but the *Owner* shall be under no liability for loss thereof or damage thereto arising from any cause whatsoever. The said *Products* shall be at the sole risk of the *Contractor*. Workmanship shall be, in every respect, first class and the *Work* shall be performed in accordance with the best modern industry practice."
	3.7.4 to 3.7.8	Add new paragraphs 3.7.4, 3.7.5, 3.7.6, 3.7.7, and 3.7.8 as follows: "3.7.4 Upon receipt of a *Notice in Writing* from the *Owner,* the *Contractor* shall immediately remove from the *Place of the Work*, tradesmen and labourers or anyone whose conduct jeopardizes the safety of the *Owner's* operations or who are considered by the *Owner* or the *Consultant* to be unskilled or otherwise objectionable. Immediately upon receipt of the request, the *Contractor* shall make arrangements to appoint an acceptable replacement. 3.7.5 The *Contractor* shall cooperate with the *Owner* and its representatives and shall take all reasonable and necessary actions to maintain stable and harmonious labour relations with respect to the *Work* at the *Place of the Work*, including cooperation to attempt to avoid *Work* stoppages, trade union jurisdictional disputes and other *Labour Disputes*. Any costs arising from labour disputes shall be at the sole expense of the *Contractor.* 3.7.6 The cost for overtime required beyond the normal *Working Day* to complete individual construction operations of a continuous nature, such as pouring or finishing of concrete or

		similar work, or *Work* that the *Contractor* elects to perform at overtime rates without the *Owner* requesting it, shall not be chargeable to the *Owner*. 3.7.7 All manufactured *Products* which are identified by their proprietary names or by part or catalogue number in the *Specifications* shall be used by the *Contractor.* No substitutes for such specified *Products* shall be used without the written approval of the *Owner* and the *Consultant*. Substitutes will only be considered by the *Consultant* when submitted in sufficient time to permit proper review and investigation. When requesting approval for the use of substitutes, the *Contractor* shall include in its submission any proposed change in the *Contract Price*. The *Contractor* shall use all proprietary *Products* in strict accordance with the manufacturer's directions. Where there is a choice of proprietary *Products* specified for one use, the *Contractor* may select any one of the *Products* so specified for this use. 3.7.8 Materials, appliances, equipment and other *Products* are sometimes specified by reference to brand names, proprietary names, trademarks or symbols. In such cases, the name of a manufacturer, distributor, *Supplier* or dealer is sometimes given to assist the *Contractor* to find a source *Supplier*. This shall not relieve the *Contractor* from its responsibility from finding its own source of supply even if the source names no longer supplies the *Product* specified. If the *Contractor* is unable to obtain the specified *Product*, the *Contractor* shall supply a substitute product equal to or better than the specified *Product,* as approved by the *Consultant* with no extra compensation. Should the *Contractor* be unable to obtain a substitute *Product* equal to or superior to the specified *Product* and the *Owner* accepts a different Product, the *Contract Price* shall be adjusted accordingly, as approved by the *Consultant*."

GC 3.8 SHOP DRAWINGS

SC21.1	3.8.1	Delete paragraph 3.8.1 in its entirety and replace with the following: "3.8.1 The *Contractor* shall provide shop drawings as described in the *Contract Documents* and as the *Consultant* may reasonably request."
	3.8.3	Delete paragraph 3.8.3 and replace it with the following: "3.8.3 The *Contractor* shall prepare a *Shop Drawings* schedule acceptable to the *Owner* and the *Consultant* prior to the first application for payment. A draft of the proposed *Shop Drawings* schedule shall be submitted by the *Contractor* to the *Consultant* and the *Owner* for approval. The draft *Shop Drawings* schedule shall clearly indicate the phasing of *Shop Drawings* submissions. The *Contractor* shall periodically re-submit the *Shop Drawings* schedule to correspond to changes in the *Construction Schedule*."
	3.8.5	Delete paragraph 3.8.5 in its entirety and substitute the following: "3.8.5 At the time of providing *Shop Drawings*, the *Contractor* shall advise the *Consultant* in writing of any deviations in *Shop Drawings* from the requirements of the *Contract Documents*. The *Consultant* shall indicate the acceptance of such deviation expressly in writing. Where manufacturers' literature is submitted in lieu of scaled drawings, it shall be clearly marked in ink, to indicate the specific items for which review is requested."

	3.8.8 to 3.8.12	Add new paragraphs 3.8.8, 3.8.9, 3.8.10, 3.8.11, and 3.8.12 as follows: "3.8.8 Reviewed *Shop Drawings* shall not authorize a change in the *Contract Price* and/or the *Contract Time*. 3.8.9 Except where the parties have agreed to a different *Shop Drawings* schedule pursuant to paragraph 3.10.3, the *Contractor* shall comply with the requirements for *Shop Drawings* submissions stated in the *Specifications*. 3.8.10 The *Contractor* shall not use the term "by others" on *Shop Drawings* or other submittals. The related trade, *Subcontractor* or *Supplier* shall be stated. 3.8.11 Certain *Specifications* sections require the *Shop Drawings* to bear the seal and signature of a professional engineer. Such professional engineer must be registered in the jurisdiction of the *Place of the Work* and shall have expertise in the area of practice reflected in the *Shop Drawings*. 3.8.12 The *Consultant* will review and return *Shop Drawings* and submittals in accordance with the schedule agreed upon in paragraph 3.10.3, The *Contractor* shall allow the *Consultant* a minimum of 10 *Working Days* to review *Shop Drawings* from the date of receipt. If resubmission of *Shop Drawings* is required, a further 10 *Working Day* period is required for the *Consultant's* review."

***NEW* GC 3.9 USE OF THE WORK**

SC22.1	GC 3.9	Add new GC 3.9 – USE OF THE WORK as follows: "**GC 3.9 USE OF THE WORK** 3.9.1 The *Contractor* shall confine *Construction Equipment*, *Temporary Work*, storage of *Products*, waste products and debris, and operations of employees and *Subcontractors* to limits indicated by laws, ordinances, permits, by the direction of the *Owner* or the *Consultant*, or the *Contract Documents* and shall not unreasonably encumber the *Place of the Work*. 3.9.2 The *Contractor* shall not load or permit to be loaded any part of the *Work* with a weight or force that will endanger the safety of the *Work*. 3.9.3 The *Owner* shall have the right to enter or occupy the *Place of the Work* in whole or in part for the purpose of placing fittings and equipment, or for other use before *Substantial Performance of the Work*, if, in the opinion of the *Consultant*, such entry and occupation does not prevent or substantially interfere with the *Contractor* in the performance of the *Contract* within the *Contract Time.* Such entry or occupation shall neither be considered as acceptance of the *Work* or in any way relieves the *Contractor* from its responsibility to complete the *Contract*."

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***NEW* GC 3.10 CUTTING AND REMEDIAL WORK**

SC23.1	GC 3.10	Add new GC 3.10 – CUTTING AND REMEDIAL WORK as follows: "**GC 3.10 CUTTING AND REMEDIAL WORK** 3.10.1 The *Contractor* shall perform the cutting and remedial work required to make the affected parts of the *Work* come together properly. Such cutting and remedial work shall be performed by specialists familiar with the *Products* affected and shall be performed in a manner to neither damage nor endanger the *Work*. 3.10.2 The *Contractor* shall coordinate the *Work* to ensure all cutting and remedial work required is kept to a minimum. 3.10.3 Unless specifically stated otherwise in the *Specifications*, the *Contractor* shall do all cutting and making good necessary for the proper installation and performance of the *Work.* 3.10.4 To avoid unnecessary cutting, the *Contractor* shall lay out its work and advise the *Subcontractors,* when necessary, where to leave holes for installation of pipes and other work."

***NEW* GC 3.11 CLEAN UP**

SC24.1	3.11.1, 3.11.2, 3.11.3, 3.11.4, 3.11.5 & 3.11.6	Add new paragraphs 3.11.1, 3.11.2, 3.11.3, 3.11.4, 3.11.5, and 3.11.6 as follows: "3.11.1 The *Contractor* shall maintain the *Work* in a safe and tidy condition and free from the accumulation of waste products and debris, other than that caused by the *Owner*, other contractors or their employees. The *Contractor* shall remove accumulated waste and debris at least once a week as a minimum or as required by the nature of the *Work*. 3.11.2 Before applying for *Substantial Performance of the Work*, the *Contractor* shall remove waste products and debris, other than that resulting from the work of the *Owner*, other contractors or their employees, and shall leave the *Place of the Work* clean and suitable for use or occupancy by the *Owner*. The *Contractor* shall remove products, tools, materials, *Construction Equipment,* and *Temporary Work* not required for the performance of the remaining work. 3.11.3 As a condition precedent to submitting its application for final payment, the *Contractor* shall remove any remaining products, tools, materials, *Construction Equipment*, *Temporary Work*, and waste products and debris, other than those resulting from the work of the *Owner*, other contractors or their employees. 3.11.4 The *Contractor* shall clean up garbage during and after construction and maintain the *Place of the Work* in a neat and orderly condition on a daily basis. Prior to leaving the *Place of the Work* and following completion of the *Work*, the *Contractor* shall make good all damage to the building and its components caused by the performance of the *Work* or by any *Subcontractor* or *Supplier*. The *Contractor* shall leave the *Place of the Work* in a clean and

		finished state; remove all *Construction Equipment* and materials; remove all paint, stains, labels, dirt, etc. from the *Place of the Work*; and touch up all damaged painted areas (if applicable). The *Contractor* shall be responsible for restoring those areas of the *Place of the Work*, impacted by the *Work*, to their original condition." 3.11.5 Without limitation to or waiver of the *Owner's* other rights and remedies, the *Owner* shall have the right to back charge to the *Contractor* the cost of damage to the site caused by transportation in and out of the *Place of the Work* by the *Contractor*, *Subcontractors* or *Suppliers,* if not repaired before final payment. 3.11.6 The *Contractor* shall dispose of debris at a location and in a manner acceptable to the *Owner* (and to the authorities having jurisdiction at the *Place of the Work* and at the disposal area) and the *Contractor* shall cover containers with tarpaulins."

***NEW* GC 3.12 EXCESS SOIL MANAGEMENT**

SC25.1	GC 3.12	Add new GC 3.12 – EXCESS SOIL MANAGEMENT as follows: "**GC 3.12 EXCESS SOIL MANAGEMENT** 3.12.1 The *Contractor* shall be solely responsible for the proper management of all *Excess Soil* at the *Place of the Work* and for performance of the *Work* in compliance with the rules, regulations and practices required by the *Excess Soil Regulation* until such time as *Ready-for-Takeover* is achieved. Without restricting the generality of the previous sentence, the *Contractor*'s responsibility under this GC 3.12 includes the designation, transportation, tracking, temporary and/or final placement, record keeping, and reporting of all *Excess Soil* in connection with the Work all in compliance with the *Excess Soil Regulation*. 3.12.3 The *Contractor* shall indemnify and save harmless the *Owner*, their agents, officers, directors, administrators, employees, consultants, successors and assigns from and against the consequences of any and all health and safety infractions committed directly by the *Contractor*, or those for whom it is responsible at law, under the *Excess Soil Regulation*, or any environmental protection legislation, including the payment of legal fees and disbursements on a substantial indemnity basis. Such indemnity shall apply to the extent to which the *Owner* is not covered by insurance."

***NEW* GC 3.13 CONTRACTOR STANDARD OF CARE**

SC25.1	3.13	Add a new GC 3.13 – CONTRACTOR STANDARD OF CARE as follows: "**GC 3.13 CONTRACTOR STANDARD OF CARE** "3.13.1 In performing its services and obligations under the *Contract*, the *Contractor* shall exercise the standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The *Contractor* acknowledges and agrees that throughout the *Contract,* the performance of the *Contractor's* obligations, duties and responsibilities shall be interpreted in accordance with

		this standard. The *Contractor* shall exercise the same standard of care, skill and diligence in respect of any *Products*, personnel or procedures which it may recommend to the *Owner* or employ on the *Project*. 3.13.2 The *Contractor* further represents, covenants and warrants to the *Owner* that: .1 the personnel it assigns to the *Project* are appropriately experienced; .2 it has a sufficient staff of qualified and competent personnel to replace any of its appointed representatives, subject to the *Owner's* approval, in the event of death, incapacity, removal or resignation; and .3 there are no pending, threatened or anticipated claims, liabilities or contingent liabilities that would have a material effect on the financial ability of the *Contractor* to perform its work under the *Contract*."

PART 4 ALLOWANCES

GC 4.1 CASH ALLOWANCES

SC27.1	4.1.3	In GC 4.1.3 delete the words "through the *Consultant*" and replace them with "in writing."
	4.1.4	Delete GC 4.1.4 in its entirety and replace it with the following: "4.1.4 Where the actual cost of the *Work* under any cash allowance exceeds the amount of the allowance, any unexpended amounts from other cash allowances shall be reallocated, by the *Consultant* at the *Owner*'s direction, to cover the shortfall, and, in that case, there shall be no additional amount added to the *Contract Price* for overhead and profit. Only where the actual cost of the *Work* under all cash allowances exceeds the total amount of all cash allowances shall the *Contractor* be compensated for the excess incurred and substantiated, plus an amount for overhead and profit on the excess only, as set out in the *Contract Documents.*"
	4.1.7	Delete GC 4.1.7 in its entirety and replace it with the following: "4.1.7 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the *Contract Price* by *Change Order* without any adjustment for the *Contractor's* overhead and profit on such amount."
	4.1.8 and 4.1.9	Add new GC 4.1.8 and 4.1.9 as follows: "4.1.8 The *Owner* reserves the right to call, or to have the *Contractor* call, for competitive bids for portions of the *Work* to be paid for from cash allowances. 4.1.9 Cash allowances cover the net cost to the *Contractor* of services, *Products*, *Construction Equipment*, freight, unloading, handling, storage, installation, provincial sales tax, and other

		authorized expenses incurred in performing any *Work* stipulated under the cash allowances but does not include any *Value Added Taxes* payable by the *Owner* and the *Contractor."*

PART 5 PAYMENT

GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

SC28.1	5.1	Delete GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER and all paragraphs thereunder, including any reference to GC 5.1 throughout the *Contract*.

GC 5.2 APPLICATIONS FOR PAYMENT

SC29.1	5.2.1	Delete GC 5.2.1 and replace it with the following: "5.2.1 Upon execution of the *Contract*, and in any event prior to the *Contractor* submitting its first application for payment, the *Owner* shall issue a purchase order to the *Contractor* for the performance of the *Contract*. The number indicated on such purchase order must be clearly identifiable on all applications for payment. Applications for payment shall be dated the last day of each month or an alternative day of each month agreed to in writing by the parties, with each month representing one payment period under the *Contract* (each a "**Payment Period**"). Within 3 calendar days of the end of each *Payment Period*, the *Contractor* will submit a draft application for payment to the *Owner* and the *Consultant*. Upon receipt of the draft application for payment, and within 7 calendar days, a representative of each of the *Contractor*, *Owner*, and the *Consultant* shall attend a meeting to discuss and review the work completed during the *Payment Period*, including quantities, if applicable (the "**Pre-Invoice Submission Meeting**"). In the event that the scheduled date for the *Pre-Invoice Submission Meeting* is not a *Working Day*, the *Pre-Invoice Submission Meeting* shall occur on the next *Working Day*. The *Contractor* shall bring with it to the *Pre-Invoice Submission Meeting* the following: .1 a copy of the draft application for payment; .2 any documents the *Contractor* is required to bring to the *Pre-Invoice Submission Meeting* as stipulated in the *Contract Documents* or as reasonably requested by the *Owner*; and .3 any other documents reasonably requested, in advance, by the *Owner* or the *Consultant*."
SC29.2	5.2.2	Delete GC 5.2.2 in its entirety and replace it with the following: "5.2.2 Applications for payment shall be given in accordance with the following requirements: .1 Within 5 calendar days following the *Pre-Invoice Submission Meeting*, the *Contractor* shall deliver its application for payment to the *Owner* and to the *Consultant* for *Work* performed during the *Payment Period* ("**Proper Invoice Submission Date**") subject to the following:

		.1 If the fifth calendar day following the *Pre-Invoice Submission Meeting*, to which an invoice relates falls on a day that is not a *Working Day*, the *Proper Invoice Submission Date* shall be deemed to fall on the next *Working Day*. .2 The application for payment must be delivered to the *Owner* and to the *Consultant* in the same manner as a *Notice in Writing* during the hours of 9:00 am to 4:00pm (EST) on the *Proper Invoice Submission Date*. Delivery to the *Owner* shall be to the following email address: **facilities_cap@wrdsb.ca** .3 If an application for payment is received after 4:00 p.m. (EST) on the applicable *Proper Invoice Submission Date*, the application for payment will not be considered or reviewed by the *Owner* and *Consultant* until the next *Proper Invoice Submission Date.* Notwithstanding the foregoing, the *Owner* in its sole and absolute discretion may elect to accept an application for payment submitted after 4:00 p.m. on the applicable *Proper Invoice Submission Date*; however, such acceptance shall not be construed as a waiver of any of its rights or waive or release the *Contractor*'s obligations to strictly comply with the requirements prescribed in this subparagraph 5.2.2.3. .4 No applications for payment shall be accepted by the *Owner* prior to the *Proper Invoice Submission Date*. .5 All applications for payment shall include all of the requirements for a *Proper Invoice* prescribed by the *Construction Act* and this *Contract* and be dated the last day of the applicable *Payment Period*;"
SC29.3	5.2.3	Delete GC 5.2.3 and replace it with the following: "5.2.3 The amount claimed shall be for the value, proportionate to the amount of the *Contract*, of *Work* performed and *Products* delivered and incorporated into the *Work* as of the last date of the applicable *Payment Period*. Materials may also be deemed to be supplied to an improvement, for payment purposes, when, in the *Owner's* opinion, they are placed and properly secured on the land on which the improvement is made, or placed upon land designated by the *Owner* or agent of the *Owner*, but placing the materials on the land so designated does not, of itself, make that land subject to a lien. No amount claimed shall include products delivered and incorporated into the work, unless the products are free and clear of all security interests, liens and other claims of third parties. No amount claimed shall include *Products* delivered to the *Place of the Work* unless the *Products* are free and clear of all security interests, liens, and other claims of third parties."
SC29.4	5.2.4	After the word "*Consultant*" in GC 5.2.4 add the words "and the *Owner*"
SC29.5	5.2.5	After the word "*Consultant*" in GC 5.2.5 add the words "or the *Owner*".
SC29.6	5.2.9	Add new 5.2.9 as follows:

		"5.2.9 The *Contractor* shall prepare and maintain current as-built drawings which shall consist of the *Drawings* and *Specifications* revised by the *Contractor* during the *Work*, showing changes to the *Drawings* and *Specifications*, which current as-built drawings shall be maintained by the *Contractor* and made available to the *Consultant* for review with each application for progress payment. The *Consultant* shall recommend to the *Owner* that the *Owner* retain a reasonable amount for the value of the as-built drawings not presented for review."

GC 5.3 PAYMENT

SC30.1	5.3.1	Delete GC 5.3.1 in its entirety, including all subparagraphs thereunder, and replace it with the following: "5.3.1 After receipt by the *Owner* and the *Consultant* of an application for payment submitted by the *Contractor* in accordance with GC 5.2 - APPLICATIONS FOR PAYMENT: .1 the *Consultant* will either: (a) issue to the *Owner* with a copy to the *Contractor*, a progress payment certificate in the amount applied for by the *Contractor* in the *Proper Invoice*, or (b) issue to the *Owner*, with a copy to the *Contractor*, a certificate for payment for an amount determined by the *Consultant* to be properly due to the *Contractor* after applying any credits, withheld amounts, or other set-offs which the *Consultant* has determined that the *Owner* is entitled to notwithstanding any notice of dispute or disagreement that the *Contractor* may have served, along with the *Consultant's* reasons why an amount other than what is claimed in the *Proper Invoice* is properly due to the *Contractor*, which finding the *Owner* may accept or amend prior to the *Owner* issuing a *Notice of Non-Payment*, if any, in accordance with GC 5.3.2; .2 the *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 PAYMENT, (a) in the amount stated in the certificate for payment, or (b) in the amount stated in the certificate for payment less such amount stated in the *Owner's Notice of Non-Payment* issued pursuant to GC 5.3.3, on the 28th calendar day after receipt of a *Proper Invoice*, unless such 28th calendar day lands on a day that is other than a *Working Day*, in which case payment shall be made on the next *Working Day* after such 28th day."
	5.3.2 to 5.3.7	Add new paragraphs 5.3.2, 5.3.3, 5.3.4, 5.3.4, 5.3.5, 5.3.6, and 5.3.7 as follows: 5.3.2 All payments to the *Contractor* shall be processed using electronic funds transfer ("**EFT**") and deposited directly to the *Contractor's* bank account unless agreed to otherwise by the *Contractor* and the *Owner* in writing. Prior to the *Contractor* submitting its first application

for payment, the *Owner* and the *Contractor* shall exchange such information as is necessary to facilitate *EFT* payments.

5.3.3 In the event that the application for payment delivered by the *Contractor* pursuant to GC 5.2 - APPLICATIONS FOR PAYMENT does not include the requirements for a *Proper Invoice* or where the *Owner* disputes the amount claimed as payable in the *Proper Invoice*, then the *Owner* shall within 14 calendar days of receipt of the application for payment, issue a *Notice of Non-Payment* (Form 1.1).

5.3.4 Where the *Owner* has delivered a *Notice of Non-Payment*, the *Owner* and the *Contractor* shall first engage in good faith negotiations to resolve the dispute. If within 5 calendar days following the issuance of a *Notice of Non-Payment*, despite good faith efforts by both parties and the assistance of the *Consultant*, the *Owner* and the *Contractor* cannot resolve the dispute, either party may commence an *Adjudication* in accordance with the procedures set out in the *Construction Act.* Any portion of the *Proper Invoice* which is not the subject of the *Notice of Non-Payment* shall be payable within the time period set out in GC 5.3.1.2.

5.3.5 Provided that the *Owner* complies with its obligations under the *Construction Act*, and subject to any interim determination of an adjudicator in accordance with any *Adjudication*, and where applicable, a final determination made in accordance with the dispute resolution processes prescribed by this *Contract*, the *Owner* shall be entitled to claim in a *Notice of Non-Payment* a right to deduct from or, set off against, any payment of the *Contract Price*:

.1 any amount expended by the *Owner* in exercising the *Owner's* rights under this *Contract* to perform any of the *Contractor's* obligations that the *Contractor* has failed to perform;

.2 any damages, costs or expenses (including, without limitation, reasonable legal fees and expenses) incurred by the *Owner* as a result of the failure of the *Contractor* to perform any of its obligations under the *Contract*;

.3 any other amount owing from the *Contractor* to the *Owner* under this *Contract*.

5.3.6 The amounts disputed and described under the *Notice of Non-Payment* shall be held by the *Owner* until all disputed amounts of the *Proper Invoice* have been resolved pursuant to PART 8 – DISPUTE RESOLUTION.

5.3.7 The *Contractor* represents, warrants, and covenants to the *Owner* that it is familiar with its prompt payment and trust obligations under the *Construction Act* and will take all required steps and measures to ensure that it complies with the applicable prompt payment and trust provisions under the *Construction Act* including, without limitation, section 8.1 of the *Construction Act*. Evidence of the *Contractor's* compliance under this GC 5.3.7, including evidence demonstrating that all *EFTs* by the *Owner* to the *Contractor* are kept in a bank account in the *Contractor's* name will be made available to the *Owner* within 5 *Working Days* following receipt by the *Contractor* of a *Notice in Writing* making such request."

GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK- AND PAYMENT OF HOLDBACK

SC32.1	GC 5.4	Delete GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK in its entirety and replace it with the following: "**GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK** 5.4.1 When the *Contractor* considers that *Substantial Performance of the Work* has been achieved, the *Contractor* shall prepare and submit to the *Consultant* and the *Owner* a comprehensive deficiency list of items to be completed or corrected, including any incomplete *Close-Out Documentation*, and apply for a review by the *Consultant* and the *Owner* to establish *Substantial Performance of the Work*. Failure to include an item on the list does not alter the responsibility of the *Contractor* to complete the *Contract*. 5.4.2 Prior to, or as part of its written application for *Substantial Performance of the Work* the *Contractor* shall submit to the *Consultant* submit to the *Consultant* all closeout documentation required by the *Contract Documents*, including but not limited to, warranties, manuals, guarantees, as-built drawings, warranty cards and all other relevant literature from suppliers and manufacturers including, but not limited to, where applicable (the "**Close-Out Documentation**"): .1 equipment, maintenance, and operations manuals; .2 equipment specifications, data sheets and brochures, parts lists and assembly drawings, performance curves and other related data; .3 line drawings, value charts and control sheets sequences with description of the sequence of operations; .4 warranty documents; .5 guarantees; .6 certificates; .7 service and maintenance reports; .8 *Specifications*; .9 *Shop Drawings*; .10 coordination drawings; .11 testing and balancing results and reports; .12 *Commissioning* and quality assurance documentation; .13 distribution system diagrams; .14 spare parts; .15 samples; .16 existing reports and correspondence from authorities having jurisdiction in the *Place of the Work*; .17 inspection certificates; .18 red-lined record drawings from the construction trailer in two copies and .19 other materials or documentation required to be submitted under the *Contract.* 5.4.3 The *Consultant* will review the *Work* to verify the validity of the application and shall promptly, and in any event, no later than 30 calendar days after receipt of the *Contractor's* complete deficiency list and application: .1 prepare a final deficiency list incorporating all items to be completed or corrected, including any incomplete or unsubmitted *Close-Out Documentation*. Each item shall

have an indicated value for correction or completion and the determination of the total value of such items shall be determined pursuant to GC 5.8 – DEFICIENCY HOLDBACK. The final deficiency list complete with values is to be included with the *Consultant's* draft verification and shall be reviewed with the *Owner* prior to the *Consultant* rendering a determination in accordance with GC 5.4.3.2

.2 having completed the requirements set out in GC 5.4.3.1,

(a) the *Consultant* shall advise the *Contractor* in writing that the *Work* or the designated portion of the *Work* is not substantially performed and give reasons why, or

(b) the *Consultant* shall state the date of *Substantial Performance of the Work* in a certificate and issue a copy of that certificate to each the *Owner* and the *Contractor.*

5.4.4 Following the issuance of the certificate of *Substantial Performance of the Work* referenced in subparagraph 5.4.3.2(b):

.1 The Contractor shall publish, in a construction trade newspaper in the area of the location of the Work, a copy of the certificate of S*ubstantial Performance of the Work* referred to in GC 5.4.2.2(b) within seven (7) calendar days of receiving a copy of the certificate signed by the *Consultant*, and the *Contractor* shall provide suitable evidence of the publication to the *Consultant* and the *Owner*. If the Contractor fails to publish such notice, the Owner shall be at liberty to publish said certificate and back-charge the Contractor its reasonable costs for doing so;

.2 The *Contractor* shall complete the *Work* within forty (40) calendar days of the date certified as the date of *Substantial Performance of the Work*;

.3 Notwithstanding any other provisions of the *Contract,* no payments will be processed between *Substantial Performance of the Work* and *Ready-for-Takeover*;

.4 The *Owner* reserves the right to contract out any or all unfinished *Work* if it has not been completed within forty (40) days of *Substantial Performance of the Work* using, without limitation, the funds retained in accordance with GC 5.8 - DEFICIENCY HOLDBACK, without prejudice to any other right or remedy and without affecting the warranty period. The cost to the *Owner* of completing the *Work* including *Owner* and *Consultant* wages and materials shall be deducted from the *Contract Price.*

5.4.5 After publication of the certificate of the *Substantial Performance of the Work*, and provided that the *Contractor* has completed performance of the *Work* within the 40 calendar days following certification of *Substantial Performance of the Work*, the *Contractor* may submit an application for payment of the outstanding *Construction Act* holdback amount, which application for payment shall:

.1 include all of the requirements listed in EXHIBIT "1" - PROJECT SPECIFIC REQUIREMENTS FOR A PROPER INVOICE, as applicable to the application for payment of the holdback amount; and

		.2 include a statement that the *Contractor* has not received any written notices of lien or any claims for liens from any *Subcontractor* or *Supplier.* 5.4.6 The *Construction Act* holdback amount shall become due and payable the day immediately following the expiration of the holdback period prescribed by the *Construction Act* (in most cases being the 61st calendar day following the publication of the certificate of *Substantial Performance of the Work* referred to in GC 5.4.4.1), subject to the occurrence of any of the following: .1 the preservation of a lien in respect of the *Project* that has not been satisfied, discharged or otherwise provided for in accordance with the *Construction Act*; .2 receipt by the *Owner* of a written notice of lien that has not been satisfied, discharged or otherwise provided for in accordance with the *Construction Act*; or .3 prior to the expiry of 40 calendar days following the publication of the certificate of *Substantial Performance of the Work,* the *Owner* publishes a *Notice of Non-Payment* of holdback in accordance with the *Construction Act* (Form 6)*,* setting out the amount of holdback that will not be paid, which may include non-payment to secure the correction of deficiencies and/or the completion of the *Work*. 5.4.7 Notwithstanding the *Owner's* obligation to make payment of the holdback amount in accordance with GC 5.4.6, the processing of such payment remains subject to the *Owner's* internal *EFT* timing limitations. The *Owner* covenants, and the *Contractor* agrees, that payment of the holdback shall be made by *EFT* at the first opportunity during the *Owner's* normal processing of *EFTs* upon the holdback becoming due in accordance with GC 5.4.6..

GC 5.5 FINAL PAYMENT

SC35.1	GC 5.5	Delete GC 5.5 in its entirety, including all subparagraphs thereunder and replace it with the following: "5.5.1 When *Ready-for-Takeover* has been achieved in accordance with GC 12.1 – READY-FOR-TAKEOVER and the *Contractor* considers the *Work* is complete, and after the *Contractor*, the *Owner*, and the *Consultant* have attended a *Pre-Invoice Submission Meeting* analogous to the requirement in GC 5.2.1 (the "***Final Pre-Invoice Submission Meeting***"), the *Contractor* may submit an application for final payment to the *Owner* and to the *Consultant*, which application for payment shall: .1 include all of the requirements set out in GC 5.2.2, including without limitation those requirements listed in APPENDIX "1" - PROJECT SPECIFIC REQUIREMENTS FOR A PROPER INVOICE that are specific to an application for final payment; and .2 if applicable, (a) a certificate from the *Consultant* or written confirmation from the *Owner* that the deficiencies or incomplete *Work* waived by the *Owner* pursuant to GC 12.1.2 have been fully rectified as of the date of the *Contractor's* application for final payment, and/or (b) written confirmation, signed by the *Owner* and the *Contractor,* that the *Contract Price* has been reduced by a specified amount in

exchange for the *Owner* releasing the *Contractor* of its obligation to rectify the certain outstanding deficiencies and/or incomplete *Work* waived by the *Owner* pursuant to GC 12.1.2, as detailed in such written confirmation.

5.5.2 No later than 5 calendar days prior to the *Final Pre-Invoice Submission Meeting*, the *Contractor* will, if not already provided, submit to the *Consultant* all *Close-Out Documentation*.

5.5.3 Delivery of all *Close-Out Documentation* is a requirement for the *Proper Invoice* for final payment.

5.5.4 After receipt by the *Owner* and the *Consultant* of an application for payment submitted by the *Contractor* that is a *Proper Invoice* and by no later than 10 calendar days after the receipt of the *Proper Invoice*:

.1 the *Consultant* will either:

(a) issue to the *Owner* with a copy to the *Contractor*, a progress payment certificate in the amount applied for by the *Contractor* in the *Proper Invoice*, or

(b) deliver a finding to the *Owner* with reasons why an amount other than what is claimed in the *Proper Invoice* is properly due to the *Contractor*, which finding the *Owner* may accept or amend prior to issuing a *Notice of Non-Payment* (Form 1.1), if any, in accordance with GC 5.5.2;

.2 the *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 PAYMENT,

(a) in the amount stated in the certificate for payment, or

(b) in the amount stated in the certificate for payment less such amount stated in the *Owner's Notice of Non-Payment* issued pursuant to GC 5.5.5,

on the 28th calendar day after receipt of a *Proper Invoice*, unless such 28th calendar day lands on a day that is other than a *Working Day*, in which case payment shall be made on the next *Working Day* after such 28th day.

5.5.5 In the event that the application for final payment delivered by the *Contractor* does not include the requirements of GC 5.5.1 (including the requirements for a *Proper Invoice*) and GC 5.5.2 or where the *Owner* disputes the amount claimed as payable in the *Proper Invoice*, then the *Owner* shall within 14 calendar days of receipt of the application for payment, issue a *Notice of Non-Payment*. Where the *Owner* has delivered a *Notice of Non-Payment*, as specified under this GC 5.5.5, the *Owner* and the *Contractor* shall first engage in good faith negotiations to resolve the dispute. If within 5 calendar days following the issuance of a *Notice of Non-Payment*, despite good faith efforts by both parties with the assistance of the *Consultant*, the *Owner* and the *Contractor* cannot resolve the dispute, either party may commence an *Adjudication* in accordance with the procedures set out in the *Construction*

		Act. Any portion of the *Proper Invoice* which is not the subject of the *Notice of Non-Payment* shall be payable within the time period set out in GC 5.5.4.2. 5.5.6 Subject to the provisions of the *Construction Act* and any other rights conferred on the *Owner* at law or under this *Contrac*t to withhold payment or back charge or set-off against payment, the *Owner* shall pay the amount payable under a *Proper Invoice* for final payment in accordance with the *Construction Act*. 5.5.7 When the *Consultant* issues a certificate of completion in accordance with GC 5.5.4.1, the *Consultant* shall also issue a certificate for release of any holdback for finishing work amount. In accordance with the *Construction Act,* the *Owner* may retain any amounts which are required by law to satisfy any liens against the *Work*, in respect of any third party claims made to the *Owner* in respect of the *Contract* or the *Work*, and in respect of any claims the *Owner* may have against the *Contractor*. Subject to the foregoing, the *Owner* shall release the holdback in accordance with the *Construction Act.*"

GC 5.6 DEFERRED WORK

SC33.1	5.6.1	Delete paragraph 5.6.1 and replace with the following: "5.6.1 If because of conditions reasonably beyond the control of the *Contractor*, there are items of work that cannot be performed, payment in full for that portion of the *Work* which has been performed as certified by the *Consultant* shall not be withheld or delayed by the *Owner* on account thereof, but the *Owner* may withhold, subject to its requirement to issue a *Notice of Non-Payment* under the *Construction Act*, until the remaining portion of the *Work* is finished, only such an amount that the *Consultant* determines is sufficient and reasonable to cover the cost of performing such remaining work. The remaining work shall be valued as deficient work as defined in GC 5.8.1."

***NEW* GC 5.8 DEFICIENCY HOLDBACK**

SC34.1	5.8.1	Add new GC 5.8 – DEFICIENCY HOLDBACK as follows: "**GC 5.8 DEFICIENCY HOLDBACK** 5.8.1 Notwithstanding any provisions contained in the *Contract Documents* concerning certification and release of monies to the *Contractor*, the *Owner* reserves the right to retain a *Deficiency Holdback*, In addition to the Construction Act holdback. The *Deficiency Holdback* in the value of 2% shall be applied against the total Contract value and shall be applied to each progress payment. The *Deficiency Holdback* shall be payable to the Contractor upon the confirmation of completion of all deficiencies and defects in work by the Consultant and the Owner. 5.8.2 In performing the calculation under GC 5.8.1, .1 no individual deficiency will be valued at less than five hundred dollars ($500.00); and

		.2 for any *Close-Out Documentation* not submitted in advance of or as part of the *Contractor's* application for *Substantial Performance of the Work*, an amount shall be retained by the *Owner* as part of the deficiency holdback that is equal to the estimated time and material costs to retain a third-party to re-create the applicable *Close-Out Documentation*, as determined by the *Consultant*, until such time as the applicable *Close-Out Documentation* is submitted and approved. 5.8.3 The deficiency holdback shall be due and payable to the *Contractor* on the 61st day following completion of all of the deficiencies listed by the *Consultant* and confirmed to be corrected, there being no claims for lien registered against the title to the *Place of the Work* issued in accordance with the *Construction Act*, and less any amounts disputed under an *Owner*'s *Notice of Non-Payment* (Form 1.1)."

PART 6 CHANGES IN THE WORK

GC 6.1 OWNER'S RIGHT TO MAKE CHANGES

SC37.1	6.1.2	Add the following to the end of GC 6.1.2: "This requirement is of the essence and it is the express intention of the parties that any claims by the *Contractor* for a change in the *Contract Price* and/or *Contract Time* shall be barred unless there has been strict compliance with PART 6 - CHANGES IN THE WORK. No verbal dealings between the parties and no implied acceptance of alterations or additions to the *Work* and no claims that the *Owner* has been unjustly enriched by any alteration or addition to the *Work*, whether in fact there is any such unjust enrichment or not, shall be the basis of a claim for additional payment under this *Contract,* an increase to the *Contract Price*, or a claim for any extension of the *Contract Time*."
	6.1.3 to 6.1.8	Add new paragraphs 6.1.3, 6.1.4, 6.1.5, 6.1.6, 6.1.7 and 6.1.8 as follows: "6.1.3 The *Contractor* agrees that changes resulting from construction coordination, including but not limited to, scheduling, site surface conditions, site coordination, and *Subcontractor and Supplier* coordination are included in the *Contract Price* and the *Contractor* shall be precluded from making any claim for a change in the *Contract Price* as a result of such changes. 6.1.4 Labour costs shall be actual, prevailing rates at the *Place of the Work* paid to workers, plus statutory charges on labour including WSIB, unemployment insurance, Canada pension, vacation pay, hospitalization and medical insurance. The *Contractor* shall provide these rates, when requested by the *Consultant*, for review and/or agreement. 6.1.5 Quotations for changes to the *Work* shall only include *Direct Costs* and be accompanied by itemized breakdowns together with detailed, substantiating quotations or cost vouchers from *Subcontractors* and *Suppliers,* submitted in a format acceptable to the *Consultant* and shall include any *Direct Costs* associated with extensions in *Contract Time.*

		6.1.6 When both additions and deletions covering related *Work* or substitutions are involved in a change to the *Work*, payment, including *Overhead* and profit, shall be calculated on the basis of the net difference, if any, with respect to that change in the *Work*. 6.1.7 Changes to the contract shall be quoted to permit the work to be executed within the *Contract Time* unless approved by the *Consultant* and the *Owner.* 6.1.8 No extension to the *Contract Time* shall be granted for changes in the *Work* unless the *Contractor* can clearly demonstrate that such changes significantly alter the overall construction schedule submitted at the commencement of the *Work.* Extensions of *Contract Time* and all associated costs, if approved, shall be included in the relevant *Change Order*. 6.1.9 When a change in the *Work* is proposed or required, the *Contractor* shall within 10 calendar days submit to the *Consultant* for review a claim for a change in *Contract Price* and/or *Contract Time.* Should 10 calendar days be insufficient to prepare the submission, the *Contractor* shall within 5 calendar days, advise the *Consultant* in writing of the proposed date of submission of the claim. Claims submitted after the dates prescribed herein will not be considered."

GC 6.2 CHANGE ORDER

SC38.1	6.2.1	In paragraph 6.2.1 after the last sentence in the paragraph add the following: "The adjustment in the *Contract Time* and the *Contract Price* shall include an adjustment, if any, for delay or for the impact that the change in the *Work* has on the *Work* of the *Contractor*, and once such adjustment is made, the *Contractor* shall be precluded from making any further claims for delay or impact with respect to the change in the *Work.*"
	6.2.3 to 6.2.5	Add new paragraphs 6.2.3, 6.2.4, and 6.2.5 as follows: "6.2.3 The value of a change shall be determined in one or more of the following methods as directed by the *Consultant*: .1 by estimate and acceptance of a lump sum; .2 by negotiated unit prices which include the *Contractor's* overhead and profit, or; .3 by the actual *Direct Cost* to the *Owner,* such costs to be the actual cost after all credits included in the change have been deducted, plus the following ranges of mark-up on such costs: .1 Contractor on work of their own forces, 5% overhead, 5% profit. .2 Subcontractor on work of their own forces, 5% overhead, 5 % profit

		.3 Contractor on work of Subcontractor, 5% overhead only. 6.2.4 All quotations shall include *Direct Costs* and be submitted in a complete manner listing: .1 quantity of each material, .2 unit cost of each material, .3 man hours involved, .4 cost per hour, .5 *Subcontractor* quotations submitted listing items 1 to 4 above and item 6 below. .6 mark-up. 6.2.5 The *Owner* and the *Consultant* will not be responsible for delays to the *Work* resulting from late, incomplete or inadequately broken-down valuations submitted by the *Contractor.*"

GC 6.3 CHANGE DIRECTIVE

SC39.1	6.3.6.1	Amend paragraph 6.3.6.1 by deleting the final period and adding the following: ".1 Contractors work by their own forces - 5% overhead and 5% profit, Subcontractor work by their own forces – 5% overhead and 5% profit, Contractors on Subcontractors work – 5% overhead only.
	6.3.6.2	Delete paragraph 6.3.6.2 and replace it with the following: ".2 If a change in the *Work* results in a net decrease in the *Contract Price*, the amount of the credit shall be the net cost, without deduction for *Overhead* or profit."
	6.3.7.1(4)	Delete GC 6.3.7.1(4).
	6.3.7.7	Amend GC 6.3.7.7 by deleting the words "described in paragraph 6.3.7.1" and replacing them with "approved by the *Owner* in writing and in advance of any such expenses being incurred;"
	6.3.7.9	Amend GC 6.3.7.9 by adding the following to the end of the paragraph: "…when specifically requested by the *Owner* or as directed by the *Consultant*;".
	6.3.7.10	Amend GC 6.3.7.10 by adding the following to the end of the paragraph: ", provided that such amounts are not caused by negligent acts, omissions, or default of the *Contractor* or *Subcontractor*;".
	6.3.7.13	Delete GC 6.3.7.13.

	6.3.7.15	Delete GC 6.3.7.15.
	6.3.7.17	Delete GC 6.3.7.17 in its entirety including all subparagraphs.
	6.3.11	Delete GC 6.3.11 and replace it with the following: "6.3.11 The value of the *Work* performed as a result of a *Change Directive* shall not be eligible to be included in progress payments until the amount, including the method for determining the amount, of such *Change Directive* has been determined."

GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

SC40.1	6.4.1	Delete paragraph 6.4.1 in its entirety and replace with the following: "6.4.1.1 Prior to the submission of the bid on which the Contract was awarded, the Contractor confirms that it carefully investigated the Place of the Work insofar as the Place of Work was available for investigation and, in doing so, applied to that investigation the degree of care and skill required by paragraph 3.14.1 6.4.1.2 No claim by the *Contractor* will be considered by the *Owner* or the *Consultant* in connection with conditions which could reasonably have been ascertained by such investigation or other due diligence undertaken prior to the execution of the *Contract*.
	6.4.2	Amend paragraph 6.4.2 by adding a new first sentence as follows: "Having regard to paragraph 6.4.1, if the *Contractor* believes that the conditions of the *Place of the Work* differ materially from those reasonably anticipated, differ materially from those indicated in the *Contract Documents* and were concealed from discovery notwithstanding the conduct of the investigation described in paragraph 6.4.1, it shall provide the *Owner* and the *Consultant* with *Notice in Writing* no later than five (5) *Working Days* after the first observation of such conditions." -and- amend the existing second sentence of paragraph 6.4.2 in the second line, following the word "materially" by adding the words "or were concealed from discovery notwithstanding the conduct of the investigation described in paragraph 6.4.1,".
	6.4.3	Delete paragraph 6.4.3 in its entirety and substitute the following: "6.4.3 If the *Consultant* makes a finding pursuant to paragraph 6.4.2 that no change in the *Contract Price* or the *Contract Time* is justified, the *Consultant* shall report in writing the reasons for this finding to the *Owner* and the *Contractor*."
	6.4.5	Add new paragraph 6.4.5 as follows: "6.4.5 No claims for additional compensation or for an extension of *Contract Time* shall be allowed if the *Contractor* fails to give *Notice in Writing* to the *Owner* or *Consultant,* as required by paragraph 6.4.2."

GC 6.5 DELAYS

SC41.1	6.5.1	In paragraph 6.5.1 delete the words after the word "for" in the fourth line and replace them with the words "…reasonable *Direct Costs* directly flowing from the delay, but excluding any consequential, indirect or special damages (including, without limitation, loss of profits, loss of opportunity or loss of productivity)."
	6.5.2	Delete GC 6.5.2 in its entirety and replace it with the following: "6.5.2 If the *Contractor* is delayed in the performance of the *Work* by a stop work order issued by a court or other public authority and providing that such order was issued on account of a direct breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes by the *Owner*, *Other Contractor(s)*, or the *Consultant*, and relating to the *Work* or the *Place of the Work*, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may determine. The *Contractor* shall be reimbursed by the *Owner* for reasonable *Direct Costs* directly flowing from the delay, but excluding any consequential, indirect or special damages (including, without limitation, loss of profits, loss of opportunity or loss of productivity)."
	6.5.3	Delete paragraph 6.5.3 in its entirety and replace with the following: "6.5.3 If either party is delayed in the performance of their obligations under this *Contract* by *Force Majeure*, then the *Contract Time* shall be extended for such reasonable time as the *Owner* and the *Contractor* shall agree. The extension of time shall not be less than the time lost as a result of the event causing the delay, unless the parties agree to a shorter extension. Neither party shall be entitled to payment for costs incurred by such delays. Upon reaching agreement on the extension of the *Contract Time* attributable to the *Force Majeure* event, the *Owner* and the *Contractor* shall execute a *Change Order* indicating the length of the extension to the *Contract Time* and confirming that there are no costs payable by the either party for the extension of *Contract Time*. However, if at the time an event of *Force Majeure* arises a party is in default of its obligations under the *Contract* and has received a notice of default pursuant to PART 7 – DEFAULT NOTICE, this paragraph 6.5.3 shall not excuse a party from its obligation to cure the default(s). For greater certainty, the defaulting party, to the extent possible, must continue to address and cure the default notwithstanding an event of *Force Majeure*."
	6.5.4	Delete paragraph 6.5.4 in its entirety and replace it with the following: "6.5.4 No extension or compensation shall be made for delay or impact on the *Work* unless notice in writing of a claim is given to the *Consultant* not later than ten (10) *Working Days* after the commencement of the delays or impact on the *Work*, provided however, that, in the case of a continuing cause of delay or impact on the *Work*, only one notice of claim shall be necessary."

	6.5.6 to 6.5.8	Add new paragraphs 6.5.6, 6.5.7 and 6.5.8 as follows: "6.5.6 If the *Contractor* is delayed in the performance of the *Work* by an act or omission of the *Contractor* or anyone directly or indirectly employed or engaged by the *Contractor,* or by any cause within the *Contractor's* control, then (i) firstly, at its expense, and to the extent possible, the *Contractor* shall accelerate the work and/or provide overtime work to recover time lost by a delay arising under this paragraph 6.5.6, and (ii) secondly, where it is not possible for the *Contractor* to recover the time lost by implementing acceleration measures and/or overtime work, the *Contract Time* may be extended for such reasonable time as the *Owner* may decide in consultation with the *Consultant* and the *Contractor*. The *Owner* shall be reimbursed by the *Contractor* for all reasonable costs incurred by the *Owner* as the result of such delay, including, but not limited to, Owner's staff costs, the cost of all additional services required by the *Owner* from the *Consultant* or any sub-consultants, project managers, or others employed or engaged by the *Owner*, and in particular, the costs of the *Consultant's* services during the period between the date of *Substantial Performance of the Work* stated in Article A-1 herein, as the same may be extended through the provision of these General Conditions, and any later or actual date of *Substantial Performance of the Work* achieved by the *Contractor*. 6.5.7 Without limiting the obligations of the *Contractor* described in GC 3.2 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS or GC 9.4 – CONSTRUCTION SAFETY, the *Owner* or *Consultant* may, by *Notice in Writing*, direct the *Contractor* to stop the *Work* where the *Owner* or *Consultant* determines that there is an imminent risk to the safety of persons or property at the *Place of the Work*. In the event that the *Contractor* receives such notice, it shall immediately stop the *Work* and secure the site. The *Contractor* shall not be entitled to an extension of the *Contract Time* or to an increase in the *Contract Price* unless the resulting delay, if any, would entitle the *Contractor* to an extension of the *Contact Time* or the reimbursement of the *Contractor's* costs as provided in paragraphs 6.5.1, 6.5.2 or 6.5.3. 6.5.8 No claim for delay shall be made by the *Contractor* and the *Contract Time* shall not be extended due to climatic conditions or arising from the *Contractor's* efforts to maintain the *Construction Schedule*."

PART 7 DEFAULT NOTICE

GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

SC43.1	7.1.2	In GC 7.1.2, delete the words "and if the *Consultant* has given a written statement to the *Owner* and *Contractor* which provides the detail of such neglect to perform the *Work* properly or such failure to comply with the requirements of the *Contract* to a substantial degree".
SC43.2	7.1.3.4	Add a new subparagraph 7.1.3.4 as follows: ".4 an "acceptable schedule" as referred to in subparagraph 7.1.3.2. means a schedule approved by the *Consultant* and the *Owner* wherein the default can be corrected within the balance of the

		Contract Time and shall not cause delay to any other aspect of the *Work* or the work of other contractors, and in no event shall it be deemed to give a right to extend the *Contract Time*."
	7.1.4.1	Delete subparagraph 7.1.4.1 and replace it with the following: ".1 correct such default and deduct the cost, including *Owner's* expenses, thereof from any payment then or thereafter due the *Contractor*."
	7.1.4.2	Delete subparagraph 7.1.4.2 and replace it with the following: ".2 by providing *Notice in Writing* to the *Contractor*, terminate the *Contractor's* right to continue with the *Work* in whole or in part or terminate the *Contract*, and publish a notice of termination (Form 8) in accordance with the *Act*."
	7.1.5.3	In subparagraph 7.1.5.3 delete the words: "however, if such cost of finishing the *Work* is less than the unpaid balance of the *Contract Price*, the *Owner* shall pay the *Contractor* the difference"
	7.1.6 to 7.1.10	Delete GC 7.1.6 and replace it with new paragraphs 7.1.6, 7.1.7, 7.1.8, 7.1.9 and 7.1.10 as follows: "7.1.6 In addition to its right to terminate the *Contract* set out herein, the *Owner* may terminate this *Contract* at any time for any other reason and without cause upon giving the *Contractor* fifteen (15) *Working Days Notice in Writing* to that effect. In such event, the *Contractor* shall be entitled to be paid for all *Work* performed including reasonable profit, for loss sustained upon *Products* and *Construction Equipment*, and such other damages as the *Contractor* may have sustained as a result of the termination of the *Contract*, but in no event shall the *Contractor* be entitled to be compensated for any loss of profit on unperformed portions of the *Work*, or indirect, special, or consequential damages incurred. 7.1.7 The *Owner* may suspend *Work* under this *Contract* at any time for any reason and without cause upon giving the *Contractor Notice in Writing* to that effect. In such event, the *Contractor* shall be entitled to be paid for all *Work* performed to the date of suspension and be compensated for all actual costs incurred arising from the suspension, including reasonable profit, for loss sustained upon *Products* and *Construction Equipment*, and such other damages as the *Contractor* may have sustained as a result of the suspension of the *Work*, but in no event shall the *Contractor* be entitled to be compensated for any indirect, special, or consequential damages incurred. In the event that the suspension continues for more than thirty (30) calendar days, the *Contract* shall be deemed to be terminated and the provisions of paragraph 7.1.6 shall apply. 7.1.8 In the case of either a termination of the *Contract* or a suspension of the *Work* under GC 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT or GC 7.2 - CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the *Contractor* shall use its best commercial efforts to mitigate the financial consequences to the *Owner* arising out of the termination or suspension, as the case may be. 7.1.9 Upon the resumption of the *Work* following a suspension under GC 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT or GC 7.2 - CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the *Contractor* will endeavour to minimize the delay and financial consequences arising out of the suspension.

		7.1.10 The *Contractor's* obligations under the *Contract* as to quality, correction, and warranty of the *Work* performed by the *Contractor* up to the time of termination or suspension shall continue after such termination of the *Contract* or suspension of the *Work*."

GC 7.2 CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT

SC44.1	7.2.2	Delete paragraph 7.2.2 and replace it with the following: "7.2.2 If the *Work* is suspended or otherwise delayed for a period of 40 consecutive *Working Days* or more under a stop work order issued by a court or other public authority on account of a breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes directly by the *Owner*, the *Owner's* other contractor(s), or the *Consultant*, and relating to the *Work* or the *Place of the Work*, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, terminate the *Contract* by giving the *Owner* Notice in *Writing* to that effect."
SC44.2	7.2.3.1	Delete subparagraph 7.2.3.1 in its entirety.
	7.2.3.2	Delete subparagraph 7.2.3.2 in its entirety.
	7.2.3.4	In subparagraph 7.2.3.4, delete the words "except for GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER".
	7.2.5	Delete paragraph 7.2.5 and replace it with the following: "7.2.5 If the default cannot be corrected within the 5 *Working Days* specified in paragraph 7.2.4, the *Owner* shall be deemed to have cured the default if it: .1 commences correction of the default within the specified time; .2 provides the *Contractor* with an acceptable schedule for such correction; and, .3 completes the correction in accordance with such schedule."
	7.2.6 to 7.2.9	Add new paragraphs 7.2.6, 7.2.7, 7.2.8 and 7.2.9 as follows: "7.2.6 If the *Contractor* terminates the *Contract* under the conditions described in GC 7.2 – CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the *Contractor* shall be entitled to be paid for all *Work* performed to the date of termination, as determined by the *Consultant*. The *Contractor* shall also be entitled to recover the direct costs associated with termination, including the costs of demobilization and losses sustained on *Products* and *Construction Equipment*. The *Contractor* shall not be entitled to any recovery for any special, indirect or consequential losses, including loss of profit. 7.2.7 The *Contractor* shall not be entitled to give notice of the *Owner's* default or terminate the *Contract* in the event the *Owner* withholds certificates or payment or both in accordance with the *Contract* because of: .1 the *Contractor's* failure to pay all legitimate claims promptly, or

		.2 the failure of the *Contractor* to discharge construction liens which are registered against the title to the *Place of the Work.* 7.2.8 The *Contractor's* obligations under the *Contract* as to quality, correction and warranty of the *Work* performed by the *Contractor* up to the effective date of termination shall continue in force and shall survive termination of this *Contract* by the *Contractor*. 7.2.9 If the *Contractor* suspends the *Work* or terminates the *Contract* as provided for in GC 7.2 – CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the *Contractor* shall ensure the site and the *Work* are left in a safe, secure condition as required by authorities having jurisdiction at the *Place of the Work* and the *Contract Documents*."

PART 8 DISPUTE RESOLUTION

GC 8.1 AUTHORITY OF THE CONSULTANT

SC45.1	8.1.3	Delete paragraph 8.1.3 in its entirety and substitute as follows: "8.1.3 If a dispute is not resolved promptly, the *Consultant* will give such instruction as in the *Consultant's* opinion are necessary for the proper performance of the *Work* and to prevent delays pending settlement of the dispute. The parties shall act immediately according to such instructions, it being understood that by doing so neither party will jeopardize any claim the party may have."

GC 8.2 ADJUDICATION

SC45.2	8.2.2 to 8.2.7	Add new GC 8.2.2, 8.2.3, 8.2.4, 8.2.5, 8.2.6, and 8.2.7 as follows: "8.2.2 Save and except where the *Contractor* has given an undertaking, in accordance with the *Act*, to refer a dispute to *Adjudication*, prior to delivering a notice of *Adjudication* in a form prescribed by the *Act*, the parties agree to first address all disputes with at least one in-person meeting with the *Owner's* representative, the *Consultant's* representative, and the *Contractor's* representative. The parties agree that such steps will be taken to resolve any disputes in a timely and cost-effective manner. 8.2.3 Notwithstanding any other provisions in PART 8 DISPUTE RESOLUTION, the parties shall engage in *Adjudication* proceedings as required by, and in accordance with, the *Construction Act*. 8.2.4 The following procedures shall apply to any *Adjudication* the parties engage in under the *Construction Act*: .1 any hearings shall be held at a venue within the jurisdiction of the *Place of the Work* or such other venue as the parties may agree and which is acceptable to the adjudicator; .2 the *Adjudication* shall be conducted in English; .3 each party may be represented by counsel throughout an *Adjudication*;

		.4 there shall not be any oral communications with respect to issues in dispute that are the subject of an *Adjudication* between a party and the adjudicator unless it is made in the presence of both parties or their legal representatives; and .5 a copy of all written communications between the adjudicator and a party shall be given to the other party at the same time. 8.2.5 Any documents or information disclosed by the parties during an *Adjudication* are confidential and the parties shall not use such documents or information for any purpose other than the *Adjudication* in which they are disclosed and shall not disclose such documents and information to any third party, unless otherwise required by law, save and except the for the adjudicator. 8.2.6 If the *Contractor* fails to comply with any of the notice requirements set out in the *Contract*, including the time limits set out in any of the following: .1 GC 6.4 – CONCEALED OR UNKNOWN CONDITIONS; .2 GC 6.5 – DELAYS; .3 GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE; .4 PART 8 DISPUTE RESOLUTION .5 GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES .6 GC 9.3 – ARTIFACTS AND FOSSILS; or .7 GC 9.5 - MOULD in respect of any claim or dispute, the *Contractor* shall have no entitlement whatsoever (including to an increase in the *Contract Price*, or an extension of *Contract Time*) in the context of an *Adjudication* under the *Construction Act* and waives the right to make any such claims or disputes in an *Adjudication*. This GC 8.2.6 shall operate conclusively as an estoppel and bar in the event such claims or disputes are brought in an *Adjudication* and the *Owner* may rely on this GC 8.2.6 as a complete defence to any such claims or disputes. 8.2.7 The parties hereby acknowledge and agree, .1 that counterclaims, claims of set-off or the exercise or use of other contractual rights that permit the *Owner* to withhold, deduct or retain from monies otherwise owed to the *Contractor* under the *Contract* may be referred to, and included as part of, *Adjudications* under the *Construction Act*; .2 that disputes related to the termination or abandonment of the *Contract*, as well as any disputes that arise or are advanced following the termination or abandonment of the *Contract*, shall not be referred to *Adjudication* under the *Construction Act*; .3 that notice(s) of *Adjudication,* with respect to any dispute or claim relating to the *Project,* shall not be given, and no *Adjudication* shall be commenced following *Contract* completion, *Contract* abandonment, or termination of the *Contract*; .4 that any *Adjudication* between the *Contractor* and a *Subcontractor* or a supplier that relates to an *Adjudication* between the *Owner* and the *Contractor* shall be joined together to be adjudicated by a single adjudicator, provided that the adjudicator agrees to do so, and the *Contractor* shall include a provision in each of its contracts that contain an equivalent obligation to this GC 8.2.7.4; and .5 that, other than where the *Contractor* is obliged to commence an *Adjudication* pursuant to an undertaking under the *Construction Act,* neither the *Owner* nor the *Contractor* shall commence an *Adjudication* during the *Restricted Period*.

		8.2.8 The parties acknowledge and agree that no *Adjudication*, arbitration, action, suit or other proceeding may be brought by the *Contractor* against the *Owner* in respect of a claim for an increase to the *Contract Price* as set out in GC 6.6, before the *Consultant* has issued its findings in respect of same, pursuant to GC 6.6.5. For greater clarity and without limiting the foregoing, the amount applied for in each *Proper Invoice* shall not include any amounts pertaining to the *Contractor's* claim for an increase in *Contract Price* unless and until the *Consultant* has issued a written notice to the *Contractor* regarding the validity of such claim, as provided for in GC 6.6.5. However, nothing in this GC 8.2.8 shall prevent a *Contractor* from commencing an *Adjudicatio*n where, pursuant to the *Construction Act*, the *Contractor* is required to give an undertaking to a *Subcontractor* to commence an *Adjudication* following delivery of a *Notice of Non-Payment*."

GC 8.3 NEGOTIATION, MEDIATION AND ARBITRATION

SC46.1	8.3.1	Amend paragraph 8.3.1 by changing part of the second line from "shall appoint a *Project Mediator*" to "may appoint a *Project Mediator,* except that such an appointment shall only be made if both the *Owner* and the *Contractor* agree."
	8.3.4	Amend paragraph 8.3.4 by changing part of the second line from "the parties shall request the *Project Mediator"* to "and subject to paragraph 8.3.1 the parties may request the *Project Mediator".*
	8.3.6 to 8.3.9	Delete paragraphs 8.3.6, 8.3.7 and 8.3.8 in their entirety and replace them with the following new GCs 8.3.6, 8.3.7, 8.3.8, and 8.3.9: "8.3.6 The dispute may be finally resolved by arbitration under the Rules for Arbitration of Construction Disputes as provided in CCDC 40 in effect at the time of bid closing, provided that both the *Contractor* and the *Owner* agree. If the *Contractor* and the *Owner* agree to resolve the dispute by arbitration, the arbitration shall be conducted in the jurisdiction of the *Place of the Work*. 8.3.7 Prior to delivering a notice of *Adjudication* in a form prescribed by the *Act*, the parties agree to first address all disputes by attending at least one meeting with the *Owner*'s representative, the *Consultant*'s representative, and the *Contractor*'s representative, prior to commencing an *Adjudication*. The parties agree that such steps will be taken to resolve any disputes in a timely and cost effective manner. If a resolution to the dispute(s) is not made at such a meeting, any party who plans to commence an *Adjudication* shall provide the other party with 5 *Working Days' Notice in Writing* of its intention to issue a notice of *Adjudication*. 8.3.8 Other than where the *Contractor* is obliged to commence an *Adjudication* pursuant to an undertaking under the *Construction Act*, neither the *Owner* nor the *Contractor* shall commence an *Adjudication* during the *Restricted Period*. 8.3.9 Where either party has delivered a notice of *Adjudication* in a form prescribed by the *Act*, the procedures and rules set out under the *Construction Act* and the regulations thereto shall govern the *Adjudication*."

PART 9 PROTECTION OF PERSONS AND PROPERTY

GC 9.1 PROTECTION OF WORK AND PROPERTY

SC47.1	9.1.1.1	Delete subparagraph 9.1.1.1 in its entirety and substitute the following: ".1 errors in the *Contract Documents* which the *Contractor* could not have discovered applying the standard of care described in paragraph 3.14.1;"
	9.1.2	Delete paragraph 9.1.2 in its entirety and substitute as follows: "9.1.2 Before commencing any *Work*, the *Contractor* shall determine the locations of all underground or hidden utilities and structures indicated in or inferable from the *Contract Documents*, or that are inferable from an inspection of the *Place of the Work* exercising the degree of care and skill described in paragraph 3.14.1."
	9.1.5	Add new paragraph 9.1.5 as follows: "9.1.5 With respect to any damage to which paragraphs 9.1.3 or 9.1.4 apply, the *Contractor* shall neither undertake to repair or replace any damage whatsoever to the work of other contractors, or to adjoining property, nor acknowledge that the same was caused or occasioned by the *Contractor*, without first consulting the *Owner* and receiving written instructions as to the course of action to be followed from either the *Owner* or the *Consultant*. Where, however, there is danger to life, the environment, or public safety, the *Contractor* shall take such emergency action as it deems necessary to remove the danger."

GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

SC48.1	9.2.1	Amend GC 9.2.1 by inserting the following to the end of the paragraph: "For the purposes of GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES, *Excess Soil* shall not be considered a 'toxic and hazardous substance'."
SC48.2	9.2.5.5	Add a new subparagraph 9.2.5.5 as follows: ".5 in addition to the steps described in subparagraph 9.2.5.3, take any further steps it deems necessary to mitigate or stabilize any conditions resulting from encountering toxic or hazardous substances or materials."
	9.2.6	Amend GC 9.2.6 by adding the following words after the word "responsible" in the second line: "or whether any toxic or hazardous substances or materials already at the *Place of the Work* (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the *Contractor* or anyone for whom the *Contractor* is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damages to the property of the *Owner* or others,".
	9.2.8	Amend GC 9.2.8 by adding the following words after the word "responsible" in the second line:

		"or whether any toxic or hazardous substances or materials already at the *Place of the Work* (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the *Contractor* or anyone for whom the *Contractor* is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damages to the property of the *Owner* or others,".
	9.2.10	Add new paragraph 9.2.10 as follows: "9.2.10 The *Contractor*, *Subcontractors* and *Suppliers* shall not bring on to the *Place of the Work* any toxic or hazardous substances and materials except as required in order to perform the *Work*. If such toxic or hazardous substances or materials are required, storage in quantities sufficient to allow work to proceed to the end of any current work week only shall be permitted. All such toxic and hazardous materials and substances shall be handled and disposed of only in accordance with all laws and regulations that are applicable at the *Place of the Work*."

GC 9.4 CONSTRUCTION SAFETY

SC49.1	9.4.1	Delete GC 9.4.1 in its entirety and replace it with the following: "9.4.1 The *Contractor* shall be solely responsible for construction safety at the *Place of the Work* and for compliance with the rules, regulations, and practices required by the *OHSA*, including, but not limited to those of the "constructor", and shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the *Work*. The *Contractor*'s health and safety program documentation shall be made available for review by the *Owner* or *Consultant* immediately upon request. Without limiting the foregoing, the *Contractor* shall be solely responsible for construction safety in respect of the *Consultant*, *Subcontractors* and *Suppliers*, the *Owner's* own forces, *Other Contractors*, and all persons attending the *Place of the Work* during the course of the *Project*."
	9.4.2	Amend GC 9.4.2 by adding the following words after "and the *Contractor*": ", *Subcontractors* and *Suppliers*".
	9.4.3	Amend GC 9.4.3 by adding the following words after "and the *Contractor*": ", *Subcontractors* and *Suppliers*".
	9.4.4	Delete GC 9.4.4 and replace it with the following: "9.4.4 The *Owner* undertakes to include in its contracts with other contractors and in its instructions to its own forces the requirement that the other contractor or its own forces, as the case may be, comply with the policies and procedures of and the directions and

		instructions from the *Contractor* with respect to occupational health and safety and related matters."
	9.4.5	Delete GC 9.4.5 in its entirety and replace it with the following: "9.4.5 Prior to the commencement of the *Work*, the *Contractor* shall submit to the *Owner*: .1 a current WSIB clearance certificate; .2 copies of the *Contractor*'s insurance policies having application to the *Project* or certificates of insurance, at the option of the *Owner*; .3 documentation setting out the *Contractor*'s in-house safety programs; .4 a copy of the Notice of Project filed with the Ministry of Labour naming itself as "constructor" under the *OHSA*; and . 5 copies of any documentation or notices to be filed or delivered to the authorities having jurisdiction for the regulation of occupational health and safety at the *Place of the Work*;"
	9.4.6 to 9.4.12	Add new GC 9.4.6, 9.4.7, 9.4.8, 9.4.9, 9.4.10, 9.4.11, and 9.4.12 as follows: "9.4.6 The *Contractor* shall indemnify and save harmless the *Owner*, its agents, trustees, officers, directors, employees, consultants, successors, appointees, and assigns from and against the consequences of any and all safety infractions committed by the *Contractor* under *OHSA* and any other occupational health and safety legislation in force at the *Place of the Work* including the payment of legal fees and disbursements on a solicitor and client basis. Such indemnity shall apply to the extent to which the *Owner* is not covered by insurance. 9.4.7 If the *Owner* is of the reasonable opinion that the *Contractor* has not taken such precautions as are necessary to ensure compliance with the requirements of paragraph 9.4.1, the *Owner* may take any remedial measures which it deems necessary, including stopping the performance of all or any portion of the *Work,* and the *Owner* may use its employees, the *Contractor*, any *Subcontractor* or any other contractors to perform such remedial measures. 9.4.8 The *Contractor* shall file any notices or any similar document required pursuant to the *Contract* or the safety regulations in force at the *Place of the Work*. This duty of the *Contractor* will be considered to be included in the *Work* and no separate payment therefore will be made to the *Contractor*. 9.4.9 Unless otherwise provided in the *Contract Documents*, the *Contractor* shall develop, maintain and supervise for the duration of the *Work* a comprehensive safety program that will effectively incorporate and implement all required safety precautions. The program shall, at a minimum, respond fully to the applicable safety regulations and general construction practices for the safety of persons or property, including, without limitation, any general safety rules and regulations of the *Owner* and any workers' compensation or occupational health and safety statutes or regulations in force at the *Place of the Work*. 9.4.10 The *Contractor* shall provide a copy of the safety program described in GC 9.4.9 hereof to the *Consultant* for delivery to the *Owner* prior to the commencement of the *Work*, and

		shall, ensure, as far as it is reasonably practical to do so, that every employer and worker performing work in respect of the *Project* complies with such program. 9.4.11 The *Contractor* shall arrange regular safety meetings, and shall supply and maintain, at its own expense, at its office or other well-known place at the job site, safety equipment necessary to protect the workers and general public against accident or injury as prescribed by the authorities having jurisdiction at the *Place of the Work*, including, without limitation, articles necessary for administering first-aid to any person and an emergency procedure for the immediate removal of any injured person to a hospital or a doctor's care. 9.4.12 The *Contractor* shall promptly report in writing to the *Owner* and the *Consultant* all accidents of any sort arising out of or in connection with the performance of the *Work*, whether on or adjacent to the job site, giving full details and statement of witnesses. If death or serious injuries or damages are caused, the accident shall be promptly reported by the *Contractor* to the *Owner* and the *Consultant* by telephone or messenger in addition to any reporting required under the applicable safety regulations."."

PART 10 GOVERNING REGULATIONS

GC 10.1 TAXES AND DUTIES

SC50.1	10.1.2	Amend paragraph 10.1.2 by adding the following sentence to the end of the paragraph: "For greater certainty, the *Contractor* shall not be entitled to any mark-up for overhead or profit on any increase in such taxes and duties and the *Owner* shall not be entitled to any credit relating to mark-up for overhead or profit on any decrease in such taxes. The *Contractor* shall provide a detailed breakdown of Additional taxes if requested by the *Owner* in a form satisfactory to the *Owner*."
	10.1.3	Add new paragraph 10.1.3 as follows: "10.1.3 Where the *Owner* is entitled to an exemption or a recovery of sales taxes, customs duties, excise taxes or *Value Added Taxes* applicable to the *Contract*, the *Contractor* shall, at the request of the *Owner*, assist with the application for any exemption, recovery or refund of all such taxes and duties and all amounts recovered or exemptions obtained shall be for the sole benefit of the *Owner*. The *Contractor* agrees to endorse over to the *Owner* any cheques received from the federal or provincial governments, or any other taxing authority, as may be required to give effect to this paragraph."

GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

SC51.1	10.2.5	Amend paragraph 10.2.5 by adding the words "Subject to paragraph 3.4" at the beginning of the paragraph. -and- Add the following to the end of the second sentence: "…and no further *Work* on the affected components of the *Contract* shall proceed until these directives have been obtained by the *Contractor* from the *Consultant*."

	10.2.6	Amend paragraph 10.2.6 by adding the following sentence to the end of the paragraph: "In the event the *Owner* suffers loss or damage as a result of the *Contractor's* failure to comply with paragraph 10.2.5 and notwithstanding any limitations described in paragraph 12.1.1, the *Contractor* agrees to indemnify and to hold harmless the *Owner* and the *Consultant* from and against any claims, demands, losses, costs, damages, actions suits or proceedings resulting from such failure by the *Contractor*."
	10.2.7	Amend paragraph 10.2.7 by inserting the words "which changes were not, or could not have reasonably been known to the *Owner* or to the *Contractor*, as applicable, at the time of bid closing and which changes did not arise as a result of a public emergency or other *Force Majeure* event" to the second line, after the words "authorities having jurisdiction".
	10.2.8	Add new paragraph 10.2.8 as follows: "10.2.8 The *Contractor* shall furnish all certificates that are required or given by the appropriate governmental authorities as evidence that the *Work* as installed conforms with the laws and regulations of authorities having jurisdiction, including certificates of compliance for the *Owner's* occupancy or partial occupancy. The certificates are to be final certificates giving complete clearance of the *Work*, in the event that such governmental authorities furnish such certificates."

GC 10.4 WORKERS' COMPENSATION

SC52.1	10.4.1	Delete paragraph 10.4.1 and replace with the following: "10.4.1 Prior to commencing the *Work*, and with each and every application for payment thereafter, including the *Contractor's* application for payment of the holdback amount following *Substantial Performance of the Work* and again with the *Contractor's* application for final payment, the *Contractor* shall provide evidence of compliance with workers' compensation legislation in force at the *Place of the Work*, including payments due thereunder."

GC 11.1 INSURANCE

SC53.1	11.1	Delete entirety of GC 11.1 and replace with the following: "**GC 11.1 INSURANCE** 11.1.1 Without restricting the generality of GC 12 – INDEMNIFICATION, the *Contractor* shall provide, maintain, and pay for the insurance coverages specified in GC 11.1 – INSURANCE. Unless otherwise stipulated, the duration of each insurance policy shall be from the date of commencement of the *Work* until the expiration of the warranty periods set out in the *Contract Documents*. Prior to commencement of the *Work* and upon the placement, renewal, amendment, or extension of all or any part of the insurance, the *Contractor* shall promptly provide the *Owner* with confirmation of coverage and, if required, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any amending endorsements. .1 **General Liability Insurance** General liability insurance shall be in the name of the *Contractor,* with the *Owner* and the *Consultant* named as Additional insureds, with limits of not less than $5,000,000.00 inclusive per occurrence for bodily injury, death, and damage to property, including loss of use thereof, for itself and each of its employees, *Subcontractors* and/or agents. The

insurance coverage shall not be less than the insurance required by IBC Form 2100, or its equivalent replacement, provided that IBC Form 2100 shall contain the latest edition of the relevant CCDC endorsement form. To achieve the desired limit, umbrella, or excess liability insurance may be used. All liability coverage shall be maintained for completed operations hazards from the date of *Ready-for-Takeover*, as set out in the certificate of *Ready-for-Takeover,* on an ongoing basis for a period of 6 years following *Ready-for-Takeover*. Where the *Contractor* maintains a single, blanket policy, the Addition of the *Owner* and the *Consultant* is limited to liability arising out of the *Project* and all operations necessary or incidental thereto. The policy shall be endorsed to provide the *Owner* with not less than 30 days' notice, in writing, in advance of any cancellation and of change or amendment restricting coverage.

.2 **Automobile Liability Insurance**

Automobile liability insurance in respect of licensed vehicles shall limits of not less than $2,000,000.00 inclusive per occurrence for bodily injury, death and damage to property, covering all licensed vehicles *owned* or leased by the *Contractor*, and endorsed to provide the *Owner* with not less than 30 days' notice, in writing, in advance of any cancellation, change or amendment restricting coverage. Where the policy has been issued pursuant to a government-operated automobile insurance system, the *Contractor* shall provide the *Owner* with confirmation of automobile insurance coverage for all automobiles registered in the name of the *Contractor.*

.3 **Aircraft and Watercraft Liability Insurance**

Intentional Deleted. Not Applicable

.4 Property and Boiler and Machinery Insurance

(1) Builder's Risk property insurance shall be in the name of the *Contractor* with the *Owner* and the *Consultant* named as Additional insureds. The policy shall insure against all risks of direct physical loss or damage to the property insured which shall include all property included in the *Work*, whether owned by the *Contractor* or the owner or owned by others, so long as the property forms part of the *Work*. The property insured also includes all materials and supplies necessary to complete the work, whether installed in the work temporarily or permanently, in storage on the project site, or in transit to the project site, as well as temporary buildings, scaffolding, falsework forms, hoardings, excavation, site preparation and similar work. The insurance shall be for not less than the sum of the amount of the contract price and the full value of products that are specified to be provided by the owner for incorporation into the work, if applicable, with the deductible of $10,000.00 payable by the contractor. The insurance shall include the foregoing and, otherwise, shall not be less than the insurance required by IBC Form 4042 or its equivalent replacement provided that the IBC Form 4042 shall include the latest Addition of the relevant CCDC endorsement form. The coverage shall be based on a completed value form and shall be maintained continuously until ten (10) days after the date of the final certificate of payment.

(2) Boiler and machinery insurance shall be in the name of the *Contractor*, with the *Owner* and the *Consultant* named as Additional insureds, for not less than the replacement value of the boilers, pressure vessels and other insurable objects forming part of the *Work*. The insurance provided shall not be less than the insurance provided by

		the "Comprehensive Boiler and Machinery Form" and shall be maintained continuously from commencement of use or operation of the property insured and until 10 days after the date of the final certificate for payment. (3) The policies shall allow for partial or total use or occupancy of the *Work.* (4) The policies shall provide that, in the case of a loss or damage, payment shall be made to the *Owner* and the *Contractor* as their respective interests may appear. The *Contractor* shall act on behalf of the *Owner* for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined, the *Contractor* shall proceed to restore the *Work*. Loss or damage shall not affect the rights and obligations of either party under the *Contract* except that the *Contractor* shall be entitled to such reasonable extension of the *Contract Time,* relative to the extent of the loss or damage, as determined by the *Owner*, in its sole discretion. (5) The *Contractor* shall be entitled to receive from the *Owner*, in Addition to the amount due under the *Contract*, the amount at which the *Owner's* interest in restoration of the *Work* has been appraised, such amount to be paid as the restoration of the *Work* proceeds and as provided in GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT and GC 5.3 – PROGRESS PAYMENT. In Addition, the *Contractor* shall be entitled to receive from the payments made by the insurer the amount of the *Contractor's* interest in the restoration of the *Work*. (6) In the case of loss or damage to the *Work* arising from the work of other contractors, or the *Owner's* own forces, the *Owner*, in accordance with the *Owner's* obligations under paragraph 3.2.2.4 of GC 3.2 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS, shall pay the *Contractor* the cost of restoring the *Work* as the restoration of the *Work* proceeds and as provided in GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT and GC 5.3 – PROGRESS PAYMENT. **.5 Contractors' Equipment Insurance** "All risks" contractors' equipment insurance covering construction machinery and equipment used by the *Contractor* for the performance of the *Work*, excluding boiler insurance, shall be in a form acceptable to the *Owner* and shall not allow subrogation claims by the insurer against the *Owner.* The policies shall be endorsed to provide the *Owner* with not less than 30 days' notice, in writing, in advance of cancellation, change or amendment restricting coverage. Subject to satisfactory proof of financial capability by the *Contractor* for self-insurance of his equipment, the *Owner* agrees to waive the equipment insurance requirement. 11.1.2 The *Contractor* shall be responsible for deductible amounts under the policies except where such amounts may be excluded from the *Contractor's* responsibility by the terms of GC 9.1 - PROTECTION OF WORK AND PROPERTY and GC 9.2 - DAMAGES AND MUTUAL RESPONSIBILITY. 11.1.3 Where the full insurable value of the *Work* is substantially less than the *Contract Price*, the *Owner* may reduce the amount of insurance required to waive the course of construction insurance requirement.

		11.1.4 If the *Contractor* fails to provide or maintain insurance as required by the *Contract Documents*, then the *Owner* shall have the right to provide and maintain such insurance and provide evidence of same to the *Contractor*. The *Contractor* shall pay the costs thereof to the *Owner* on demand, or the *Owner* may deduct the amount that is due or may become due to the *Contractor*. 11.1.5 All required insurance policies shall be with insurers licensed to underwrite insurance in the jurisdiction of the *Place of the Work*."

***NEW* GC 11.2 CONTRACT SECURITY**

SC52.1	GC 11.2	Add new GC 11.2 – CONTRACT SECURITY as follows: "**GC 11.2 CONTRACT SECURITY** 11.2.1 The *Contractor* shall, prior to the execution of the *Contract*, furnish a performance bond and labour and material payment bond which meets the requirements under paragraph 11.2.2. 11.2.2 The performance bond and labour and material payment bond shall: .1 be issued by a duly licensed surety company, which has been approved by the *Owner* and is permitted under the *Construction Act*, .2 be issued by an insurer licensed under the *Insurance Act* (Ontario) and authorized to transact a business of suretyship in the Province of Ontario; .3 shall be in the form prescribed by the *Construction Act*; .4 have a coverage limit of at least 50 per cent of the *Contract Price*, or such other percentage of the *Contract Price* as stated in the *Contract Documents*; .5 extends protection to *Subcontractors*, *Suppliers,* and any other persons supplying labour or materials to the *Project*; and .6 shall be maintained in good standing until the fulfillment of the *Contract*, including all warranty and maintenance periods set out in the *Contract Documents*.. 11.2.3 It is the intention of the parties that the performance bond shall be applicable to all of the *Contractor's* obligations in the *Contract Document* and, wherever a performance bond is provided with language which conflicts with this intention, it shall be deemed to be amended to comply. The *Contractor* represents and warrants to the *Owner* that it has provided its surety with a copy of the *Contract Documents* prior to the issuance of such bonds. 11.2.4 Without limiting the foregoing in any way, the bonds shall indemnify and hold harmless the *Owner* for and against costs and expenses (including legal and *Consultant* services and court costs) arising out of or as a consequence of any default of the *Contractor* under this *Contract*. 11.2.4 The *Contractor* shall be responsible for notifying the surety company of any changes made to the *Contract* during the course of construction. 11.2.5 The premiums for bonds required by the *Contract Documents* shall be included in the *Contract Price*. 11.2.6 Should the *Owner* require additional bonds by the *Contractor* or any of his *Subcontractors*, after the receipt of bids for the *Work*, the *Contract Price* shall be increased by all direct

		costs attributable to providing such bonds. The *Contractor* shall promptly provide the *Owner*, through the *Consultant*, with any such bonds that may be required."

PART 12 OWNER TAKEOVER

GC 12.1 READY-FOR-TAKEOVER

SC55.1	12.1.1	Delete GC 12.1.1 in its entirety and replace it with the following: "12.1.1 *Ready-for-Takeover* shall be achieved when all of the following has occurred, as verified and approved by the *Owner*: .1 *Substantial Performance of the Work* has been achieved, as certified by the *Consultant*; .2 a permit for occupancy of the *Place of the Work* has been obtained from the authorities having jurisdiction; .3 the *Work* to be performed under the *Contract* has satisfied the requirements for deemed completion in accordance with Section 2(3) of the *Construction Act*, .4 final cleaning and waste removal, as required by the *Contract Documents*; .5 the *Contractor* has delivered to the *Consultant* and the *Owner* all inspection certificates from authorities having jurisdiction with respect to any component of the *Work* which has been completed; .6 subject only to GC 12.1.2, the entire *Work* has been completed to the requirements of the *Contract Documents*, including completion of all items on the punch list prepared at the time of *Substantial Performance of the Work* and the *Work* is being used for its intended purpose, and is so certified by the *Consultant*; .7 subject only to GC 12.1.2, the *Contractor* has submitted to the *Owner* and the *Consultant* in a collated and organized matter, all *Close-Out Documentation* and any other materials or documentation required by the *Contract Documents*; .8 subject only to GC 12.1.2, all *Products*, systems and components of the *Project* have been commissioned and certified for operation and accepted by the *Owner* and *Consultant*, and 9 subject only to GC 12.1.2, the *Contractor* has submitted to the *Owner* and the *Consultant* full and complete as-built drawings and *Specifications* revised by the *Contractor* to reflect the as-built state of the *Work*, clearly showing changes to the *Drawings* and *Specifications* from the original *Contract Documents*, all of which have been approved by the *Owner* acting reasonably."
SC55.2	12.1.2	Delete GC 12.1.2 in its entirety and replace it with the following: "12.1.2 The *Owner* may, in its sole, absolute, and unfettered discretion, waive compliance with a requirement, or a part thereof, for achieving *Ready-for-Takeover* set out in GC 12.1.1.6 to 12.1.1.9 (inclusive). Where the *Owner* exercises the discretion afforded under this GC 12.1.2, the *Contractor* shall be required to comply with GC 5.5.1.2 as part of its

		application for final payment and the *Owner* and the *Contractor*, in consultation with the *Consultant*, shall establish a reasonable date for completing the *Work*."
SC55.3	12.1.3	Delete GC 12.1.3 in its entirety and replace it with the following: "12.1.3 When the *Contractor* considers the *Work Ready-for-Takeover*, it shall submit a written application to the *Owner* and the *Consultant* for review."
SC55.4	12.1.4	In GC 12.1.4, delete the words "list and" from the second line.
SC55.5	12.1.5	Delete GC 12.1.5 in its entirety and replace it with the following: "12.1.5 Following the confirmation of the date of *Ready-for-Takeover* by the *Consultant* and as confirmed by the *Owner*, the *Contractor* may submit a final application for payment in accordance with GC 5.5 – FINAL PAYMENT."
SC55.6	12.1.6	Delete GC 12.1.6 in its entirety.

GC 12.2 EARLY OCCUPANCY

SC56.1	GC 12.2	Delete GC 12.2 – EARLY OCCUPANCY BY THE OWNER in its entirety, including all subparagraphs thereunder and replace it with the following: "12.2.1 The Owner reserves the right to take possession of and use for any intended purpose any portion or all of the undelivered portion of the Project even though the Work may not have reached Substantial Performance of the Work. Where the Work extends beyond the Contract Time, progress and completion of the Work shall not unduly interfere with the delivery of scheduled school programs. The taking of possession or use of any such portion of the Project shall not be deemed to be the Owner's acknowledgement or acceptance of the Work or Project nor shall it relieve the Contractor of any of its obligations under the Contract. 12.2.2 Whether the Project contemplates Work by way of renovations in buildings which will be in use or be occupied during the course of the Work or where the Project involves Work that is adjacent to a structure which is in use or is occupied, the Contractor, without in any way limiting its responsibilities under this Contract, shall take all reasonable steps to avoid interference with fire exits, building access and egress, continuity of electric power and all other utilities, to suppress dust and noise and to avoid conditions likely to propagate mould or fungus of any kind and all other steps reasonably necessary to promote and maintain the safety and comfort of the users and occupants of such structures or adjacent structures."

GC 12.3 WARRANTY

SC57.1	12.3.1 12.3.2	Delete from the first line of paragraph 12.3.1 the words "one year" and replace it with the words "two years" Delete from the first line of paragraph 12.3.2 the word "The" and replace it with the words "Subject to GC 1.1.3, the…"

	12.3.7 to 12.3.12	Add new paragraphs 12.3.7 to 12.3.12 as follows: "12.3.7 Where required by the *Contract Documents*, the *Contractor* shall provide a maintenance bond as security for the performance of the *Contractor's* obligations as set out in GC 12.3 WARRANTY. 12.3.8 The *Contractor* shall provide fully and properly completed and signed copies of all warranties and guarantees required by the *Contract Documents*, containing: .1 the proper name of the *Owner*; .2 the proper name and address of the *Project*; .3 the date the warranty commences, which shall be at the "*Ready-for-Takeover*" unless otherwise agreed upon by the *Consultant* in writing. .4 a clear definition of what is being warranted and/or guaranteed as required by the *Contract Documents*; and .5 the signature and seal (if required by the governing law of the *Contract*) of the company issuing the warranty, countersigned by the *Contractor*. 12.3.9 Should any *Work* need to be repaired or replaced during the time period for which it is covered by the specified warranty, a new warranty shall be provided under the same conditions and for the same period as specified herein before. The new warranty shall commence at the completion of the repair or replacement. 12.3.10 The *Contractor* shall ensure that its *Subcontractors* are bound to the requirements of GC 12.3 – WARRANTY for the *Subcontractor's* portion of the *Work.* 12.3.11 The *Contractor* shall ensure that all warranties, guarantees or other obligations for *Work*, services or *Products* performed or supplied by any *Subcontractor, Supplier* or other person in connection with the *Work* are obtained and available for the direct benefit of the *Owner.* In the alternative, the *Contractor* shall assign to the *Owner* all warranties, guarantees or other obligations for *Work*, services or *Products* performed or supplied by any *Subcontractor, Supplier* or other person in connection with the *Work* and such assignment shall be with the consent of the assigning party, where required by law, or by the terms of that party's contract. Such assignment shall be in addition to, and shall in no way limit, the warranty rights of the *Owner* under the *Contract Documents*. 12.3.12 The *Contractor* shall commence or correct any deficiency within 2 *Working Days* after receiving a *Notice in Writing* from the *Owner* or the *Consultant*, and shall complete the *Work* as expeditiously as possible, except in the case where the deficiency prevents maintaining security or where basic systems essential to the ongoing business of the *Owner* and/or its tenants cannot be maintained operational as designed. In those circumstances all necessary corrections and/or installations of temporary replacements shall be carried out immediately as an emergency service. Should the *Contractor* fail to provide this emergency service within 8 hours of a request being made during the normal business hours of the *Contractor*, the *Owner* is authorized, notwithstanding GC 3.1, to carry out all necessary repairs or replacements at the *Contractor's* expense."

PART 13 INDEMNIFICATION AND WAIVER

GC 13.1 INDEMNIFICATION

SC58.1	GC 13.1	Delete GC 13.1 – INDEMNIFICATION in its entirety and replace it with the following: "13.1.1 The *Contractor* shall indemnify and hold harmless the *Owner*, its parent, subsidiaries and affiliates, their respective partners, trustees, officers, directors, agents and employees and the *Consultant* from and against any and all claims, liabilities, expenses, demands, losses, damages, actions, costs, suits, or proceedings (hereinafter called "claims"), whether in respect of claims suffered by the *Owner* or in respect of claims by third parties, that directly or indirectly arise out of, or are attributable to, the acts or omissions of the *Contractor*, its employees, agents, *Subcontractors*, *Suppliers* or any other persons for whom it is in law responsible (including, without limitation, claims that directly or indirectly arise out of, or are attributable to, loss of use or damage to the *Work*, the *Owner's* property or equipment, the *Contractor's* property or equipment or equipment or property adjacent to the *Place of the Work* or death or injury to the *Contractor's* personnel). 13.1.2 The *Owner* shall indemnify and hold the *Contractor*, its agents and employees harmless from and against claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the *Contractor'*s performance of the *Contract* which are attributable to a lack of or defect in title or an alleged lack of or defect in title to the *Place of the Work*. 13.1.3 The provisions of GC 13.1 - INDEMNIFICATION shall survive the termination of the *Contract,* howsoever caused and no payment or partial payment, no issuance of a final certificate of payment and no occupancy in whole or in part of the *Work* shall constitute a waiver or release of any of the provisions of GC 13.1 13.1.4 Notwithstanding the provisions of GC1.1 - CONTRACT DOCUMENTS, GC 1.1.6, GC13.1 - INDEMNIFICATION shall govern over the provisions of GC 1.3.1 of GC1.3 – RIGHTS AND REMEDIES."

GC 13.2 WAIVER OF CLAIMS

	13.2.1	In paragraph 13.2.1 in the third line after the word "limitation" add the words "claims for delay pursuant to GC 6.5 DELAYS" -and- add the words "(collectively "**Claims**")" after "*Ready-for-Takeover*" in the fourth line.
	13.2.1.1	In subparagraph 13.2.1.1, in each instance change the word "claims" to "Claims" and change the word "claim" to "Claim".
	13.2.1.2	In subparagraph 13.2.1.2 change the word "claims" to "Claims".

	13.2.1.3	Delete subparagraph 13.2.1.3 in its entirety.
	13.2.1.4	In paragraph 13.2.1.4 change the word “claims” to “Claims”.
	13.2.2.1	In paragraph 13.2.2.1 delete the words “in paragraphs 13.2.1.2 and 13.2.1.3” and replace them with “in paragraph 13.2.1.2” -and- change the word “claims” to “Claims” in both instances and change the word “claim” to “Claim”.
	13.2.3	Delete paragraph 13.2.3 in its entirety.
	13.2.4	Delete paragraph 13.2.4 in its entirety.
	13.2.5	Delete paragraph 13.2.5 in its entirety.
	13.2.6	In paragraph 13.2.6 change the word “claim” to “Claim” in all instances in the paragraph.
	13.2.8	In paragraph 13.2.8 change “The party” to “The *Contractor* -and- change the word “claim” to “Claim” in all instances in the paragraph.
	13.2.9	In paragraph 13.2.9 delete the words “under paragraphs 13.2.1 or 13.2.3” and replace them with “under paragraph 13.2.1” -and- change both instances of the words “the party” to “the *Contractor*”. Change the word “claim” to “Claim” in all instances in the paragraph.

***NEW* PART 14 OTHER PROVISIONS**

SC58.1	14.1	Add new PART 14 – OTHER PROVISIONS as follows: “**PART 14 OTHER PROVISIONS** **GC 14.1 OWNERSHIP OF MATERIALS** 14.1.1 Unless otherwise specified, all materials existing at the *Place of the Work* at the time of execution of the *Contract* shall remain the property of the *Owner*. All *Work* and *Products* delivered to the *Place of the Work* by the *Contractor* shall be the property of the *Owner.* The *Contractor* shall remove all surplus or rejected materials as its property when notified in writing to do so by the *Consultant*.”

	14.2	Add new GC 14.2 – CONSTRUCTION LIENS as follows: **"GC 14.2 LIENS** 14.2.1 Notwithstanding any other provision in the *Contract*, the *Consultant* shall not be obligated to issue a certificate, and the *Owner* shall not be obligated to make payment, subject to the *Owner*'s requirement to issue a *Notice of Non-Payment* (Form 1.1) to the *Contractor*, if at the time such certificate or payment was otherwise due: .1 a claim for lien has been registered against the *Project* lands by a *Subcontractor* or a *Supplier* that has not been vacated or discharged by the *Contractor* in accordance with the requirements of this *Contract*, or .2 if the *Owner* or a mortgagee of the *Project* lands has received a written notice of a lien that has not been resolved by the *Contractor* through the posting of security or otherwise. 14.2.2 In the event a construction lien arising from the performance of the *Work* is registered or preserved against the *Project* lands by a *Subcontractor* or a *Supplier*, or a written notice of a lien is given or a construction lien action is commenced against the *Owner* by a *Subcontractor* or a *Supplier*, then the *Contractor* shall, at its own expense: .1 within 10 calendar days of registration of the construction lien, vacate or discharge the lien from title to the premises (i.e. the *Place of the Work*). If the lien is merely vacated, the *Contractor* shall, if requested, undertake the *Owner*'s defence of any subsequent action commenced in respect of the lien, at the *Contractor*'s sole expense; .2 within 10 calendar days of receiving notice of a written notice of a lien, post security with the Ontario Superior Court of Justice so that the written notice of a lien no longer binds the parties upon whom it was served; and .3 satisfy all judgments and pay all costs arising from such construction liens and actions and fully indemnify the *Owner* against all costs and expenses arising from same, including legal costs on a full indemnity basis. 14.2.3 In the event that the *Contractor* fails or refuses to comply with its obligations pursuant to paragraph 14.2.2, the *Owner* shall, at its option, be entitled to take all steps necessary to address any such construction liens including, without limitation and in addition to the *Owner's* rights under paragraph 13.2.4, the posting of security with the Ontario Superior Court of Justice to vacate the claim for lien from title to the *Project* lands, and in so doing will be entitled to a full indemnity from the *Contractor* for all legal fees, security, disbursements and other costs incurred and will be entitled to deduct same from amounts otherwise owing to the *Contractor*. 14.2.4 In the event that any *Subcontractor* or *Supplier* registers any claim for lien with respect to all or part of the *Place of Work*, the *Owner* shall have the right to withhold, in addition to the statutory holdback, the full amount of said claim for lien plus either: (a) $250,000 if the claim for lien is in excess of $1,000,000 or (b) 25% of the value of the claim for lien and to bring a motion to vacate the registration of said claim for lien and any associated

		certificate of action in respect of that lien, in accordance with Section 44 of the *Act*, by paying into court as security the amount withheld. 14.2.5 Nothing in this GC 14.2 serves to preclude the *Contractor* from preserving and perfecting its lien in the event of non-payment by the *Owner*."

APPENDIX 1
to the Supplementary Conditions

Project-specific requirements for a "*Proper Invoice*"

To satisfy the requirements for a *Proper Invoice*, the following criteria, as may be applicable in each case, must be included with the *Contractor's* application for payment:

.1 the written bill or request for payment must be in writing;

.2 the *Contractor*'s name and current address;

.3 the *Contractor*'s HST registration number;

.4 the date the application for payment was prepared by the *Contractor*;

.5 the period of time in which the services or materials were supplied to the *Owner*;

.6 the purchase order number provided by the *Owner*;

.7 reference to the provisions of the *Contract* under which payment is being sought (e.g. GC 5.3 –PAYMENTS for progress payments, GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK GC 5.5 – FINAL PAYMENT for final payment, etc.);

.8 a description, including quantities where appropriate, of the services or materials, or a portion thereof, that were supplied and form the basis of the *Contractor's* request for payment;

.9 the amount the *Contractor* is requesting to be paid by the *Owner*, set out in a statement based on the schedule of values approved under GC 5.2.4, separating out any statutory or other holdbacks, set-offs and HST;

.10 a sworn Statutory Declaration in the form CCDC 9A-2018, only for second and subsequent progress payments;

.11 a current Workplace Safety Insurance Board clearance certificate;

.12 a pre-approved schedule of values, supplied by the *Contractor*, for Divisions 1 through 14 of the *Specifications* (or equivalent Construction Specifications Institute Masterformat) of the *Work*, aggregating the total amount of the *Contract Price*, including all supporting invoicing;

.13 a separate pre-approved schedule of values, supplied by each *Subcontractor*, for each of Division 15, 16, and 17 of the *Specifications* (or equivalent Construction Specifications Institute Masterformat) of the *Work*, aggregating the total amount of the *Contract Price*, including all supporting invoicing;

.14 invoices and other supporting documentation for all claims against the cash allowance;

.15 a current, acceptable, and up to date *Construction Schedule Update*;

.16 if requested by the *Owner*, a current and valid certificate(s) of insurance as required under GC 11.1 – INSURANCE;

.17 the name, title, telephone number and mailing address of the person at the place of business of the *Contractor* to whom payment is to be directed;

.18 a current, up to date, and approved *Shop Drawing* log;

.19 in the case of the *Contractor's* application for final payment, in addition to the foregoing requirements (as applicable):

(a) any *Close-Out Documentation*, together with complete and final as-built drawings;

(b) the *Contractor's* written request for release of the deficiency holdback, including a statement that no written notices of lien have been received by it;

(c) the *Contractor's* written certification that there are no outstanding claims, pending claims or future claims from the *Contractor* or their *Subcontractors* or *Suppliers*; and

(d) sufficient evidence of the *Contractor's* compliance with GC 3.11.

END OF AMENDMENTS TO CCDC 2 - 2020

DIVISION 01 - GENERAL REQUIREMENTS

01 14 00 – Work Restrictions

1.0 GENERAL

1.1. SECTION INCLUDES

.1 Connecting to existing services

.2 Special scheduling requirements

1.2. RELATED SECTIONS

.1 Section 01 53 00 - Temporary Construction.

.2 Section 01 33 00 - Submittal Procedures.

.3 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3. EXISTING SERVICES

.1 Notify Owner and Consultant and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Consultant and Owner forty-eight (48) hours of notice for necessary interruption of mechanical or electrical service throughout the course of work.

.1 Keep duration of interruptions minimum.

.2 Perform interruptions after normal working hours of occupants, preferably on weekends.

.2 Provide for vehicular, pedestrian and personnel traffic.

.3 Construct barriers in accordance with Section 01 53 00.

1.2. AFTER HOURS WORK

.1 Schedule Work with school staff through the Board's contact so as to limit disruption to school operations. Include for any overtime, to ensure orderly and continuous progression of Work and operation of school.

.2 Direct calls from Contractors to Board staff to adjust alarms and to arrange for access will not be accepted. All correspondence must be through the Project Manager.

.3 Arrange 48 hours in advance with the Board to obtain an access card and adjust security alarms for after hours Work.

.4 Bidders are cautioned that the Board will be compensated by the Contractor for false alarms. Any costs associated with each false alarm will be levied against the Contractor for false fire alarm activation or security alarm activation. These costs may include, but are not limited to:

.1 Fines or penalties imposed by the local Fire Services,

.2 Fines or penalties imposed by the local Police Services,

.3 Overtime costs borne by the Board.

.5 Contractors are responsible for ensuring doors and windows are secured prior to leaving school.

.6 Unless specifically stated otherwise school activities take precedence over Contractor's activities.

1.3. SPECIAL REQUIREMENTS

.1 Schedule and perform work in occupied areas to the Board Representative's approval.

.2 Schedule and perform noise generating work to the Board Representative's approval.

.3 Submit schedule of special requirements or disruptions in accordance with Section 01 33 00.

.4 All Contractor personnel are restricted to the job site and necessary access routes. No personnel shall visit other areas or buildings without specific authorization.

END OF SECTION

01 19 00 – Specifications and Documents

1.0 GENERAL

1.1. RELATED DOCUMENTS

.1 This section describes requirements applicable to all sections within Divisions 02 to 49.

1.2. WORDS AND TERMS

.1 Conform to definitions and their defined meanings in the Agreement and Definitions portion of CCDC 2 for Supplementary Words and Terms listed in Section 00 56 13.

1.3. COMPLEMENTARY DOCUMENTS

.1 Generally, drawings indicate graphically, the dimensions and location of components and equipment. Specifications indicate specific components, assemblies, and identify quality.

.2 Drawings, specifications, diagrams and schedules are complementary, each to the other, and what is required by one, to be binding as if required by all.

.3 Should any conflict or discrepancy appear between documents, which leaves doubt as to the intent or meaning, apply the Precedence of Documents article below or obtain guidance or direction from Consultant.

.4 Examine all discipline drawings, specifications, schedules, diagrams and related Work to ensure that Work can be satisfactorily executed.

.5 All specification sections of the Project Manual and Drawings are affected by requirements of Division 01 sections.

1.4. PRECEDENCE OF DOCUMENTS

.1 In the event of conflict within and between the Contract Documents, the order of priority within specifications and drawings for this project are - from highest to lowest:

.1 the Agreement and Definitions between the Owner and the Construction

.2 the Defined Terms, Definitions;

.3 Supplementary Conditions;

.4 the General Conditions;

.5 Sections of Division 01 of the specifications;

.6 Technical specifications Sections of Divisions 02 through 49 of the specifications.

.7 Schedules and Keynotes:
  .1 Material and finishing schedules within the specifications, then;
  .2 Material and finishing schedules on drawings, then;
  .3 Keynotes and definitions thereto, then;

.8 Drawings:
  .1 Drawings of larger scale shall govern over those of smaller scale of the same date, then;
  .2 Dimensions shown on drawings shall govern over dimensions scaled from drawings, then;
  .3 Location of utility outlets indicated on architectural detail drawings takes precedence over positions or mounting heights located on mechanical or electrical Drawings.

.9 Later dated documents shall govern over earlier documents of the same type.

1.5. SPECIFICATION GRAMMAR

.1 Specifications are written in the imperative command mode, in an abbreviated form.

.2 Imperative language of the technical sections is always directed to the Contractor identified as a primary constructor, as sole executor of the Contract, unless specifically noted otherwise.
  .1 This form of imperative command mode statement requires the primary constructor to perform such action or Work.
  .2 Perform all requirements of the Contract Documents whether stated imperatively or otherwise.

.3 Division of the Work among subcontractors, suppliers, or others is solely the prime contractor's responsibility. The Consultant(s) and specification authors assume no responsibility to function or act as an arbiter to establish subcontract scope or limits between sections or divisions of Work.

END OF SECTION

01 21 00 – Allowances

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 45 00 – Quality Control.

.2 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. GENERAL

.1 Allowances included herein are for items of Work which could not be fully quantified prior to Bidding.

.2 Expend each allowance as directed by the Consultant. Work covered by allowances shall be performed for such amounts and by such persons as directed by Consultant.

.3 Funds will be expended by means of Cash Allowance allocations and contingency allowance allocations.

.4 Progress payments for Work and Products authorized under allowances will be made in accordance with the payment terms set out in the Conditions of the Contract.

.5 The Contractor shall bid the work involved and submit the Bids received to the Consultant and the Board, for approval

.6 The Contractor shall submit 3 bids unless directed by the Board.

1.3. CASH ALLOWANCES

.1 Cash allowances, cover the net cost to the Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage, installation where indicated, and other authorized expenses incurred in performing the Work. Cash allowances shall not be included by a subcontractor in the amount for their subcontract work.

.2 Supply only allowances shall include:

- .1 Net cost of Products.
- .2 Delivery to Site.
- .3 Applicable taxes and duties, excluding HST.

.3 Supply and install allowances shall include:

- .1 Net cost of Products.
- .2 Delivery to Site.
- .3 Unloading, storing, handling or products on site.

.4 Installation, finishing and commissioning of products.

.5 Applicable taxes and duties, excluding HST.

.4 Inspection and testing allowances shall include:

.1 Net cost of inspection and testing services.

.2 Applicable taxes and duties, excluding HST.

.5 Other costs related to work covered by cash allowances are not covered by the allowance, but shall be included in the Contract Price.

.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 monthly certificate for payment.

.8 Submit, before application for final payment, copies of all invoices and statements from suppliers and subcontractors for work which has been paid from cash allowances.

1.4. ALLOWANCES SCHEDULE

Include in the Bid Price cash allowances to address the cost of the following items:

1	Designated Substance Removal. (Additional removal not already identified in the ACM Summary report)	$5,000.00
2	Independent Testing & Inspection	$5,000.00
3	Window coverings (Additional window coverings not addressed elsewhere in the specification)	$5,000.00
4	Data cabling installation and network equipment (Including terminations)	$5,000.00
5	Voice cabling installation and telephone equipment	$5,000.00
6	Access Control & Intrusion Detection Systems (security systems) (Where not otherwise identified in the Contract Documents and including all cabling)	$5,000.00

7	Video surveillance system (Where not otherwise identified in the Contract Documents and including all cabling)	$5,000.00
8	Public Address (PA) systems. (Including all cabling and hardware)	$5,000.00
9	Soundfield System upgrades	$14,000.00
10	Remedial work (painting work or flooring work not currently part of the contract)	$10,000.00
	Total of All Allowances:	**$64,000.00**

END OF SECTION

01 31 00 – Project Managing And Coordination

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 32 00 - Construction Progress Documentation.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 53 00 – Temporary Construction Facilities

.4 Section 01 61 00 – Product Requirements

.5 Section 01 78 00 – Closeout Submittals and Requirements

.6 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. PROJECT COORDINATION

.1 Perform coordination of progress schedules, submittals, use of site, temporary utilities, construction facilities and construction Work, with progress of Work of other contractors, under instructions of the Consultant.

.2 The Contractor shall have total control of the Work and shall effectively direct and supervise the Work so as to ensure conformity with the Contract Documents and within the Contract Time.

.3 The Contractor shall be solely responsible for the construction means, methods, sequences, and procedures and for coordinating parts of the Work under the contract.

.4 Coordinate progress of the Work, progress schedules, submittals, use of site, temporary utilities, construction facilities, safety regulations and fire protection, as per authorities having jurisdiction codes.

.5 The Consultant has the authority to stop the Work:

.1 whenever they observe or are made aware of unsafe conditions.

.2 whenever it is deemed necessary to protect the interests of the Board,

.3 whenever materials or workmanship are in contravention to the Contract Documents.

1.3. SITE SUPERVISOR AND PROJECT MANAGER

.1 If requested, the Contractor shall provide the Consultant, in writing, the name of the Project Manager and Site Supervisor, and proof of competent experience in similar projects.

.2 Performance of the Contractors Project Manager and Site Supervisor

.1 If the Board and or the Consultant become concerned with any of: Site Safety, Project Schedule, or general compliance with the tender documents due to the performance of the Site Supervisor or Project Manager, the Consultant and or the Board will identify the concerns in writing to the Contractor.

.2 The Contractor shall respond in writing to the Board and Consultant with a corrective action for each item within 24 hours.

.3 If it is found that any of the corrections are not immediately implemented, the Consultant and the Board shall meet with the General Contractor to review the credentials including curriculum vitae and comparable experience of a replacement Site Supervisor and or Project Manager proposed by that Contractor.

.4 All outstanding concerns initiating the replacement of the personnel will be immediately addressed to the satisfaction of the Consultant and the Board.

.3 If the Board and or the Consultant become concerned with site safety, project schedule or general compliance with the tender documents due to the performance of the Site Supervisor or the Project Manager, the Consultant or the Board will issue the concerns in writing to the Contractor. The Contractor shall respond in writing within 24 hours to the Consultant and the Board. If any of the corrections are not immediately implemented, the Consultant or the Board will schedule a meeting with the Consultant, General Contractor and the Board. At this meeting the Contractor will introduce the new Project Manager, and or Site Supervisor and present the Curriculum Vitae for each showing proof of comparable experience in similar projects. The Contractor will then address the outstanding concerns to the satisfaction of the Consultant and the Board.

.4 The Project Manager, and/or Site Supervisor shall not be replaced by the Contractor without prior written approval from the Board and the Consultant.

1.4. PERMITS

.1 **The Board will obtain & pay for all building permits, but the Contractor is responsible for all other permits, including electrical inspection and fire alarm verification.**

1.5. CONSTRUCTION DOCUMENTS

.1 The Consultant will provide the Contractor with PDF copies of both the drawings and the specification and CAD format files of the drawings at no charge to the Contractor. All printing will be at the cost of the Contractor including the AS-BUILT documents.

1.6. PRE-CONSTRUCTION MEETING

.1 Immediately prior to construction and upon notification by the Consultant of a time and date, the Contractor shall attend the preconstruction meeting at a location as determined by the Consultant, along with authoritative representatives of certain key subcontractors as specifically indicated in the conference notice. Agenda to include following:

.1 Appointment of official representative of participants in Work.

.2 Project communications procedures

.3 Schedule of Work, progress scheduling (including long lead items, cash allowance items) as specified in Section 01 32 00.

.4 Schedule of submission of shop drawings, samples, colour chips as specified in Section 01 33 00.

.5 Requirements for temporary facilities, washrooms, refuse bin, site sign, offices, storage sheds, utilities, fences as specified in Section 01 53 00.

.6 Delivery schedule of specified equipment as specified in Section 01 61 00.

.7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.

.8 Owner furnished products.

.9 Record drawings as specified in Section 01 78 00.

.10 Maintenance material and data as specified in Section 01 78 00.

.11 Take-over procedures, acceptance, and warranties as specified in Section 01 78 00.

.12 Monthly progress claims, administrative procedures, photographs, and holdbacks.

.13 Appointment of inspection and testing agencies

.14 Insurances and transcript of policies.

.15 Review Vendor Performance Evaluation for the Contractor and Subcontractors

.16 Hot Work Permit Process

.17 Security Access, Fire Alarm shutdown procedures

.18 Any other items as required by the owner, contractor, or Consultant.

1.7. ON-SITE DOCUMENTS

.1 Maintain at job site at all times, one copy (written or digital) each of the following:

.1 Complete set of Contract drawings.

.2 Specifications.

.3 All Addenda.

.4 Site Instructions and Sketches
.5 Reviewed shop drawings and samples.
.6 Change Orders and Contemplated Change Orders.
.7 Other modifications to Contract.
.8 Site Instructions
.9 Colour schedule
.10 Hardware List
.11 Field test reports.
.12 Copy of approved Work schedule.
.13 Manufacturers' installation and application instructions.
.14 Progress reports and meeting minutes.
.15 Approved building permit documents.
.16 Copy of current Ontario Building Code and National Building Code.
.17 CSA Standard, CGSB Specifications. ASTM Documents and other standards referenced to in the specifications.
.18 Labour conditions and wage schedules.
.19 Applicable current editions of municipal regulations and by-laws. Current building codes, complete with addenda bulletins applicable to the Place of the Work.

1.8. SCHEDULES

.1 Within three weeks following the award of the Contract, submit a detailed, trade by trade progress schedule for the work in a bar chart form acceptable to the Consultant.
.2 Submit preliminary construction progress schedule as specified in Section 01 32 00 to Consultant coordinated with Consultant's project schedule.
.3 After review, revise and resubmit schedule to comply with revised project schedule.
.4 During progress of Work revise and resubmit as directed by the Consultant.
.5 Provide schedule updates every month with request for Payment, for duration of Contract.

1.9. CONSTRUCTION PROGRESS MEETINGS

.1 Prior to the commencement of the Work, the Contractor together with the Consultant shall mutually agree to a sequence for holding regular "on site meetings".
.2 The Contractor will organize site meetings. Ensure persons, whose presence is required, are present and relative information is available to allow meetings to be conducted efficiently.

.3 Contractor, major subcontractors and consultants involved in Work are to be in attendance.

.4 Post and forward copies of progress schedules for advice of Subcontractors, Owner and Consultant.

.5 Notify parties minimum five (5) days prior to meetings.

.6 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within two (2) days after meeting.

.7 Agenda to include following:

.1 Review, approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, conflicts.

.4 Problems which impede construction schedule.

.5 Review of off-site fabrication delivery schedules.

.6 Corrective measures and procedures to regain projected schedule.

.7 Revision to construction schedule.

.8 Progress schedule, during succeeding work period.

.9 Review submittal schedules: expedite as required.

.10 Maintenance of quality standards.

.11 Review proposed changes for effect on construction schedule and on completion date.

.12 Review site security issues.

.13 Other business.

.8 Schedule additional meetings, to expedite progress, should work require it.

.9 Keep Owner and Consultant informed of progress, of delays and potential delays during all stages of Work. Do everything possible to meet progress schedule

.10 Schedule and administer pre-installation meetings when specified in sections and when required to coordinate related or affected Work.

1.10. SUBMITTALS

.1 Prepare and issue submittals to Consultant for review.

.2 Submit preliminary Shop Drawings, product data and samples for review for compliance with Contract Documents; for field dimensions and clearances, for relation to available space, and for relation to Work of other contracts. After review, revise and resubmit for transmittal to Consultant.

.3 Submit requests for payment for review, and for transmittal to Consultant.

.4 Submit requests for interpretation of Contract Documents, and obtain instructions through Consultant.

.5 Process substitutions through Consultant.

.6 Process change orders through Consultant.

.7 Deliver closeout submittals for review and preliminary inspections, for transmittal to Consultant.

1.11. RECORD (AS-BUILT) DOCUMENTS AND SAMPLES

.1 Procedures for record as-built documents and samples as specified in Section 01 78 00.

.2 Keep as-built documents and samples available for inspection by the Consultant.

1.12. CLOSEOUT PROCEDURES

.1 Take-over procedures, acceptance, and warranties as specified Section 01 78 00

.2 Notify Consultant and Board when Work is considered ready for Substantial Performance.

.3 Accompany Consultant and Board on preliminary inspection to determine items listed for completion or correction.

.4 Comply with Consultant's instructions for correction of items of Work listed in executed certificate of Substantial Performance.

.5 Notify Consultant of instructions for completion of items of Work determined in Consultant's final inspection.

END OF SECTION

01 32 00 – Construction Progress Documentation

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. SCHEDULES

.1 Within seven 7 days following the award of the Contract, submit a detailed cash flow chart broken down on a monthly basis, in a manner acceptable to the Consultant. Cash flow chart shall indicate anticipated Contractor's monthly progress billings from commencement of work until completion.

.2 Update cash flow chart whenever changes occur to scheduling and in manner and at times satisfactory to Consultant.

.3 Submit schedule of values at least fourteen (14) days before the first application

.4 Submit schedules as follows:

.1 Submittal Schedule for Shop Drawings and Product Data.

.2 Submittal Schedule for Samples.

.3 Submittal Schedule for timeliness of Owner-furnished Products.

.4 Product Delivery Schedule.

.5 Cash Allowance Schedule for acquiring Products and Installation.

.6 Shutdown or closure activity.

1.3. CONSTRUCTION PROGRESS SCHEDULING

.1 Submit initial schedule to the Consultant and the Board in duplicate within seven (7) days after following the award.

.2 Schedule Format.

.1 Prepare schedule in form of a horizontal bar chart.

.2 Split horizontally for projected and actual performance.

.3 Provide horizontal time scale identifying each Working Day of each week.

.3 Schedule Submission.

.1 Consultant will review schedule and return reviewed copies within five (5) days after receipt.

.2 Submit schedules in electronic format, forward to the Consultant and Owner as a pdf. file.

.3 Resubmit finalized schedule within five (5) days after return of review copy.

.4 Submit revised progress schedule with each application for payment.

.5 Distribute copies of revised schedule to:

.1 Job site office.

.2 Subcontractors.

.3 Other concerned parties.

.6 Instruct Consultant to report to Contractor within ten (10) days, any problems anticipated by timetable shown in schedule.

.4 Submit revised schedules with Application for Payment, identifying changes since previous version.

.5 Select either of the following paragraphs to identify the type and format of schedule required.

.6 Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.

.7 Indicate estimated percentage of completion for each item of Work at each submission.

.8 Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and required by Allowances.

.9 Include dates for commencement and completion of each major element of construction:

.1 Site clearing.

.2 Site utilities.

.3 Foundation Work.

.4 Structural framing.

.5 Subcontractor Work.

.6 Equipment Installations.

.7 Finishes.

.10 Indicate projected percentage of completion of each item as of first day of month.

.11 Indicate progress of each activity to date of submission schedule.

.12 Indicate 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.

.13 Provide a written report to define:

.1 Problem areas, anticipated delays, and impact on schedule.
.2 Corrective action recommended and its effect.
.3 Effect of changes on schedules of other subcontractors.

1.4. PROGRESS PHOTOGRAPHS

.1 Digital Photography:
  .1 Submit electronic copy of progress photographs of project, Digital format, minimum 300 in megapixel resolution.
  .2 Identification: Name and number of project and date of exposure indicated.
  .3 Provide both interior and exterior photographs.
  .4 Number of Viewpoints: Locations of viewpoints determined by Consultant.
  .5 Frequency: Monthly with progress statement. Provide the required number of pictures to accurately reflect the submitted progress percentage.

1.5. SHOP DRAWING SUBMITTAL SCHEDULE

.1 Include schedule for submitting shop drawings, product data, samples
.2 Indicate dates for submitting, review time, resubmission time, and last date for meeting fabrication schedule.
.3 Include dates when shop drawings and samples will be required for Owner-furnished products.
.4 Include dates when reviewed submittals will be required from Consultant.
.5 Provide final signed off copies of the shop drawings in digital format to the Board.

END OF SECTION

01 33 00 – Submittal Procedures

1.0 GENERAL

1.1 RELATED SECTIONS

1. Section 01 32 00 - Construction Progress Documentation.
2. Section 01 78 00 - Closeout Submittals.
3. This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.1 ADMINISTRATIVE

1. Submit to Consultant submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in 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 submittal shall not proceed until review is complete.
3. Present Shop Drawings, product data, samples and mock-ups in Metric (SI) units. Shop drawings containing imperial measurements will be rejected.
4. Where items or information is not manufactured or produced in SI Metric units, converted values within the metric measurement to the next largest imperial size available. Tolerances of .0625 acceptable.
5. Review submittals prior to submission to 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 requirements of Work and Contract Documents.
6. Submittals not stamped, signed, dated, identified as to specific project, and attesting to their being reviewed will be returned without being examined and shall be considered rejected.
7. Shop drawings which require the approval of a legally constituted authority having jurisdiction shall be submitted by Contractor to such authority for approval. Such shop drawings shall receive final approval of authority having jurisdiction before Consultant's final review.
8. No work, requiring a shop drawing submission, shall be commenced until the submission has received Consultant's final review. Only shop drawings bearing Consultant's review stamp are to be sent and used on the job site.
9. Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

10. Shop drawings shall not contain substituted materials unless such substitutions have been requested in advance and approved by Consultant.
11. Verify field measurements and affected adjacent Work are coordinated.
12. Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.
13. Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.
14. Keep one (1) reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "Shop Drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 The term "design team" means Consultant and Sub-consultants whether Sub-consultants are employees of Consultant or not, and includes structural, mechanical, electrical, etc.

.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 Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Allow fourteen (14) days for Consultant's review of each submission.

.5 Adjustments made on Shop Drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.

.6 Make changes in Shop Drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of any revisions other than those requested.

.7 Accompany submissions with transmittal letter, containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.8 Submissions shall include:

- .1 Date and revision dates.

.2 Project title and number.

.3 Name and address of:

.1 Subcontractor.

.2 Supplier.

.3 Manufacturer.

.4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.

.5 Details of appropriate portions of Work as applicable:

.1 Fabrication.

.2 Layout, showing dimensions, including identified field dimensions, and clearances.

.3 Setting or erection details.

.4 Capacities.

.5 Performance characteristics.

.6 Standards.

.7 Operating weight.

.8 Wiring diagrams.

.9 Single line and schematic diagrams.

.10 Relationship to other parts of the Work.

.9 After Consultant's review, distribute copies.

.10 Submit Shop Drawings in Pdf. format for each requirement requested in specification Sections and as consultant may reasonably request.

.11 Submit product data sheets or brochures in Pdf. format for requirements requested in specification sections and as requested by Consultant where Shop Drawings will not be prepared due to standardized manufacture of product.

.12 Delete information not applicable to project.

.13 Supplement standard information to provide details applicable to project.

.14 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, the drawings will be stamped as reviewed or reviewed as modified and will be returned. At this point fabrication and installation of Work may proceed. If Shop Drawings are rejected, noted copy will be returned and re-submission of corrected Shop Drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.15 Signed drawings shall be returned to and retained by Contractor who is then responsible for distribution of copies of corrected shop drawing to appropriate

Subcontractors for appropriate action and to municipal building department for their records of those subjects required by authorities.

.16 The Consultant's review is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean the Consultant approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and this review shall not relieve the Contractor of his responsibility for meeting the requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

1.3 SAMPLES

.1 Submit for review to the Consultant three (3) samples as requested in respective specification Sections.

.2 Submit samples with identifying labels bearing material or component description, manufacturer's name and brand name, Contractor's name, project name, location in which material or component is to be used, and date.

.3 Deliver samples prepay any shipping charges involved for delivering samples to destination point and returning to point of origin if required.

.4 Provide samples of special products, assemblies, or components when so specified.

.5 No work requiring a sample submission shall commence until submission has received Consultant's final review.

.6 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.7 Where colour, pattern or texture is criterion, submit full range of samples.

.8 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.

.9 Make changes in samples which Consultant may require, consistent with Contract Documents.

.10 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.4 MOCK-UP

.1 Erect mock-ups to Section 01 45 00.

1.5 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, and prior to commencing the work submit the performance bond and the labour and materials payment bond as described in the bid documents.

.2 Submit transcription of certified true copies of insurance immediately after award of Contract.

.3 A current WSIB clearance certificate

.4 The bidder's health and safety policy for the project.

.5 A copy of the notice of project issued by the ministry of labour for the project

.6 Building materials, components and elements specified without the use of trade or proprietary names shall meet requirements specified. If requested by Consultant, submit evidence of meeting requirements specified. Evidence shall consist of certification based on tests carried out by an independent testing agency. Certification based on previous tests for same materials, components or elements is acceptable. Certification shall be in form of written test reports prepared by testing agency.

END OF SECTION

01 35 17 – Fire Safety Procedures

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 14 00 – Work Restrictions.

.2 Section 01 31 00 - Project Managing and Coordination.

.3 Section 01 33 00 - Submittal Procedures.

.4 Section 01 35 23 – Health and Safety

.5 This section describes requirements applicable to all Sections within Divisions 02 to 49.

.6 Appendix 01 35 17A Contractor Hot Work Permit

1.2. FIRE SAFETY PLAN

.1 Contractors and their personnel will be familiar with this section and its requirements.

.2 The contractor must take all necessary precautions during the carrying out of the work to prevent the possibility of fire occurring.

1.3. FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by the governing codes, regulations and bylaws.

.2 The contractor will, at all times, when welding, brazing and performing any operation with an open flame, combustible adhesives or flammable solvents keep a portable, operable fire extinguisher within 3 meters of the operation.

1.4. HOT WORK

.1 Take all precautions to Work safely and to provide the necessary protection to persons and property from Hot Work. This includes, but is not limited to Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch Applied Roofing and Welding. With all such activity these steps are to be followed:

.1 Whenever possible, complete Hot Work in a welding shop or out of doors at the school.

.2 Flammable liquids, dust lint and oily deposits to be removed from within 50-ft (15m) of Work. Remove other combustibles where possible. Otherwise protect with fire-resistive tarpaulins or metal shields.

.3 Explosive atmosphere in area eliminated. Floors swept clean. Combustible floors wet down, covered with damp sand or fire-resistive tarpaulins.

.4 All wall and floor openings covered. Fire-resistive tarpaulins suspended beneath Work.

.5 For on-site Work (indoor and out of doors), advise the Head Custodian, Principal, Consultant (if assigned) and Project Coordinator prior to Work being performed, and of related dangers.

.6 Where the Fire Alarm system is required to be set to stand-by to discourage false alarms from smoke detectors provide a firewatch throughout the building or structure being worked on. NEVER put the fire alarm system in stand-by mode when the building is occupied by staff or students.

.7 In the event of a fire as a result of the Hot Work, notify the fire department immediately. Report incident to the head custodian, the Consultant, if assigned, and Project Coordinator immediately, whether extinguished or not. Provide a fire incident report to the Board.

.8 Barriers must be set up to protect staff and students (i.e. pylons, shields, and caution tape) from exposure to arc flash and smoke migration.

.9 Have all necessary doors, windows and/or drapes closed. Confer with the Head Custodian to shut down all fan systems in the area to reduce or eliminate smoke distribution.

.10 Provide and keep fire extinguishers handy and in good Working condition. Temporarily cover all smoke detectors in the area during time of Work.

.11 Provide a fire watch/spot check for several hours after Work is completed. Uncover smoke detectors.

.12 On new construction, the requirements of the Hot Wok permit may be waived, until such time as either Substantial Completion or Occupancy is granted, whichever comes first.

.13 On additions to existing buildings, the requirements for Hot Work permits shall remain in place.

1.5. HOT WORK PERMIT

.1 **A sample Hot Work Permit is attached to the specifications – refer to attached Appendix 01 35 17-A**

.2 Each permit is valid for seven (7) days only and must be renewed prior to its expiration date

.3 The contractor must obtain Hot Work Permits from the School Board's representative prior to the start of work.

.4 The contractor must complete the form as required and must keep the form on site.

.5 Return each completed form to the School Board's representative on the date of expiration.

.6 The most current version of the Permit and its requirements shall be used for the purposes of the Work.

1.6. FIRE PROTECTION SYSTEMS

.1 Any Modifications to Fire Alarm system and its devices including service, additions and changes in device location must be performed only by a Certified Fire Alarm Technician as per the Ontario Fire Code section 1.1, subsection 1.1.5.

.2 The Contractor will receive from the Board's contact a contact number for the monitoring service and a school system number.

.3 Bidders are cautioned that the Board will be reimbursed for the cost of false alarms. Refer to Section 01 14 00 Work Restrictions, Para. 1.4.4.

.4 An approved inspection firm shall verify all new fire alarm devices, in accordance with CSA regulations. Certificate of Verification is required before occupancy.

1.7. FIRE ALARM SHUT-DOWN PROCEDURE

.1 Plan the operation such that the required work minimizes system down time to the least amount possible. Do not shut the system down or engage silence mode when the building is occupied by students. Only shut the system down when necessary.

.2 For the purposes of this section, unoccupied shall mean when the school is not occupied by students.

.3 Wherever possible, shut down only the zone needing work,

.4 and schedule down time in unoccupied school hours.

.5 Contractor(s) shall ensure all costs are included in their bid price for work related to the fire alarm system outside of regular hours and/or during unoccupied school hours. This shall include evening and weekend work.

.6 A fire alarm system must remain active when the building is not occupied by school or contractor's forces and should never be offline overnight.

.7 Procedure

The following procedure shall be followed when a fire alarm system is completely or partially affected by maintenance, shutdown, bypass, silence, loss of power, or any other nomenclature that affects the proper operation of the complete system.

.1 Inform both the principal and head custodian whenever the fire alarm system is to be disabled prior to any partial or whole system shut down. Where

school staff are not available, ensure that the Project Coordinator and/or area supervisor are informed.

.2 Ensure that the school or building administration has advised all staff when the fire alarm system is disabled and/or when it is back online. This will include instructions to call 911 if they detect smoke or a fire.

.3 Immediately prior to alarm system shutdown and upon restoring the fire alarm system, the person supervising the shutdown must:

1.7.7.1.3.1. obtain the school account number, located on a red decal attached to the fire alarm panel. This number will be formatted as 20-9xxx, with the xxx being the school location code,

1.7.7.1.3.2. contact Direct Detect at 519-741-2494 (the fire alarm monitoring company), to inform them of the state of the fire alarm and the approximate amount of time the fire alarm will be offline. They will require the building name and account number, the contact name, the contractor name as well as any other information they request, and

1.7.7.1.3.3. contact Bestell at 519-741-2494 (the current security monitoring company), to inform them of the state of the fire alarm and the approximate amount of time the fire alarm will be offline. They may require the building name and account number as well as any other information they request.

.4 A fire watch, at the Contractor's expense, shall be undertaken by a person with the sole and express purpose of completing the following tasks and in the event of the detection of smoke, fire, or any other emergency, notifying the fire department, and the building occupants. The fire watch patrol shall:

1.7.7.1.4.1. patrol all halls and high-risk areas affected,

1.7.7.1.4.2. have access to a phone and call 911 if they see or detect smoke or fire,

1.7.7.1.4.3. report any other problems they encounter,

1.7.7.1.4.4. notifying the building occupants in the event of an emergency and

1.7.7.1.4.5. remain on patrol until the fire alarm system is reactivated and fully operational.

.5 Contact Direct Detect, Bestell, and school administration to inform them that the fire alarm is back online.

.6 In the event that a fire alarm system is activated, whether by smoke, fire or accidentally, the system must not be reset until authorized by the Fire

Department (verbally or in person) and the cause of the alarm has been investigated.

1.8. FIRE PROTECTION EQUIPMENT IMPAIRMENT

.1 Fire Protection Equipment referred to in this section includes sprinkler systems, special fire suppression systems, and kitchen hood suppression systems.

.2 The Contractor will take all precautions including restrict all Hot Work operations and shut down hazardous processes during all Fire protection equipment impairment.

.3 Do not shut the Fire protection equipment down unless necessary. Plan the operation required to reduce system impairment time to the least amount possible.

.4 Wherever possible, shut down only the Fire protection equipment needing Work and schedule this impairment time for unoccupied school hours. Allow for this in your bid pricing.

.5 Discuss the possible down time with the head custodian and principal prior to any partial or whole system impairment.

.6 The school administration shall advise all staff of Fire protection equipment shut down. This will include instructions to call 911 if they see a fire and when system is back online

.7 The Contractor will plan to use temporary protection such as extra extinguishers, charged hose lines and temporary sprinkler protection during all Fire protection equipment impairment.

.8 If the sprinkler system is restorable, either in whole or in part, the Contractor or subcontractor shall assign someone to restore the system promptly in the event of a fire.

.9 A fire patrol may need to be established and will include the following at the Contractor's expense:

- .1 Patrol all halls and high-risk areas affected.
- .2 Fire patrol shall have access to a phone and call 911 if they see a fire.
- .3 Report all other problems they encounter.
- .4 Remain on patrol until the system is back on.

.10 The Contractor shall inform all sub trades that the Board has a Red Tag Permit System and it shall be used for all Fire protection equipment impairment.

.11 For ease of use, a Factory Mutual hanging wall kit has been put in place at all Board Fire protection equipment locations. Supplies of Red Tag Permits are provided there.

1.9. FIRE ALARM MODIFICATIONS AND MAINTENANCE

.1 Very important changes to Ontario Building Code as they relate to the Standard for the Verification of Fire Alarm Systems CAN/ULC-S537-M have taken effect December 24, 1999. (Minister's Ruling 99-BC-01)

.1 Clause 5.1; "Addition of conventional field device(s), or modification(s), to existing input circuit(s) or output circuit(s) shall require re-verification of all devices served by those input circuit(s) or output circuit(s)." If one device is added to a zone, the entire zone or in the case of a single zone panel the entire system is to be verified.

.2 Clause 5.2 "Addition of input circuit(s) or output circuit(s) to an existing fire alarm system shall require verification of the new circuit(s) in accordance with this standard, and shall also require all previously existing circuit(s) to be tested as follows:

.3 TEST: One conventional field device on each circuit shall be operated to confirm activation of all output circuits in accordance with the systems design." Even though no other zones have been touched, one device per input zone is to be tested when the Fire Alarm system is modified.

.4 Clause 5.5 "Where a transponder is added to an existing system, the transponder shall be verified in accordance with subsections 3.2, Wiring; and subsection 3.3 Control Units; and with CAN/ULC-S536, Standard for the Inspection and Testing of Fire Alarm Systems as well as re-verification of existing field devices and verification of new conventional field devices." If a new addressable device is added to a system, the new device is to be tested; as well a test must be conducted on all addressable devices on the loop.

.5 Clause 5.6 "Where an existing fire alarm system control unit is replaced with a new control unit, it shall be verified in accordance with CAN/ULC-S536, Standard for the Inspection and Testing of Fire Alarm Systems. Replacement of any control panel will require the testing of all existing fire alarm devices.

.2 The Contractor and subcontractors shall include in the bid price for the above ULC Standards requirements referenced in the Ontario Building Code.

1.10. INSTALLATION AND/OR REPAIR OF ROOFING

.1 The Contractor will review with the Consultant and the Board's representative of the location of any asphalt kettles and the dates the kettles will be in use. The Contractor, in the course of performing roofing work, will ensure all personnel utilize the following precautions:

.1 Use only kettles equipped with thermometers or gauges in good working order.

.2 Locate kettles in a safe place outside of the building.

.3 Maintain continuous supervision while kettles are in operation and provide metal covers for the kettles to smother any flames in case of fire.

.4 All roofing materials stored in locations no closer than 15 meters to any structures.

1.11. FIRE DEPARTMENT ACCESS

.1 Designated fire routes must be maintained. The Fire Department must be advised of any work that would impede fire apparatus response.

1.12. SMOKING PRECAUTIONS

.1 Smoking is not permitted anywhere on Board properties. Workers who wish to smoke must leave the property, and not within sight of students. Any worker found to be in contravention of the Ontario Smoke Free Act will be subject to legislated fines.

1.13. FLAMMABLE LIQUIDS

.1 The handling and storage on site of flammable liquids are to be governed by the current National Fire Code of Canada.

.2 Flammable liquids such as gasoline, kerosene and naphtha may be kept for ready use in quantities not exceeding 10 imperial gallons provided they are stored in approved safety cans bearing the Underwriter's Laboratory of Canada or Factory Mutual seal of approval.

.3 Transfer of flammable liquids is prohibited within buildings.

.4 Transfer of flammable liquids must not be carried out in the vicinity of open flame or any type of heat producing devices.

.5 Flammable liquids having a flashpoint below 100° F (37.7°C) such as naphtha or gasoline must not be used as solvents or cleaning agents.

.6 Flammable waste liquids, for disposal, must be stored in approved containers located in a safe ventilated area. Quantities are to be kept to a minimum.

END OF SECTION

Appendix 013517-A Contractor Hot Work Permit

Waterloo Region District School Board

Appendix - 013517-A

Facility Services

CONTRACTOR HOT WORK PERMIT

STOP!
Avoid hot work or seek an alternative method if possible.

This hot work permit is required for any temporary operation involving open flames or producing heat and/or sparks.
This includes but is not limited to: brazing, cutting, grinding, soldering, torch-applied roofing and welding.
A SEPARATE PERMIT IS REQUIRED FOR EACH AREA

Board Supervisor/ Manager/Proj. Coordinator Responsibilities:
i. Verify precautions taken in Section A
ii. Complete and retain Part 1
iii. Complete Section B prior to commencement of Hot Works
iv. Issue Part 2 to Contractor completing Hot Work & Post
v. Obtain Part 2 when Fire Monitoring complete
vi. Return Part 1 and Part 2 to Controller, Facility Services

Contractor Responsibilities:
i. Verify precautions taken in Section A
ii. Complete Section C during each day that Hot Works takes place
iii. Return Part 2 to Board Supervisor/ Manager/Proj. Coordinator

PART 1

Section A Indicate Precautions Taken

☐ Available sprinklers, hose streams, and extinguishers available and in service

Within 35' or 11m of hot work
☐ Flammable liquid, dust, lint and oily deposits removed
☐ Explosive atmosphere in area eliminated
☐ Floors swept clean
☐ All wall and floor openings covered
☐ Combustible floors covered with fire resistant sheets
☐ Protect or shut down ducts that might carry sparks/smoke

Hot work on walls, ceiling or roofs
☐ Construction is noncombustible and without combustible covering or insulation
☐ Combustible materials on other side of walls, ceilings or roofs moved away
☐ Combustible structure wetted down

Hot work on enclosed equipment
☐ Enclosed equipment cleaned of all combustible material
☐ Containers purged of flammable liquid/vapour
☐ Pressurized vessels, piping & equipment removed from service, isolated & vented

Fire watch/hot work and monitoring
☐ Fire watch will be provided during and for 1 hour after work including break
☐ Fire watch is trained and supplied with suitable extinguishers
☐ Fire watch is trained in the use of sounding fire alarm
☐ Fire watch conductec in adjoining areas, above and below the space where appropriate
☐ Monitor hot work area for an additional 2 hours after fire watch
☐ Other precautions taken (please detail):

_____
_____
_____
_____

Section B Authorization Granted

Board Supervisor/Manager/Proj. Coordinator: _____
Print Name _____ Signature

Permit Valid from / to: (max. 7 days) _____ _____
From This Date _____ To This Date

(Maximum 7 days or until end of hot work whichever is sooner)

Section C Contractor and Location Affected

Dates: (max 7 days)	Name of Contractor conducting hot work	Name & signature of individual assigned to fire watch	Name & signature of individual assigned to fire monitoring

School:

Room/Area: _____

Nature of Job: _____

I verify the above location has been examined each day, the precautions listed in Section A have been taken each day, and permission is authorized for this work.
I further acknowledge that if activity is during school operational hours, that appropriate notification has been given to school administration.

Hot Works Contractor: _____
Signature

School Administrator notified: _____
Print Name

In Case of Emergency call: 911 - Then call: 519-570-0003 Ext. 4123

Refer to WRDSB Administration Procedure 4200 Hot Works/Fire Watch (Copies Available on Request)

I:\Facility Srv\Controller\Board Procedures\2014-15\Hot Work Permit - Contractors - Final.xls

01 35 23 – Health And Safety

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 31 00 - Project Managing and Coordination.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 35 17 – Fire Safety Requirements

.4 Section 01 35 43 – Hazardous Materials

.5 Section 01 41 00 – Regulatory Requirements

.6 Section 01 53 00 – Temporary Construction Facilities

.7 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. REFERENCES

.1 Province of Ontario, including requirements for a "Prime Contractor" as defined by the Act.

1.3. SAFETY PLAN

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to commencing any site Work and continue to implement, maintain, and enforce plan until final demobilization from site. The Health and Safety Plan must address project specifications.

.2 Consultant may respond in writing, where deficiencies or concerns are noted and may request resubmission with correction of deficiencies or concerns.

.3 Be governed by pertinent safety requirements of Federal or Provincial Governments and of municipal bodies having authority, particularly the Ontario Construction Safety Act, The Occupational Health and Safety Act for Ontario, and regulations of Ontario Ministry of Labour, and work in conjunction with proper safety associations operating under the authority of Ontario Workers' Compensation Act. Protect Owner, Owner's employees, the public and those employed on the Work from bodily injury and to protect adjacent public and private property and Owner's property from damage. Furnish and maintain protection, such as warning signs, tarpaulins, guard rails, barriers, guard lights, night lights, railings around shafts, pits and stairwells, etc. as required. Remove temporary protective measures when no longer required.

1.4. TEMPORARY WORK

.1 Temporary work requiring engineering proficiency for the design, erection, operation maintenance and removal shall be designed and bear the stamp of the registered professional Engineer or Architect. Detail drawings will be submitted to the Consultant for review prior to commencing any work.

.2 Before a temporary structure is used, the person responsible for design, or their representative, shall inspect the structure and certify it has been constructed according to their design.

1.5. RESPONSIBILITY

.1 The "Prime Contractor" according to applicable local jurisdiction, is responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to the extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

.3 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, and follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Health and Safety Act having jurisdiction. Advise the Board and the Consultant verbally and in writing.

.4 The Contractor shall make their own arrangements for emergency treatment of accidents. Any accidents shall be reported immediately to the Board contact.

.5 The Contractor agrees to hold the Board harmless of any and all liability of every nature and description, which may be suffered through bodily injuries, involving deaths of any persons, by reasons of negligence of the Contractor, his agents, employees, or his subcontractors.

1.6. SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00.

.2 Submit site-specific Health and Safety Plan: Within ten (10) days after the date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation

.3 Submit one (1) copy of Contractor's authorized representative's work site health and safety inspection reports to Consultant and Owner.

.4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Submit Material Safety Data Sheets (MSDS) to Consultant.

.7 Consultant's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.8 Medical Surveillance: Where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Consultant.

.9 On-site Contingency and Emergency Response Plan: Address standard operating procedures to be implemented during emergency situations.

.10 File Notice of Project with the Ministry of Labour prior to commencement of Work.

1.7. SAFETY ACTIVITIES

.1 Perform site specific safety hazard assessment related to the project.

.2 Schedule and administer Health and Safety meeting with Consultant prior to commencement of Work.

.3 Perform Work in accordance with Section 01 41 00 - Regulatory Requirements and this section.

1.8. HEALTH AND SAFETY COORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:

.1 have previous experience as a Health & Safety coordinator,

.2 have working knowledge of occupational safety and health regulations,

.3 be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work,

.4 be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan, and

.5 be on site during execution of Work.

1.9. POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Health and Safety Act having jurisdiction, and in consultation with Consultant.

1.10. CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Consultant or by the Board.

.2 Provide Consultant and/or Board with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Consultant and or the Board may stop Work if non-compliance of health and safety regulations is not corrected.

1.11. PROJECT/SITE CONDITIONS

.1 Work at site will involve contact with:

.1 Refer to Section 01 35 43 Hazardous Materials

1.12. HAZARDOUS WORK

.1 Blasting or other use of explosives is not permitted at the place of work.

1.13. WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

1.14. LOCKOUT PROCEDURES

.1 All Work to be done on electrical systems or machinery, where the unexpected switching on of the system or machinery could result in personal injury to a student, staff, employee, or the Contractor's employee, must be done in accordance with the Contractor's standard lockout procedure.

.2 The Contractor shall provide his/her own locks for the above procedure.

.3 The lock shall include contact information for the person(s) locking out such devices.

1.15. OVERHEAD LIFTING

.1 Under no circumstances will a crane or lifting device be used over an occupied space.

.2 When working adjacent to occupied spaces, ensure a clearance of one (empty) classroom, or a minimum of 10m between any occupied space and the furthest possible reach of the crane.

1.16. WARNING SIGNS AND NOTICES

.1 Notices shall be posted advising of the hazard but will not be considered a substitute for providing approved protection, separation, and space from the hazard.

1.17. FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by the governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

.3 Maintain placed or installed Fire Protection to protect the portions of the Work during construction.

1.18. SCENT-FREE ENVIRONMENT

.1 The Board requires that, where advised, a building may be deemed scent-free and as such, the wearing of scented products is prohibited.

.2 Any methods or materials that are found to create negative responses in staff or students shall cease and be removed under advisement of the Consultant and or the Board, until alternate methods can be determined.

END OF SECTION

01 35 43 – Hazardous Materials

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 35 23 – Health and Safety Requirements.

.2 Section 01 41 00 – Regulatory Requirements.

.3 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. REFERENCES

.1 Province of Ontario, including requirements for a "Prime Contractor" as defined by the Act.

1.3. ASBESTOS and OTHER REGULATED SUBSTANCES

.1 An Asbestos Audit, as prepared by MTE Consultants Inc. for this facility, is attached under Appendix 013543 A. A duplicate set is also available in the Facilities Services Departments located in the Education Centre. Unless specifically covered by a Cash Allowance or Contingency Allowance that states otherwise, include in this Contract the required removal of all asbestos containing materials (ACM) to complete the work. No claims for extra costs will be accepted for areas known to contain ACM that are within the scope of this Work.

.2 Comply with applicable legislation regarding asbestos. Should the Contractor encounter asbestos not noted in the referenced Asbestos Audit that would be disturbed during the course of the Work, they should stop the work in that immediate area and report the same to the Consultant and Board contact.

.3 In addition, Lead, Mercury, Silica, and Isocyanates are anticipated to be present in existing facilities. New construction, renovations, or alterations require compliance by the Contractor with the applicable legislation.

1.4. PROTOCOL FOR ABATEMENT WORK

.1 This Protocol establishes the requirements to be followed by all Asbestos Abatement Contractors involved with the Board. It applies to Type 1, Type 2 and Type 3 Operations as stated in the Regulations and applies to emergency and non-emergency work (directly retained or working as a sub-contractor).

.2 Asbestos Abatement Contractors must maintain appropriate insurance coverage and WISB certification.

.3 Contractors retained for asbestos abatement work shall use personnel certified by the Ontario College of Trades and must provide the Consultant and Board with proof of asbestos certification (AAS and AAW) for all supervisors / all staff involved.

.4 School Access

.1 During school hours all asbestos contractors are to report to the school office upon arrival. After school hours, ensure card-in / card-out procedures are followed and building security is maintained.

.5 Communication

.1 Establish communication contact list with email and phone numbers that shall include:

.1 Principal / Vice Principal

.2 Area Facility Manager

.3 Head Custodian

.4 Environmental Officer

.5 Manager of Mechanical, Electrical and Environmental Services

.6 Manager of Health Safety & Security

.7 Contractor staff

.8 Consultant

.2 Contact the School Principal / Vice to set up a firm date for the abatement (removal / repair). Schedule to allow at least 72 hours notice ahead of the work.

.3 Confirm the date by notifying via email the following:

.1 Principal / Vice-principal,

.2 Area Facility Manager, and

.3 Environmental Officer.

.4 Consultant

.4 Indicate the date, the start time, the anticipated completion time for the work and the work areas in the school.

.5 Identify personnel managing the project and provide current cell numbers for emergency contacts.

.6 For emergency work, as requested by Area Supervisors, Facility Managers or Environmental Officer, no notification to the school is required.

.7 Additionally, for Type 3 work also contact:

.1 Manager of Health, Safety & Security, and

.2 Notify the MOL (also for Type 2) where required by regulation.

.3 Consultant

.8 Discussions with other groups, school staff, media and others is discouraged and shall be directed to the Board Communication Officer where warranted.

.6 Asbestos Operations

.1 Emergency work shall be carried out the same day (evening/night) or under exceptional conditions the following day / evening / night. Contractors shall exercise discretion when working in the school to minimize anxiety of staff/school community. Where warranted, contact Area Supervisor, Facility Manager or Environmental Officer to obtain further direction.

.2 For non-emergency work, contractor is to assess the work on site and provide a cost estimate to the Environmental Officer, (daniela_budure@wrdsb.on.ca) and Consultant. Some work will require discussion with the Facility Manager or Environmental Officer to assess if additional work should be done as to completely remove all ACM material form the area or similar.

.3 Where the MTE report shows ACM requiring repair, remove and re-insulate where required.

.4 Before beginning any Type 1, Type 2 or Type 3 Operations, the work area must be secured, doors closed, warning signs added to all entrances, caution tape used in open areas and signs used to restrict access to the work area so as to keep persons not involved in the work from entering in the work area.

.5 Provide “Construction” warning signs on solid barriers between the Work and public areas. Install a sufficient number of “asbestos abatement” warning signs behind the barriers, posted to warn of the hazard, and that access to the work area is restricted to persons wearing protective clothing and equipment.

.6 The contactor is responsible to disable the mechanical ventilation serving the work area and positively prevent operation using Lock-out / Tag-out devices for each air handling unit /fan. Exercise caution during heating season to ensure areas of the building are maintained above freezing and ensure equipment is turned back on after abatement / air clearance completed.

.7 Contractor’s employees shall put on / take off PPE within work area marked by construction signs. No employee shall leave the work area wearing PPE.

.8 All dust and waste is to be cleaned up and removed at frequent / regular intervals as the work proceeds and immediately upon completion. No waste bags or similar are to be left behind.

1.5. SUBMITTALS

.1 Once the abatement is completed, forward a Letter of Completion to the Environmental Officer, (daniela_budure@wrdsb.on.ca). This letter shall be

received no later than 72 hours after completion and shall include any sample results.

.2 For those projects requiring Air Clearance, ensure this info is sent without delay but in all cases no later than 24 hours after sampling. All Type 3 work must take into account that the initial samples may not pass and the contactor must allow one additional day to re-clean and re-sample before school is to resume operations. For those projects not under the direct supervision of a Environmental Consultant, the contactor is to expedite the air clearance sampling with the lab of their choice and carry these costs.

.3 Forward Air Clearance results to:

.1 Principal / Vice-principal,

.2 Facility Manager,

.3 Environmental Officer,

.4 Manager of Mechanical, Electrical and Environmental Services, and

.5 Manager of Health, Safety & Security.

.6 Consultant

1.6. ACKNOWLEDGEMENT

.1 The protocols for asbestos work must be read and understood by Asbestos Contractor.

.2 Submit a signed copy of the most current copy of *PROTOCOL FOR ABATEMENT WORK (ASBESTOS ABATEMENT CONTRACTORS)* to the General Contractor, the Consultant, and the Board's Environmental Officer.

END OF SECTION

Appendix 01 35 43A Asbestos Audit Report

This report is provided for tender purposes and must be viewed in colour and in its entirety. An original copy is available at the school office along with annual inspection and abatement letters, if applicable.

Avenue Road Public School

2020 Asbestos Audit Update Report

Project Location:
40 Gail Street, Cambridge, ON

Prepared for:
Waterloo Region District School Board
51 Ardelt Avenue, Kitchener, ON

Prepared by:
MTE Consultants
520 Bingemans Centre Drive
Kitchener, ON N2B 3X9

September 15, 2020

MTE File No.: C34532-919

For Tender Purposes

Engineers, Scientists, Surveyors.

MTE Consultants
520 Bingemans Centre Drive, Kitchener, Ontario N2B 3X9

September 15, 2020
MTE File No.: C34532-919

Waterloo Region District School Board
51 Ardelt Avenue
Kitchener, Ontario N2C 2R5

RE: 2020 Asbestos Audit Update – Avenue Road Public School
40 Gail Street, Cambridge, Ontario

For Tender Purposes

1.0 Introduction

MTE Consultants Inc. (MTE) was authorized by the Waterloo Region District School Board (WRDSB) to conduct the 2020 Asbestos Audit Update for the subject building.

The purpose of the assignment was to re-assess and document the location, type, and condition of identified asbestos-containing materials (ACM) present within the building and make appropriate recommendations for management, abatement or remedial activities, as required.

The audit was conducted in accordance with the Ontario Ministry of Labour, *Regulation 278/05-Designated Substance-Asbestos on Construction Projects and in Buildings and Repair Operations* (O. Reg. 278/05). This report shall replace previous audit reports.

2.0 Scope of Work

The Scope of Work for this assessment was completed by MTE and included the following activities:

- Review of existing and historical reports and documentation pertaining to ACM within the building;
- Visual inspection to assess the condition of previously identified ACM, excluding portable structures;
- Collection of building material samples that are suspect ACM, as applicable;
- Submission of samples to an accredited laboratory, as applicable;
- Photographic log of damaged materials; and
- Preparation of this report with findings and recommendations.

3.0 Methodology and Assessment Criteria

This inspection was conducted by visual and laboratory identification methods for the assessment of ACM and their corresponding location, use, condition, and friability. The areas outlined in Section 2.0 were inspected limited to building components, materials and service connections. Notwithstanding that reasonable attempts were made to identify all ACMs, the possibility of concealed material exists and may not become visible until substantial demolition has occurred and therefore are currently undocumented and did not include the following.

- Locations that may be hazardous to the surveyor, such as electrical equipment;
- Where invasive inspection could cause consequential damage to the property or impair the integrity of the equipment, such as roof systems, underground services or components of mechanical equipment;
- Locations concealed by building finishes that require substantial demolition or removal for access or determination of quantities;
- Materials that is present in such an inconsistent fashion that without complete removal of finishes, the extent cannot be determined.
- Non-permanent items or personal contents, furnishings; and
- Settled dust or airborne agents unless otherwise stated.

3.1 Condition of ACM

During the audit process the general condition of ACMs were observed and noted. Materials which are damaged can pose an increased exposure risk to workers, building occupants and the public. While assessing damage can be subjective, abatement items were grouped into two categories to aid in remedial prioritization.

Monitor Annually

These are items which display minor isolated damage; however, do not pose an immediate risk to workers from exposure to asbestos fibres due to the current condition of the material and/or location. No remediation is required at this time; however, these items should be monitored on a yearly basis for evidence of continued degradation. Should the condition of the material change, an evaluation should be completed by a competent person to determine remedial action.

Abatement Action Required

These are items which display damage and may pose potential risk to workers from exposure to asbestos fibres due to the physical condition and/or location of the material. Clean-up, repair or removal of these materials is required as soon as reasonably possible.

For Tender Purposes

4.0 Findings

An inspection of the building was conducted by MTE on September 8, 2020. The one-storey school was constructed in 1960 with additions in 1963, 1980, and 2012. The inspection did not include areas of post 1990 construction or renovation (where all building finishes have been removed and replaced), as applicable.

The Asbestos Management Database is provided in **Appendix A** and associated Figures are provided in **Appendix B**. These together provide a current summary of the ACM identified throughout the building.

A summary of the damaged ACM identified at the time of the inspection is provided in **Appendix C**.

The bulk asbestos sample location and analytical summary is provided in **Appendix C**.

4.1 Analytical Results

During this inspection, a total of 18 building material samples that are suspect ACM were collected with a total of 14 analyses being performed. Equal to or greater than 0.5%, asbestos by dry weight, the laboratory method detection limit (MDL), classifies the material as ACM according to O. Reg. 278/05. Samples collected were submitted for analysis to Paracel Laboratories Ltd. (Paracel), in Mississauga, Ontario. Paracel is certified under the National Voluntary Laboratory Accreditation Program to perform asbestos analysis of bulk samples by PLM. Laboratory analysis was conducted in accordance with the United States Environmental Protection Agency, Test Method EPA/600-R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, June, 1993 by Polarized Light Microscopy as prescribed by O. Reg. 278/05.

Refer to Appendix C, Table 3 for a detailed summary of the analytical results for each sampled material.

4.2 Removed ACM

A summary of ACM that has been removed since the previous audit/inspection is provided below:

The WRDSB Room 801A

- 1 Pipe Fitting

4.3 Discovery of Additional ACM

ACM or suspect ACM that was not previously identified includes the following:

Friable Material:

- WRDSB Room 1071 (Corridor at Fire Exit 3) – 2 damaged pipe fittings

For Tender Purposes

4.4 Damaged ACM

Damaged ACM was identified. Refer to **Appendix C, Tables 1** and **2** for a detailed summary of required actions, specific to each material. At the time of the audit, all other ACM at the building was noted to be in good condition.

5.0 Recommendations

5.1 Remedial

Damaged ACM was identified. Refer to Appendix C, Tables 1 and 2 for a detailed summary of required actions, specific to each material. At the time of the audit, all other ACM at the building was noted to be in good condition.

Type 1 abatement Operations may be conducted internally by trained and qualified WRDSB staff. All other abatement work must be conducted by certified asbestos contractors trained and qualified to conduct the type of work required.

All asbestos work must be conducted by staff and/or contractors who are trained and experienced in the type of asbestos operations required, and should be overseen by a qualified third party Health, Safety and Environmental professional. In order to conduct Type 3 asbestos operations, contractors must be certified as Asbestos Abatement Workers AAW (Trade code 253W) and Asbestos Abatement Supervisors AAS (Trade code 253S) by The Ministry of Training, Colleges and Universities (Ministry of Advanced Education and Skills Development) as prescribed by Section 20 of O. Reg. 278/05.

5.2 Long Term Management

This audit was conducted for the long term management of ACM within the building. Prior to future construction or renovation projects, additional assessments and/or sampling may be required.

There are no requirements under current legislation to remove ACM from a building simply because it is present. However, O. Reg. 278/05 requires that an Asbestos Management Plan be implemented and maintained. Asbestos awareness training should be provided for staff that may come in contact with ACM during routine duties or in emergency situations.

ACM that will be disturbed, or will likely be disturbed, during building maintenance, renovations, construction, or demolition activities must be handled and disposed of in accordance with the procedures prescribed by O. Reg. 278/05.

ACM may also be present in concealed locations. If any construction, renovation, alteration, or maintenance activities are required or planned, invasive inspections of concealed locations for potential ACM must be performed prior to such activities. Should any suspect ACM be discovered, work should cease and the materials should not be disturbed. Suspect ACM must be treated as asbestos-containing or sampled and proven to not contain asbestos. Any activities that require disturbance of ACM must be performed in accordance with O. Reg. 278/05.

For Tender Purposes

6.0 Limitations

Services performed by **MTE Consultants Inc.** (MTE) were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the Environmental Engineering & Consulting profession. No other representation expressed or implied as to the accuracy of the information, conclusions or recommendations is included or intended in this report.

This report was completed for the sole use of MTE and the Client. It was completed in accordance with the approved Scope of Work referred to in Section 0. As such, this report may not deal with all issues potentially applicable to the site and may omit issues that are or may be of interest to the reader. MTE makes no representation that the present report has dealt with all-important environmental features, except as provided in the Scope of Work. All findings and conclusions presented in this report are based on site conditions, as they existed during the time period of the investigation. This report is not intended to be exhaustive in scope or to imply a risk-free facility.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based upon it, are the responsibility of such third parties. MTE accepts no responsibility for liabilities incurred by or damages, if any, suffered by any third party as a result of decisions made or actions taken, based upon this report. Others with interest in the site should undertake their own investigations and studies to determine how or if the condition affects them or their plans.

It should be recognized that the passage of time might affect the views, conclusions and recommendations (if any) provided in this report because environmental conditions of a property can change. Should additional or new information become available, MTE recommends that it be brought to our attention in order that we may re-assess the contents of this report.

All of which is respectfully submitted,

MTE Consultants Inc.

Jason Scozzafava, B.Sc., C.Tech.
Senior Technologist, Indoor Environments
519-743-6500 ext. 1354
jscozzafava@mte85.com

Paul Semeniuk, B.E.S., C.E.T.
Project Manager, Indoor Environments
519-743-6500 ext. 1324
psemeniuk@mte85.com

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For Tender Purposes

Appendix A

Asbestos Management Database

For Tender Purposes

	School Name	Legend:	Notes:
	Avenue Road Public School	**HM -** Homogenous Material - homogeneous with previously sampled material **SL** - Sample Location - Material Sampled **VC** - Visually Confirmed - Material not sampled, deemed ACM **NF** - Non-Friable **F**- Friable	**All quantities provided on Figures, if known. Refer to the Asbestos Audit Update Report for condition of ACM and recommended actions.**
	Date Built:		**Dates provided in Material Description/Room Description columns indicates date of installation/renovation and confirms the finishes as non-ACM.**
	Original: 1960		
	Addition(s): 1963, 1980, 2012		

WRDSB Fixed Reference Number	Room Description	Inspected Item	Inspected Material	Material Description	Friability	Asbestos Classification	Sample / Identification Summary	Sample ID	Sample Date	% Asbestos & Fibre Type
Structure/Additions										
	Original Building	Structure	Concrete	Concrete	-	Non ACM	-	-	-	-
	Original Building	Façade	Brick Veneer	Brick and Mortar	-	Non ACM	-	-	-	-
	Original Building	Façade	Concrete	Concrete	-	Non ACM	-	-	-	-
	Original Building	Façade	Steel Siding	-	-	Non ACM	-	-	-	-
	Original Building	Not Inspected	Not Inspected	Roofing Materials	NF	Deemed ACM	Sample prior to removal/disturbance		-	-
	Original Building	Overhangs	Steel	-	-	Non ACM	-	-	-	-
	Original Building	Structure	Deck	Steel	-	Non ACM	-	-	-	-
	Original Building	Structure	Deck	Wood	-	Non ACM	-	-	-	-
	Original Building	Windows	Interior/Exterior Frames	Silicon	-	Non ACM	-	-	-	-
	Original Building	Doors	Interior Frames	Grey	-	Non ACM	SL	S06abc	8-Sep-20	ND
	Original Building	Doors	Exterior Frames	Grey	NF	ACM	SL	S05abc	8-Sep-20	1% Chrysotile
	Original Building	Floor	Mastic	Black Mastic	NF	ACM	SL	S08a	4-Jan-17	1.71% Chrysotile
	Original Building	Ceiling	Ceiling Tile 1' x 1'	Brown Mastic	-	Non ACM	SL	S14abc	29-Jan-13	ND
	1963 Addition	Structure	Concrete	Concrete	-	Non ACM	-	-	-	-
	1963 Addition	Façade	Brick Veneer	Brick and Mortar	-	Non ACM	-	-	-	-
	1963 Addition	Façade	Concrete	Concrete	-	Non ACM	-	-	-	-
	1963 Addition	Not Inspected	Not Inspected	Roofing Materials	NF	Deemed ACM	Sample prior to removal/disturbance		-	-
	1963 Addition	Overhangs	Steel	-	-	Non ACM	-	-	-	-
	1963 Addition	Structure	Deck	Steel	-	Non ACM	-	-	-	-
	1963 Addition	Windows	Interior/Exterior Frames	Silicon	-	Non ACM	-	-	-	-
	1963 Addition	Doors	Interior/Exterior Frames	White	-	Non ACM	SL	S04abc	8-Sep-20	ND
	1963 Addition	Floor	Mastic	Black Mastic	-	Non ACM	SL	S02abc	4-Jan-17	ND
	1980 Addition	Structure	Concrete	Concrete	-	Non ACM	-	-	-	-
	1980 Addition	Façade	Brick Veneer	Brick and Mortar	-	Non ACM	-	-	-	-
	1980 Addition	Façade	Concrete	Concrete	-	Non ACM	-	-	-	-
	1980 Addition	Not Inspected	Not Inspected	Roofing Materials	NF	Deemed ACM	Sample prior to removal/disturbance		-	-
	1980 Addition	Overhangs	Steel	-	-	Non ACM	-	-	-	-
	1980 Addition	Structure	Deck	Steel	-	Non ACM	-	-	-	-
	1980 Addition	Windows	Interior Panes	Black	NF	ACM	SL	S01abc	8-Sep-20	20% Chrysotile
	1980 Addition	Doors	Interior Frames	Grey	-	Non ACM	SL	S03abc	8-Sep-20	ND
	1980 Addition	Doors	Exterior Frames	Grey	-	Non ACM	SL	S02abc	8-Sep-20	ND
	1980 Addition	Floor	Mastic	Black Mastic	-	Non ACM	SL	S06abc	4-Jan-17	ND
Level 1										
1	Classroom #1	Floor	Vinyl Floor Tile 12"x 12"	Crème with Brown Fleck	-	Non ACM	HM	S04	30-Jan-09	ND
1	Classroom #1	Wall	Drywall	No Drywall Joint Compound	-	Non ACM	-	-	-	-
1	Classroom #1	Wall	Concrete	-	-	Non ACM	-	-	-	-
1	Classroom #1	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (2002)	-	Non ACM	-	-	-	-

For Tender Purposes

	School Name	Legend:	Notes:
	Avenue Road Public School	**HM -** Homogenous Material - homogeneous with previously sampled material **SL** - Sample Location - Material Sampled **VC** - Visually Confirmed - Material not sampled, deemed ACM **NF** - Non-Friable **F**- Friable	**All quantities provided on Figures, if known. Refer to the Asbestos Audit Update Report for condition of ACM and recommended actions.**
	Date Built:		**Dates provided in Material Description/Room Description columns indicates date of installation/renovation and confirms the finishes as non-ACM.**
	Original: 1960		
	Addition(s): 1963, 1980, 2012		

WRDSB Fixed Reference Number	Room Description	Inspected Item	Inspected Material	Material Description	Friability	Asbestos Classification	Sample / Identification Summary	Sample ID	Sample Date	% Asbestos & Fibre Type
1	Classroom #1	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
2	Classroom #2	Floor	Vinyl Floor Tile 12"x 12"	Crème with Brown Fleck	-	Non ACM	HM	S04	30-Jan-09	ND
2	Classroom #2	Wall	Drywall	No Drywall Joint Compound	-	Non ACM	-	-	-	-
2	Classroom #2	Wall	Concrete	-	-	Non ACM	-	-	-	-
2	Classroom #2	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (2002)	-	Non ACM	-	-	-	-
2	Classroom #2	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
3	Classroom #3	Floor	Vinyl Floor Tile 12"x 12"	White with Blue Fleck	-	Non ACM	SL	S03abc	30-Jan-09	ND
3	Classroom #3	Floor	Floor Tile Mastic	Yellow/Black	-	Non ACM	SL	S03abc	30-Jan-09	ND
3	Classroom #3	Wall	Drywall	No Drywall Joint Compound	-	Non ACM	-	-	-	-
3	Classroom #3	Wall	Concrete	-	-	Non ACM	-	-	-	-
3	Classroom #3	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (2002)	-	Non ACM	-	-	-	-
3	Classroom #3	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
4	Classroom #4	Floor	Vinyl Floor Tile 12"x 12"	Crème with Brown Fleck	-	Non ACM	SL	S04abc	30-Jan-09	ND
4	Classroom #4	Wall	Drywall	No Drywall Joint Compound	-	Non ACM	-	-	-	-
4	Classroom #4	Wall	Concrete	-	-	Non ACM	-	-	-	-
4	Classroom #4	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (2002)	-	Non ACM	-	-	-	-
4	Classroom #4	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
5	Classroom #5	Floor	Vinyl Floor Tile 12"x 12"	Crème with Brown Fleck	-	Non ACM	HM	S04	30-Jan-09	ND
5	Classroom #5	Wall	Drywall	No Drywall Joint Compound	-	Non ACM	-	-	-	-
5	Classroom #5	Wall	Concrete	-	-	Non ACM	-	-	-	-
5	Classroom #5	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (2002)	-	Non ACM	-	-	-	-
5	Classroom #5	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
6	Classroom #6	Floor	Vinyl Floor Tile 12"x 12"	Brown Dense Fleck (New)	-	Non ACM	-	-	-	-
6	Classroom #6	Floor	Carpet	-	-	Non ACM	-	-	-	-
6	Classroom #6	Wall	Concrete	-	-	Non ACM	-	-	-	-
6	Classroom #6	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (2002)	-	Non ACM	-	-	-	-
6	Classroom #6	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
7	Classroom 10	Floor	Vinyl Sheet Flooring	Faux Wood	-	Non ACM	-	-	-	-
7	Classroom 10	Wall	Drywall	Drywall Joint Compound	-	Non ACM	HM	S09	4-Jan-17	ND
7	Classroom 10	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1996)	-	Non ACM	-	-	-	-
7	Classroom 10	Ceiling	Ceiling Tile 1' x 1'	Cellulose	-	Non ACM	-	-	-	-
7A	Classroom 10	Floor	Vinyl Floor Tile 12"x 12"	Light Brown Fleck/White with Blue Fleck	-	Non ACM	HM	S03	30-Jan-09	ND
7A	Classroom 10	Wall	Ceramic Tile	-	-	Non ACM	-	-	-	-
7A	Classroom 10	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S09	4-Jan-17	ND
8	Kindergarten Boot Area	Floor	Vinyl Floor Tile 12"x 12"	Light Brown Fleck/White with Blue Fleck	-	Non ACM	HM	S03	30-Jan-09	ND
8	Kindergarten Boot Area	Wall	Concrete	-	-	Non ACM	-	-	-	-
8	Kindergarten Boot Area	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1996)	-	Non ACM	-	-	-	-
8	Kindergarten Boot Area	Ceiling	Ceiling Tile 1' x 1'	Cellulose	-	Non ACM	-	-	-	-
8	Kindergarten Boot Area	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S09	4-Jan-17	ND
8A	Washroom	Floor	Vinyl Floor Tile 12"x 12"	Light Brown Fleck/White with Blue Fleck	-	Non ACM	HM	S03	30-Jan-09	ND
8A	Washroom	Wall	Ceramic Tile	-	-	Non ACM	-	-	-	-
8A	Washroom	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S09	4-Jan-17	ND
9	Kindergarten	Floor	Vinyl Floor Tile 12"x 12"	Light Brown Fleck/White with Blue Fleck	-	Non ACM	HM	S03	30-Jan-09	ND

For Tender Purposes

School Name

Avenue Road Public School

Date Built:

Original: 1960

Addition(s): 1963, 1980, 2012

Legend:

HM - Homogenous Material - homogeneous with previously sampled material
SL - Sample Location - Material Sampled
VC - Visually Confirmed - Material not sampled, deemed ACM
NF - Non-Friable
F- Friable

Notes:

All quantities provided on Figures, if known. Refer to the Asbestos Audit Update Report for condition of ACM and recommended actions.

Dates provided in Material Description/Room Description columns indicates date of installation/renovation and confirms the finishes as non-ACM.

WRDSB Fixed Reference Number	Room Description	Inspected Item	Inspected Material	Material Description	Friability	Asbestos Classification	Sample / Identification Summary	Sample ID	Sample Date	% Asbestos & Fibre Type
9	Kindergarten	Wall	Drywall	Drywall Joint Compound	-	Non ACM	SL	S09B	4-Jan-17	ND
9	Kindergarten	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1996)	-	Non ACM	-	-	-	-
9	Kindergarten	Ceiling	Ceiling Tile 1' x 1'	Cellulose	-	Non ACM	-	-	-	-
9A	Washroom	Floor	Vinyl Floor Tile 12"x 12"	Light Brown Fleck/White with Blue Fleck	-	Non ACM	HM	S03	30-Jan-09	ND
9A	Washroom	Wall	Ceramic Tile	-	-	Non ACM	-	-	-	-
9A	Washroom	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S09	4-Jan-17	ND
20	Teacher's Lounge	Floor	Vinyl Floor Tile 12"x 12"	Light Brown with Grey fleck	-	Non ACM	HM	S11	30-Jan-09	ND
20	Teacher's Lounge	Wall	Drywall	Drywall Joint Compound	-	Non ACM	SL	S01B	4-Jan-17	ND
20	Teacher's Lounge	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1996)	-	Non ACM	-	-	-	-
20A	Washroom	Floor	Ceramic Tile	-	-	Non ACM	-	-	-	-
20A	Washroom	Wall	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
20A	Washroom	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1996)	-	Non ACM	-	-	-	-
20B	Storage	Floor	Vinyl Floor Tile 12"x 12"	Light Brown Fleck/White with Blue Fleck	-	Non ACM	HM	S03	30-Jan-09	ND
20B	Storage	Wall	Drywall	Drywall Joint Compound	-	Non ACM	HM	S09	4-Jan-17	ND
20B	Storage	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1996)	-	Non ACM	-	-	-	-
20B	Storage	Ceiling	Ceiling Tile 1' x 1'	Cellulose	-	Non ACM	-	-	-	-
21	Classroom 12	Floor	Vinyl Floor Tile 12"x 12"	Light Brown with Grey fleck	-	Non ACM	SL	S11abc	30-Jan-09	ND
21	Classroom 12	Wall	Concrete	-	-	Non ACM	-	-	-	-
21	Classroom 12	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1992)	-	Non ACM	-	-	-	-
22	Classroom 13	Floor	Vinyl Floor Tile 12"x 12"	Light Brown with Grey fleck	-	Non ACM	HM	S11	30-Jan-09	ND
22	Classroom 13	Wall	Concrete	-	-	Non ACM	-	-	-	-
22	Classroom 13	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1992)	-	Non ACM	-	-	-	-
23	Classroom 14	Floor	Vinyl Floor Tile 12"x 12"	Light Brown with Grey fleck	-	Non ACM	HM	S11	30-Jan-09	ND
23	Classroom 14	Wall	Concrete	-	-	Non ACM	-	-	-	-
23	Classroom 14	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1992)	-	Non ACM	-	-	-	-
101	Principal's Office	Floor	Vinyl Floor Tile 12"x 12"	White with Marble	-	Non ACM	-	-	-	-
101	Principal's Office	Floor	Carpet	-	-	Non ACM	-	-	-	-
101	Principal's Office	Wall	Concrete	-	-	Non ACM	-	-	-	-
101	Principal's Office	Wall	Drywall	Drywall Joint Compound (New)	-	Non ACM	-	-	-	-
101	Principal's Office	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (2002)	-	Non ACM	-	-	-	-
101	Principal's Office	Piping	Pipe Fitting	Parged Cement	F	ACM	HM	b1828-010	12-Oct-90	50-75% Chrysotile
102	Vice Principal's Office	Floor	Wood	-	-	Non ACM	-	-	-	-
102	Vice Principal's Office	Wall	Concrete	-	-	Non ACM	-	-	-	-
102	Vice Principal's Office	Wall	Wood	-	-	Non ACM	-	-	-	-
102	Vice Principal's Office	Ceiling	Ceiling Tile 2 x 4	Random Pinhole, Small Fissure	-	Non ACM	-	-	-	-
102	Vice Principal's Office	Piping	Pipe Fitting	Parged Cement	F	ACM	HM	b1828-010	12-Oct-90	50-75% Chrysotile
103	Front Office	Floor	Wood	-	-	Non ACM	-	-	-	-
103	Front Office	Wall	Concrete	-	-	Non ACM	-	-	-	-
103	Front Office	Wall	Wood	-	-	Non ACM	-	-	-	-
103	Front Office	Wall	Drywall	Drywall Joint Compound (New)	-	Non ACM	-	-	-	-
103	Front Office	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (2002)	-	Non ACM	-	-	-	-
103	Front Office	Piping	Pipe Fitting	Parged Cement	F	ACM	HM	b1828-010	12-Oct-90	50-75% Chrysotile
104	Seminar	Floor	Vinyl Floor Tile 9"x 9"	Grey with White Streak	NF	ACM	SL	S05ABC	4-Jan-17	7.48% Chrysotile

For Tender Purposes

	School Name	Legend:	Notes:
	Avenue Road Public School	**HM -** Homogenous Material - homogeneous with previously sampled material **SL** - Sample Location - Material Sampled **VC** - Visually Confirmed - Material not sampled, deemed ACM **NF** - Non-Friable **F**- Friable	**All quantities provided on Figures, if known. Refer to the Asbestos Audit Update Report for condition of ACM and recommended actions.**
	Date Built:		**Dates provided in Material Description/Room Description columns indicates date of installation/renovation and confirms the finishes as non-ACM.**
	Original: 1960		
	Addition(s): 1963, 1980, 2012		

WRDSB Fixed Reference Number	Room Description	Inspected Item	Inspected Material	Material Description	Friability	Asbestos Classification	Sample / Identification Summary	Sample ID	Sample Date	% Asbestos & Fibre Type
104	Seminar	Wall	Concrete	-	-	Non ACM	-	-	-	-
104	Seminar	Wall	Wood	-	-	Non ACM	-	-	-	-
104	Seminar	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
105	Storage	Floor	Vinyl Floor Tile 9"x 9"	Tan with Brown/White Streak	NF	ACM	SL	S02ABC	4-Jan-17	7.28% Chrysotile
105	Storage	Wall	Concrete	-	-	Non ACM	-	-	-	-
105	Storage	Wall	Wood	-	-	Non ACM	-	-	-	-
105	Storage	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
106	Staff Washroom	Floor	Vinyl Floor Tile 12"x 12"	Grey Dense Fleck	-	Non ACM	-	-	-	-
106	Staff Washroom	Wall	Concrete	-	-	Non ACM	-	-	-	-
106	Staff Washroom	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
107	Boys Washroom	Floor	Terrazzo	-	-	Non ACM	-	-	-	-
107	Boys Washroom	Wall	Ceramic Tile	-	-	Non ACM	-	-	-	-
107	Boys Washroom	Ceiling	Wood	-	-	Non ACM	-	-	-	-
108	Girls Washroom	Floor	Terrazzo	-	-	Non ACM	-	-	-	-
108	Girls Washroom	Wall	Ceramic Tile	-	-	Non ACM	-	-	-	-
108	Girls Washroom	Ceiling	Wood	-	-	Non ACM	-	-	-	-
109	Custodial Room	Floor	Vinyl Floor Tile 9"x 9"	Grey with Black Streak	NF	ACM	SL	S03ABC	4-Jan-17	4.33% Chrysotile
109	Custodial Room	Wall	Concrete	-	-	Non ACM	-	-	-	-
109	Custodial Room	Wall	Brick	-	-	Non ACM	-	-	-	-
109	Custodial Room	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
110	-	Floor	Vinyl Floor Tile 12"x 12"	Crème with Brown Streak	NF	ACM	HM	S10	30-Jan-09	1.3% Chrysotile
110	-	Wall	Concrete	-	-	Non ACM	-	-	-	-
110	-	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
111	Special Education Room	Floor	Vinyl Floor Tile 9"x 9"	Tan with Brown/White Streak	NF	ACM	SL	S02ABC	4-Jan-17	7.28% Chrysotile
111	Special Education Room	Wall	Drywall	Drywall Joint Compound	-	Non ACM	SL	S09A	4-Jan-17	ND
111	Special Education Room	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1996)	-	Non ACM	-	-	-	-
111	Special Education Room	Ceiling	Ceiling Tile 1' x 1'	Cellulose	-	Non ACM	-	-	-	-
125	Storage	Floor	Concrete	-	-	Non ACM	-	-	-	-
125	Storage	Wall	Concrete	-	-	Non ACM	-	-	-	-
125	Storage	Ceiling	Metal Pan	-	-	Non ACM	-	-	-	-
126	Girls Changeroom	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
126	Girls Changeroom	Wall	Concrete	-	-	Non ACM	-	-	-	-
126	Girls Changeroom	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
126A	Girls Washroom	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
126A	Girls Washroom	Wall	Concrete	-	-	Non ACM	-	-	-	-
126A	Girls Washroom	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
127	Instructor Area	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
127	Instructor Area	Wall	Drywall	Drywall Joint Compound	-	Non ACM	SL	S09abc	30-Jan-09	ND
127	Instructor Area	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S09	30-Jan-09	ND
128	Washroom	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
128	Washroom	Wall	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
128	Washroom	Wall	Concrete	-	-	Non ACM	-	-	-	-
128	Washroom	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND

For Tender Purposes

	School Name	Legend:	Notes:
	Avenue Road Public School	**HM -** Homogenous Material - homogeneous with previously sampled material **SL** - Sample Location - Material Sampled **VC** - Visually Confirmed - Material not sampled, deemed ACM **NF** - Non-Friable **F**- Friable	**All quantities provided on Figures, if known. Refer to the Asbestos Audit Update Report for condition of ACM and recommended actions.**
	Date Built:		**Dates provided in Material Description/Room Description columns indicates date of installation/renovation and confirms the finishes as non-ACM.**
	Original: 1960		
	Addition(s): 1963, 1980, 2012		

WRDSB Fixed Reference Number	Room Description	Inspected Item	Inspected Material	Material Description	Friability	Asbestos Classification	Sample / Identification Summary	Sample ID	Sample Date	% Asbestos & Fibre Type
128	Washroom	Piping	Pipe	Transite	NF	ACM	VC	-	-	-
129	General Purpose Room	Floor	Wood	-	-	Non ACM	-	-	-	-
129	General Purpose Room	Wall	Concrete	-	-	Non ACM	-	-	-	-
129	General Purpose Room	Ceiling	Metal Pan	-	-	Non ACM	-	-	-	-
132	Storage	Floor	Concrete	-	-	Non ACM	-	-	-	-
132	Storage	Wall	Concrete	-	-	Non ACM	-	-	-	-
132	Storage	Piping	Pipe Fitting	Fibreglass/PVC	-	Non ACM	-	-	-	-
133	Boys Changeroom	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
133	Boys Changeroom	Wall	Concrete	-	-	Non ACM	-	-	-	-
133	Boys Changeroom	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
133A	Boys Washroom	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
133A	Boys Washroom	Wall	Concrete	-	-	Non ACM	-	-	-	-
133A	Boys Washroom	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	SL	S01A	4-Jan-17	ND
134	Instructor Area	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
134	Instructor Area	Wall	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
134	Instructor Area	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
135	Custodial Room	Floor	Vinyl Floor Tile 12"x 12"	Crème with Brown Streak	NF	ACM	HM	S10	30-Jan-09	1.3% Chrysotile
135	Custodial Room	Wall	Concrete	-	-	Non ACM	-	-	-	-
135	Custodial Room	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
135	Custodial Room	Piping	Pipe	Transite	NF	ACM	VC	-	-	-
136	Computer	Floor	Vinyl Floor Tile 12"x 12"	Crème with Brown Fleck	-	Non ACM	HM	S04	30-Jan-09	ND
136	Computer	Wall	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
136	Computer	Wall	Concrete	-	-	Non ACM	-	-	-	-
136	Computer	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1996)	-	Non ACM	-	-	-	-
140	Gym	Floor	Vinyl Floor Tile 12"x 12"	-	-	Non ACM	-	-	-	-
140	Gym	Wall	Concrete	-	-	Non ACM	-	-	-	-
140	Gym	Ceiling	Concrete	-	-	Non ACM	-	-	-	-
141	Library Work Room	Floor	Carpet	-	-	Non ACM	-	-	-	-
141	Library Work Room	Wall	Concrete	-	-	Non ACM	-	-	-	-
141	Library Work Room	Ceiling	Ceiling Tile 2' x 4'	Wavy Short Fissure	-	Non ACM	HM	S07	30-Jan-09	ND
142	Boiler Room	Floor	Concrete	-	-	Non ACM	-	-	-	-
142	Boiler Room	Wall	Concrete	-	-	Non ACM	-	-	-	-
142	Boiler Room	Ceiling	Concrete	-	-	Non ACM	-	-	-	-
142	Boiler Room	Piping	Pipe Fitting	Parged Cement	F	ACM	HM	b1828-010	12-Oct-90	50-75% Chrysotile
142A	Mechanical	Floor	Concrete	-	-	Non ACM	-	-	-	-
142A	Mechanical	Wall	Concrete	-	-	Non ACM	-	-	-	-
142A	Mechanical	Piping	Pipe	Transite	NF	ACM	VC	-	-	-
142A	Mechanical	Ducting	Flex Joint	-	NF	Suspect ACM	VC	-	-	-
142B	Storage	Floor	Concrete	-	-	Non ACM	-	-	-	-
142B	Storage	Wall	Concrete	-	-	Non ACM	-	-	-	-
142B	Storage	Ceiling	Concrete	-	-	Non ACM	-	-	-	-
142B	Storage	Piping	Pipe	Transite	NF	ACM	VC	-	-	-
801	Exit #2 Corridor	Floor	Terrazzo	-	-	Non ACM	-	-	-	-

For Tender Purposes

	School Name	Legend:	Notes:
	Avenue Road Public School	**HM -** Homogenous Material - homogeneous with previously sampled material **SL** - Sample Location - Material Sampled **VC** - Visually Confirmed - Material not sampled, deemed ACM **NF** - Non-Friable **F**- Friable	**All quantities provided on Figures, if known. Refer to the Asbestos Audit Update Report for condition of ACM and recommended actions.**
	Date Built:		**Dates provided in Material Description/Room Description columns indicates date of installation/renovation and confirms the finishes as non-ACM.**
	Original: 1960		
	Addition(s): 1963, 1980, 2012		

WRDSB Fixed Reference Number	Room Description	Inspected Item	Inspected Material	Material Description	Friability	Asbestos Classification	Sample / Identification Summary	Sample ID	Sample Date	% Asbestos & Fibre Type
801	Exit #2 Corridor	Wall	Concrete	-	-	Non ACM	-	-	-	-
801	Exit #2 Corridor	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole	-	Non ACM	SL	S02abc	30-Jan-09	ND
801	Exit #2 Corridor	Piping	Pipe Fitting	Parged Cement	F	ACM	HM	b1828-010	12-Oct-90	50-75% Chrysotile
801A	Exit #2 Lobby	Floor	Terrazzo	-	-	Non ACM	-	-	-	-
801A	Exit #2 Lobby	Wall	Concrete	-	-	Non ACM	-	-	-	-
801A	Exit #2 Lobby	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	SL	S01abc	30-Jan-09	ND
801A	Exit #2 Lobby	Piping	Pipe Fitting	Parged Cement	F	ACM	HM	b1828-010	12-Oct-90	50-75% Chrysotile
802	Front Entrance	Floor	Terrazzo	-	-	Non ACM	-	-	-	-
802	Front Entrance	Wall	Concrete	-	-	Non ACM	-	-	-	-
802	Front Entrance	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
803	Corridor	Floor	Vinyl Floor Tile 9"x 9"	Beige with Brown/White Streak	NF	ACM	SL	S04ABC	4-Jan-17	3.78% Chrysotile
803	Corridor	Wall	Concrete	-	-	Non ACM	-	-	-	-
803	Corridor	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
804	Main Corridor	Floor	Terrazzo	-	-	Non ACM	-	-	-	-
804	Main Corridor	Wall	Concrete	-	-	Non ACM	-	-	-	-
804	Main Corridor	Wall	Brick	-	-	Non ACM	-	-	-	-
804	Main Corridor	Ceiling	Ceiling Tile 2' x 4'	Short Fissure Random Pinhole (1996)	-	Non ACM	-	-	-	-
804	Main Corridor	Piping	Pipe Fitting	Parged Cement	F	ACM	HM	b1828-010	12-Oct-90	50-75% Chrysotile
806	Girls Washroom Lobby	Floor	Vinyl Floor Tile 12"x 12"	White with Blue Fleck	-	Non ACM	HM	S03	30-Jan-09	ND
806	Girls Washroom Lobby	Floor	Floor Tile Mastic	Yellow/Black	-	Non ACM	HM	S03	30-Jan-09	ND
806	Girls Washroom Lobby	Wall	Concrete	-	-	Non ACM	-	-	-	-
806	Girls Washroom Lobby	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
807	Boys Washroom Lobby	Floor	Vinyl Floor Tile 12"x 12"	White with Blue Fleck	-	Non ACM	HM	S03	30-Jan-09	ND
807	Boys Washroom Lobby	Floor	Floor Tile Mastic	Yellow/Black	-	Non ACM	HM	S03	30-Jan-09	ND
807	Boys Washroom Lobby	Wall	Concrete	-	-	Non ACM	-	-	-	-
807	Boys Washroom Lobby	Ceiling	Ceiling Tile 1' x 1'	Large and Small Random Pinhole	-	Non ACM	HM	S01	30-Jan-09	ND
808	Corridor #8	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
808	Corridor #8	Wall	Concrete	-	-	Non ACM	-	-	-	-
808	Corridor #8	Wall	Brick	-	-	Non ACM	-	-	-	-
808	Corridor #8	Ceiling	Ceiling Tile 2' x 4'	Wavy Short Fissure	-	Non ACM	HM	S07	30-Jan-09	ND
808A	Corridor #8	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
808A	Corridor #8	Wall	Concrete	-	-	Non ACM	-	-	-	-
808A	Corridor #8	Wall	Brick	-	-	Non ACM	-	-	-	-
808A	Corridor #8	Ceiling	Ceiling Tile 2' x 4'	Wavy Short Fissure	-	Non ACM	HM	S07	30-Jan-09	ND
809	Corridor at Courtyard	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
809	Corridor at Courtyard	Wall	Concrete	-	-	Non ACM	-	-	-	-
809	Corridor at Courtyard	Wall	Brick	-	-	Non ACM	-	-	-	-
809	Corridor at Courtyard	Ceiling	Ceiling Tile 2' x 4'	Wavy Short Fissure	-	Non ACM	HM	S07	30-Jan-09	ND
810	Corridor 4	Floor	Terrazzo	-	-	Non ACM	-	-	-	-
810	Corridor 4	Wall	Concrete	-	-	Non ACM	-	-	-	-
810	Corridor 4	Wall	Brick	-	-	Non ACM	-	-	-	-
810	Corridor 4	Ceiling	Ceiling Tile 2' x 4'	Wavy Short Fissure	-	Non ACM	SL	S07abc	30-Jan-09	ND
810A	Corridor 4	Floor	Terrazzo	-	-	Non ACM	-	-	-	-

For Tender Purposes

	School Name	Legend:	Notes:
	Avenue Road Public School	**HM -** Homogenous Material - homogeneous with previously sampled material **SL** - Sample Location - Material Sampled **VC** - Visually Confirmed - Material not sampled, deemed ACM **NF** - Non-Friable **F**- Friable	**All quantities provided on Figures, if known. Refer to the Asbestos Audit Update Report for condition of ACM and recommended actions.**
	Date Built:		**Dates provided in Material Description/Room Description columns indicates date of installation/renovation and confirms the finishes as non-ACM.**
	Original: 1960		
	Addition(s): 1963, 1980, 2012		

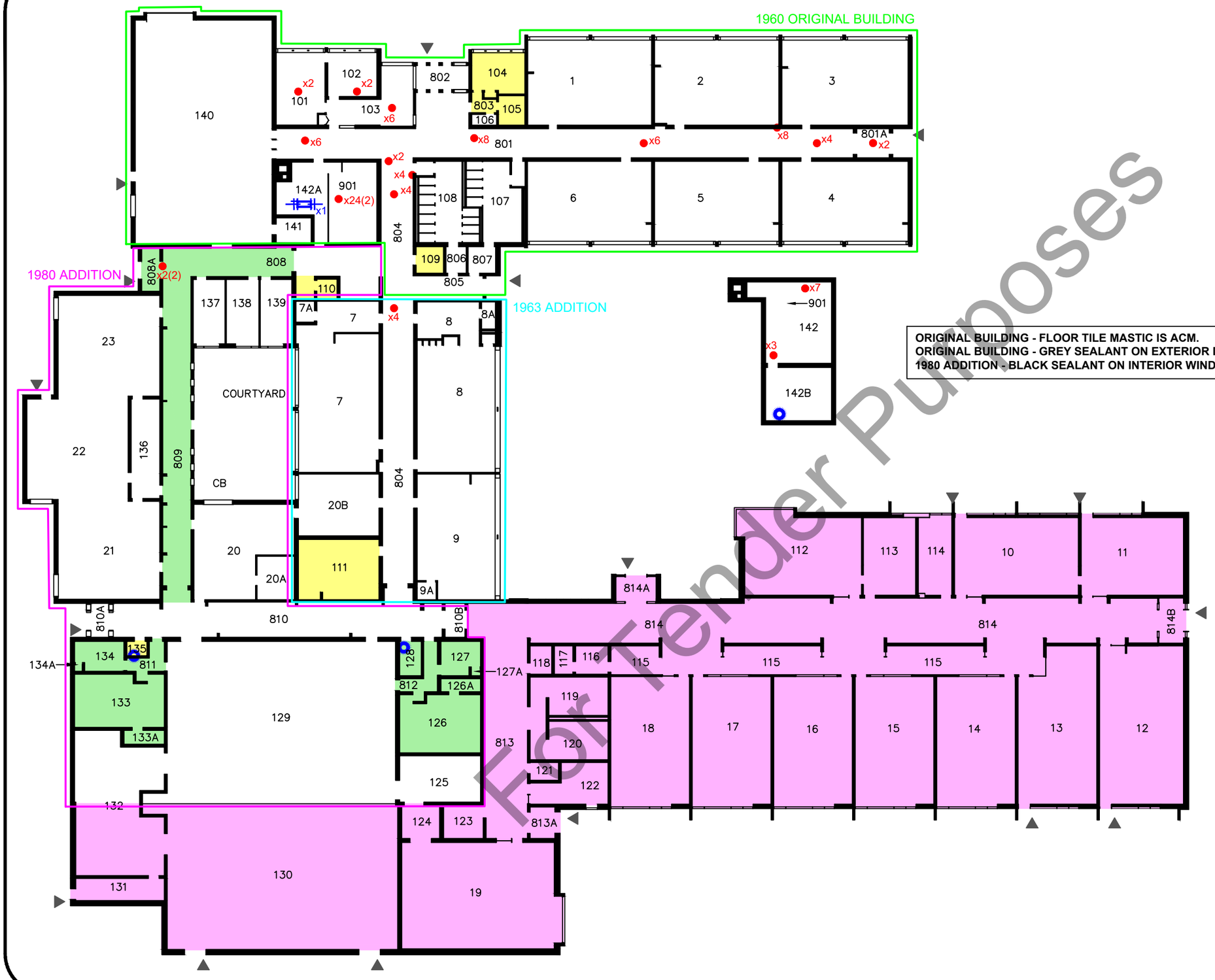
WRDSB Fixed Reference Number	Room Description	Inspected Item	Inspected Material	Material Description	Friability	Asbestos Classification	Sample / Identification Summary	Sample ID	Sample Date	% Asbestos & Fibre Type
810A	Corridor 4	Wall	Concrete	-	-	Non ACM	-	-	-	-
810A	Corridor 4	Wall	Brick	-	-	Non ACM	-	-	-	-
810A	Corridor 4	Ceiling	Ceiling Tile 2' x 4'	Wavy Short Fissure	-	Non ACM	SL	S07abc	30-Jan-09	ND
810B	Corridor and Lobby	Floor	Ceramic Floor Tile	-	-	Non ACM	-	-	-	-
810B	Corridor and Lobby	Wall	Concrete	-	-	Non ACM	-	-	-	-
810B	Corridor and Lobby	Wall	Brick	-	-	Non ACM	-	-	-	-
810B	Corridor and Lobby	Ceiling	Ceiling Tile 2' x 4'	Wavy Short Fissure	-	Non ACM	HM	S07	30-Jan-09	ND
811	-	Floor	Vinyl Rolled Flooring	Cobblestone	NF	ACM	HM	S08	30-Jan-09	20% Chrysotile
811	-	Wall	Concrete	-	-	Non ACM	-	-	-	-
811	-	Ceiling	Drywall	Drywall Joint Compound	-	Non ACM	HM	S01	4-Jan-17	ND
901	Boiler Room	Floor	Concrete	-	-	Non ACM	-	-	-	-
901	Boiler Room	Wall	Concrete	-	-	Non ACM	-	-	-	-
901	Boiler Room	Ceiling	Concrete	-	-	Non ACM	-	-	-	-
901	Boiler Room (upper)	Floor	Concrete	-	-	Non ACM	-	-	-	-
901	Boiler Room (upper)	Wall	Concrete	-	-	Non ACM	-	-	-	-
901	Boiler Room (upper)	Ceiling	Concrete	-	-	Non ACM	-	-	-	-
901	Boiler Room (upper)	Piping	Pipe Fitting	Parged Cement	F	ACM	HM	b1828-010	12-Oct-90	50-75% Chrysotile
Summary of Potential ACM Hidden or Not Assessed										
	Throughout Building	Not Inspected	Not Inspected	Wall Cavity Insulation						
	Throughout Building	Not Inspected	Not Inspected	Door Core Insulation						

For Tender Purposes

Appendix B

Figures

For Tender Purposes



For Tender Purposes

ORIGINAL BUILDING - FLOOR TILE MASTIC IS ACM.
ORIGINAL BUILDING - GREY SEALANT ON EXTERIOR DOOR FRAMES IS ACM.
1980 ADDITION - BLACK SEALANT ON INTERIOR WINDOW PANES IS ACM.

NOTES:

ALL DRAWINGS TO BE REFERENCED WITH THE ASSOCIATED REPORT, LOCATIONS AND QUANTITIES ARE APPROXIMATE.

ALL KNOWN OR SUSPECT ASBESTOS-CONTAINING MATERIALS AND/OR DESIGNATED MATERIALS ARE NOT DEPICTED ON THIS DRAWING. REFER TO THE REPORT FOR A COMPLETE LIST OF IDENTIFIED MATERIALS.

THIS FIGURE IS COLOUR DEPENDENT, PHOTOCOPIES MAY ALTER INTERPRETATION OF THE FIGURE. ALWAYS REFER TO ORIGINAL DRAWINGS AND REPORT.

Legend

- 13 — Fixed Reference Number
- No Access
- Post 2012 Construction

Asbestos-Containing Materials (ACM):

- Floor Tile
- Rolled Flooring
- Ceiling Tile
- Friable Soft Textured Ceiling
- Non-Friable Hard Textured Ceiling
- Spray-On Fire Proofing
- Transite (Asbestos Cement) Paneling
- Duct Insulation
- x2(1) — Pipe Fitting Insulation w Quantity (Brackets Indicate # of Damaged Fittings)
- Pipe Insulation (Vertical and Horizontal)
- Transite (Asbestos Cement) Pipe (Vertical and Horizontal)
- x2(1) — Duct Expansion Joints w Quantity (Brackets Indicate # of Damaged Joints)
- Friable Debris

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CLIENT
WATERLOO REGION DISTRICT SCHOOL BOARD

PROJECT
2020 ASBESTOS AUDIT UPDATE

DRAWING
AVENUE ROAD PUBLIC SCHOOL

LEVEL ONE

Project Manager: P. Semeniuk	Date: October 2020
Design By: WRDSB	Project No.: 34532-919
Drawn By: S-P. Lemieux	Drawing No.: 1.0
Scale: N.T.S.	

Appendix 01 35 34B– Lead Report

Waterloo Region
District School Board

51 Ardelt Avenue, Kitchener, ON N2C 2R5
Tel: 519-570-0003, Fax: 519 576-0478
FACILITY SERVICES

February 12, 2026

RE: Paint and Coatings bulk Sampling – Letter of Findings
Avenue Road Public School, 40 Gail Street, Cambridge
Project-Specific Work Area – Fixed Reference Nos. 21, 22, 23, and 136

1. INTRODUCTION

Paint and coatings samples were collected for lead content analysis within Avenue Road Public School, specifically, Fixed Reference No. 21, 22, 23, and 136. The samples were collected from surfaces within the project-specific location and submitted to ALS Canada Ltd. for the determination of lead content. The assessment area did not include Fixed Reference No. 814 as this area was constructed in post-1990.

The extent of our paint sample collection and assessment area is outlined on the floor plans attached in Appendix A.

Fixed

2. METHODOLOGY

An assessment for lead in paint was conducted by retrieving paint chip samples from representative surfaces within the area assessed that were deemed to have a potential to be disturbed as part of the planned renovation activities. The condition of painted surfaces from which samples were taken were also visually assessed for signs of deterioration such as cracking, chipping, flaking, bubbling and deterioration due to friction. Based on the degree and extent of deterioration, the conditions of these surfaces were assessed as good, fair, or poor.

The number of paint chip samples retrieved for analysis was based on surface colours observed. Samples were not retrieved from paint finishes with limited application. All paint chip samples were retrieved by scraping the paint down to the base material substrate to ensure collection of all layers of paint. Additional care was taken to avoid collection of the underlying substrate to reduce analytical substrate matrix interference.

Upon completion of our assessment, the paint chip samples were submitted to ALS Canada Ltd. for the determination of lead content. Analysis was conducted by the laboratory following the EPA Method 6010. Result of analysis was reported by the laboratory in micrograms per gram (µg/g).

3. RESULTS

Results of analysis for the determination of lead content are summarized in Table 1, below. The Laboratory Certificate of Analysis is included as Appendix B.

TABLE 1: Summary of Lead-in-Paint Analytical Results

Sample No.	Location	Surface	Condition	Lead Conc. (µg/g)	EACC Classification
S101	FR#21	Walls	Good	8.4	'*De Minimis*' Level of Lead

4. CONCLUSIONS

'*De* Minimis' Level of Lead in Paint

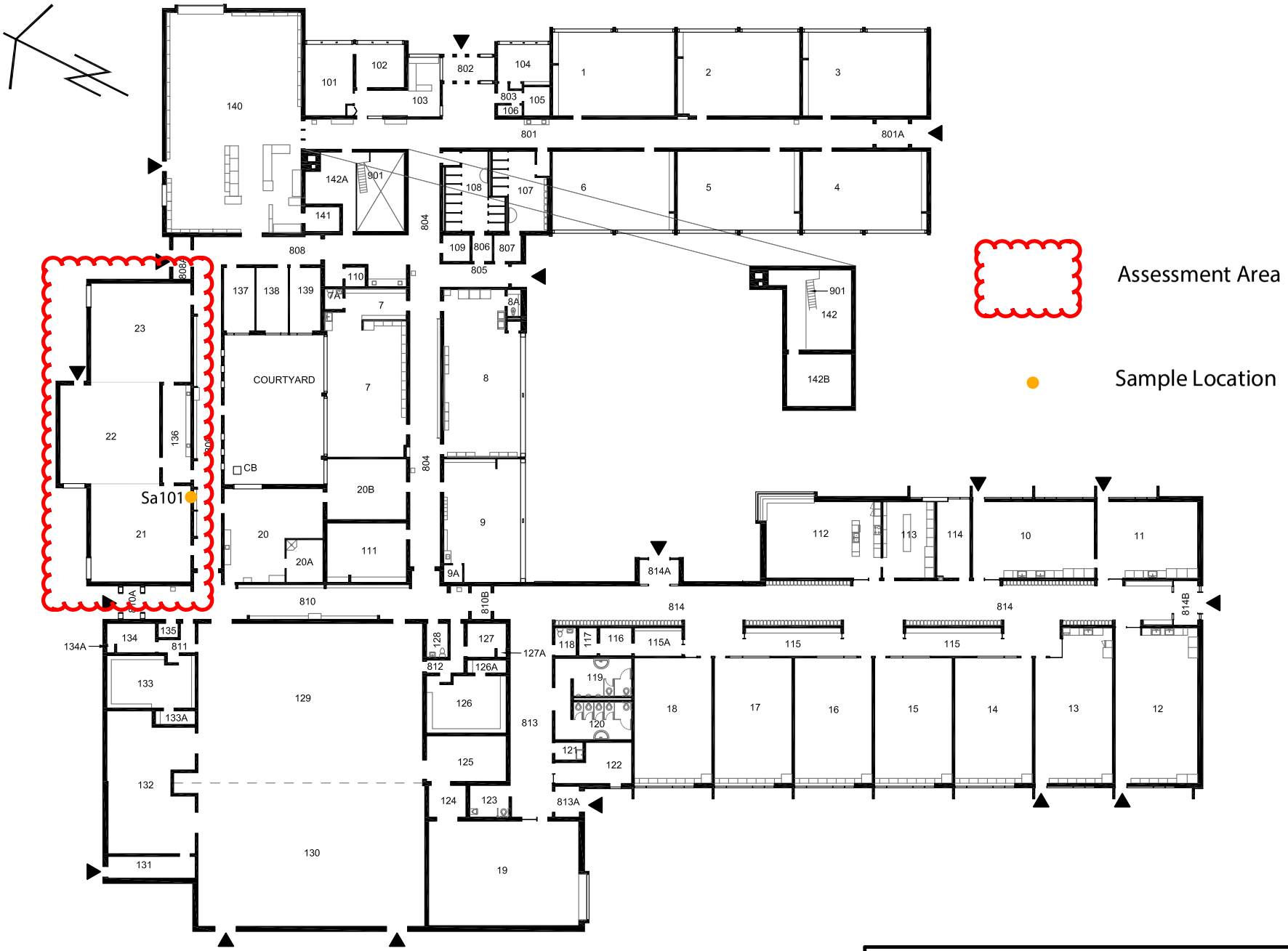
Sample, Sa101, which was also representative of Fixed Reference Nos. 22, 23, and 136, was determined to have a lead content below 1,000 µg/g Lead by Weight, which is considered a "*de minimis*" level of lead in paint as per the October 2014 Environmental Abatement Council of Canada (EACC) publication, "Lead Guideline for Construction, Renovation, Maintenance or Repair" (herein after referred to as the "EACC Lead Guideline").

Provided these materials are disturbed in a non-aggressive manner and the work is performed using normal dust control procedures, the worker protection from the inhalation of lead is not required. General health and safety precautions must still be implemented, such as prohibiting eating, drinking, smoking, and chewing in the work area, implementing dust suppression techniques and providing washing facilities for workers to wash hands and face.

Prepared by:

Jeff Cull
Environmental Officer
jeff_cull@wrdsb.ca

Appendix A
Extent of Assessment Area & Paint Sample Locations



FIXED REFERENCE ROOM NUMBERS

WATERLOO REGION DISTRICT SCHOOL BOARD			
PROJECT: AVENUE ROAD P.S. - CAMBRIDGE (GALT)			
TITLE: FLOOR PLAN - FIXED REFERENCE ROOM NUMBERS			
Date: OCT 2025	Drawn by: ADO	Appr.: .	
Prev Rev: JUN 2024 ADO	Scale: 1" = 40'-0"	Dwg.No: 2 OF 2	

Appendix B
Laboratory Certificate of Analysis

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **WT2602772**	Page	: 1 of 2
Client	: **Waterloo Region District School Board**	Laboratory	: ALS Environmental - Waterloo
Contact	: Jeff Cull	Account Manager	: Karanpartap Singh
Address	: 51 Ardelt Avenue Kitchener ON Canada N2C 2E1	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 519 502 8343	Telephone	: 19055076910
Project	: AVENUE ROAD PS	Date Samples Received	: 10-Feb-2026 12:45
PO	: ----	Date Analysis Commenced	: 11-Feb-2026
C-O-C number	: ----	Issue Date	: 11-Feb-2026 16:31
Sampler	: Jeff Cull		
Site	: ----		
Quote number	: Non - Regulated Standing SOA		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.
Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).
Measurement Uncertainty: The reported uncertainties in this report are expanded uncertainties calculated using a coverage factor of 2, which gives a level of confidence of approximately 95%.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Unit	*Description*
mg/kg	milligrams per kilogram

>: greater than.
<: less than.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

<1 or Not Detected with LOR of 1 equals Zero (0).

Analytical Results

WT2602772-001

Sub-Matrix:**Paint Chips**
(Matrix: **Soil/Solid**)

Client sample ID: SA101-FR#21
Client sampling date / time: 09-Feb-2026

Analyte	*CAS Number*	*Result*	*LOR*	*Unit*	*Method/Lab*	*Prep Date*	*Analysis Date*	*QCLot*
Metals								
Lead	7439-92-1	8.4	5.0	mg/kg	E494.Pb/WT	11-Feb-2026	11-Feb-2026	2449807

Please refer to the General Comments section for an explanation of any result qualifiers detected.

SOL640

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Canada Toll Free: 1 800 668 9878

Page of

www.alsglobal.com

Environmental Division Waterloo

Work Order Reference WT2602772

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Waterloo Region District School Board	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)	☐ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Jeff Cull	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimun
Phone:	5195775854	☑ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimur
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimur
Street:	51 Ardelt Avenue	Email 1 or Fax environmental@wrdsb.ca	☑ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimun
City/Province:	Kitchener	Email 2 jeff_cull@wrdsb.ca	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. A
Postal Code:	N2C 2R5	Email 3	fees may apply to rush resuests on weekends, statutory holidays an
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Recipients**	routine tests
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	**Date and Time Required for all E&P TATs:**
Company:		Email 1 or Fax finance-ap@wrdsb.ca	For tests that can not be performed according to the
Contact:		Email 2 environmental@wrdsb.ca	**Analysis Requ**

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	Avenue Road PS	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): WT2602772 **ALS Contact:** Candice Hunter **Sampler:** Jeff Cull

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Lead Content	Indicate Filtered (F), Preserved (P) or Filtered and P	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRE	SUSPECTED HAZARD (see notes
	Sa101 - FR#21	9-Feb-26	pm	Paint	1	E				

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE RECEIPT DETAILS (lab use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				NA			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: ~~Daniela Buduro~~ Jeff Cull	Date: Jan Feb 10 2026	Time:	Received by:	Date:	Time:	Received by:	Date: 2/10/26	Time: 1245

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

01 42 00 – References

1.0 GENERAL

1.1. SECTION INCLUDES

.1 References and standards.

.2 Standards producing industry organizations and their addresses.

1.2. RELATED SECTIONS

.1 Section 01 61 00 – Product Requirements.

.2 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3. REFERENCES

.1 For Products or quality specified by association, trade, or other references or consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

.2 Conform to reference standard by Ontario Building Code except where a specific date is established or required by code.

.3 Obtain copies of standards where required by product specification sections.

.4 Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Consultant shall be altered from the Contract Documents by mention or inference otherwise, in any reference document.

1.4. STANDARDS

.1 The following associations and organizations are cited in specification sections. Acronym, name, address, and Internet URL addresses are as follows:

.2 Canadian Organizations:

.1 Street, Suite 616, Ottawa, ON K1P 5G4; URL: http://www.acec.ca.

.2 **AWMAC** - Architectural Woodwork Manufacturers Association of Canada, 516-4 Street West, High River, AB T1V 1B6; URL: http://www.awmac.com.

.3 **Canada Green Building Council**, 330 - 55 rue Murray Street, Ottawa, ON. K1N5M3; Tel: 613-241-1184, Fax: 613-241-5750; URL: http://www.cagbc.org.

.4 **CCA** - Canadian Construction Association, 75 Albert St., Suite 400, Ottawa, ON K1P 5E7; URL: http://www.cca-acc.com.

.5 **CCDC** – Canadian Construction Documents Committee, Refer to ACEC, CCA, CSC or RAIC; URL: http://www.CCDC.org.

.6 **CGA** - Canadian Gas Association, 20 Eglinton Avenue West, Suite 1305, Toronto, ON M4R 1K8; URL: http://www.cga.ca..

.7 **CGSB** - Canadian General Standards Board, Place du Portage, Phase III, 6B1, 11 Laurier Street, Hull, QC K1A 0S5; URL: http://w3.pwgsc.gc.ca/cgsb.

.8 **CISC** - Canadian Institute of Steel Construction, 201 Consumers Road, Suite 300, Willowdale, ON M2J 4G8; URL: http://www.cisc-icca.ca.

.9 **CLA** - Canadian Lumbermen's Association, 27 Goulburn Avenue, Ottawa, ON K1N 8C7; URL: http://www.cla-ca.ca.

.10 **CNLA** - Canadian Nursery Landscape Association, RR #4, Stn. Main,7856 Fifth Street, Milton, ON L9T 2X8; URL: http://www.canadanursery.com.

.11 **CRCA** - Canadian Roofing Contractors Association, 155 Queen Street,Suite 1300, Ottawa, ON K1P 6L1; URL: http://www.roofingcanada.com.

.12 **CSA** - Canadian Standards Association International, 178 Rexdale Blvd., Toronto, ON M9W 1R3; URL: http://www.csa-international.org.

.13 **CSC** - Construction Specifications Canada, 120 Carlton Street, Suite 312, Toronto, ON M5A 4K2; URL: http://www.csc-dcc.ca.

.14 **CSDMA** - Canadian Steel Door Manufacturers Association, One Yonge Street, Suite 1801, Toronto, ON M5E 1W7; URL: http://www.csdma.org.

.15 **CSPI** - Corrugated Steel Pipe Institute, 652 Bishop Street N, Unit 2A, Cambridge, ON N3H 4V6; URL: http://www.cspi.ca.

.16 **CSSBI** - Canadian Sheet Steel Building Institute, 652 Bishop St. N., Unit 2A, Cambridge, ON N3H 4V6; URL: http://www.cssbi.ca.

.17 **CUFCA** - Canadian Urethane Foam Contractor's Association, Box 3214, Winnipeg, MB R3C 4E7; URL: http://www.cufca.ca.

.18 **CWC** - Canadian Wood Council, 1400 Blair Place, Suite 210, Ottawa, ON. K1J 9B8; URL: http://www.cwc.ca.

.19 **EC** - Environment Canada, Conservation and Protection, Inquiry Centre, 351 St. Joseph Blvd, Hull, QC KIA 0H3; URL: http://www.ec.gc.ca.

.20 **EFC** - Electro Federation of Canada, 5800 Explorer Drive, Suite 200, Mississauga, ON L4W 5K9; URL: http://www.electrofed.com.

.21 **MPI** - The Master Painters Institute, 4090 Graveley Street, Burnaby, BC V5C 3T6; URL: http://www.paintinfo.com.

.22 **NABA** - National Air Barrier Association, PO Box 2747, Winnipeg, MB R3C 4E7; URL: http://www.naba.ca.

.23 **NLGA** - National Lumber Grades Authority, 406-First Capital Place, 960 Quayside Drive, New Westminster, BC V3M 6G2; URL: http://www.nlga.org.

.24 **NRC** - National Research Council, Building M-58, 1200 Montreal Road, Ottawa, ON K1A 0R6; URL: http://www.nrc.gc.ca.

.25 **QPL** - Qualification Program List, c/o Canadian General Standards Board, Place du Portage, Phase III, 6B1, 11 Laurier Street, Hull, QC K1A 1G6; URL: http://www.pwgsc.gc.ca/cgsb.

.26 **RAIC** - Royal Architectural Institute of Canada, 55 Murray Street, Suite 330, Ottawa, ON K1N 5M3; URL: http://www.raic.org.

.27 **SCC** - Standards Council of Canada, 270 Albert Street, Suite 2000, Ottawa, ON K1P 6N7; URL: http://www.scc.ca.

.28 **TTMAC** - Terrazzo, Tile and Marble Association of Canada, 30 Capston Gate, Unit 5 Concord, ON L4K 3E8; URL: http://www.ttmac.com.

.29 **ULC** - Underwriters' Laboratories of Canada, 7 Crouse Road, Toronto, ON M1R 3A9; URL: http://www.ulc.ca.

.3 USA Organizations:

.1 **AA** - Aluminum Association, 900 19th Street N.W., Washington, DC 20006; URL: http://www.aluminum.org.

.2 **AASHTO** - American Association of State Highway and Transportation Officials, 444 N Capitol Street N.W., Suite 249, Washington, DC 20001; URL: http://www.aashto.org.

.3 **AHA** - American Hardboard Association, 1210W Northwest Hwy, Palatine, IL 60067; URL: http://www.hardboard.org.

.4 **AITC** - American Institute of Timber Construction, 7012 S. Revere Parkway, Suite 140, Englewood, CO 80112; URL: http://www.aitc-glulam.org.

.5 **AMCA** - Air Movement and Control Association Inc., 30 West University Drive, Arlington Heights, IL 60004-1893; URL: http://www.amca.org.

.6 **ANSI** - American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036; URL: http://www.ansi.org.

.7 **APA** - The Engineered Wood Association, P.O. Box 11700, Tacoma, WA 98411-0700; URL: http://www.apawood.org.

.8 **API** - American Petroleum Institute, 1220 L St. Northwest, Washington, DC 20005-4070; URL: http://www.api.org.

.9 **ARI** - Air Conditioning and Refrigeration Institute, 4100 N Fairfax Drive, Suite 200, Arlington, VA 22203; URL: http://www.ari.org.

.10 **ASHRAE** - American Society of Heating, Refrigeration and Air-Conditioning Engineers, 1791 Tullie Circle NE, Atlanta, GA 30329; URL: http://www.ashrae.org.

.11 **ASME** - American Society of Mechanical Engineers, ASME Headquarters, 3 Park Avenue, New York, NY 10016-5990; URL: http://www.asme.org.

.12 **ASTM International**, 100 Barr Harbor Drive West, Conshohocken, PA 19428-2959; URL: http://www.astm.org.

.13 **AWCI** - Association of the Wall and Ceiling Industries International, 803 West Broad Street, Suite 600 , Falls Church, UA 22046; URL: http://www.awci.org.

.14 **AWPA** - American Wire Producer's Association, 801 N Fairfax Street, Suite 211, Alexandria, VA 22314-1757; URL: http://www.awpa.org.

.15 **AWPA** - American Wood Preservers' Association, P.O. Box 5690, Granbury TX 76049-0690; URL: http://www.awpa.com

.16 **AWS** - American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126; URL: http://www.amweld.org.

.17 **AWWA** - American Water Works Association, 6666 W. Quincy Avenue, Denver, CO 80235; URL: http://www.awwa.org.

.18 **EIMA** - EIFS Industry Manufacturer's Association, 3000 Corporate Center Drive, Suite 270, Morrow, GA 30260; URL: http://www.eima.com.

.19 **ISAP** - International Society for Asphalt Paving, 400 Selby Avenuse, Suite 1, St. Paul, MN 55102; URL: http://www.asphalt.org.

.20 **IEEE** - Institute of Electrical and Electronics Engineers, IEE Corporate Office, 3 Park Avenue, 17th Floor, New York, NY 10016-5997;URL: http://www.ieee.org

.21 **MSS** - Manufacturers Standardization Society of the Valve and Fittings Industry, 127 Park Street, N.E., Vienna, VA 22180-4602; URL: http://www.mss-hq.com.

.22 **NAAMM** - National Association of Architectural Metal Manufacturers, 8 South Michigan Avenue, Suite 1000, Chicago, IL 60603;URL: http://www.naamm.org.

.23 **NEMA** - National Electrical Manufacturers Association, 1300 N 17th Street, Suite 1847, Rosslyn, VA 22209; URL: http://www.nema.org.

.24 **NFPA** - National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101Quincy, MA 02269-9101; URL: http://www.nfpa.org.

.25 **NFSA** - National Fire Sprinkler Association, P.O. Box 1000, Patterson, NY 12563; URL: http://www.nfsa.org.

.26 **NHLA** - National Hardwood Lumber Association, 6830 Raleigh-La Grange Road, Memphis, TN 38184-0518; URL: http://www.natlhardwood.org.

.27 **NSPE** - National Society of Professional Engineers, 1420 King Street, Alexandria, VA 22314-2794; URL: http://www.nspe.org.

.28 **PCI** - Prestressed Concrete Institute, 209 W. Jackson Blvd., Suite 500, Chicago, IL 60606-6938; URL: http://www.pci.org.

.29 **PEI** - Porcelain Enamel Institute, PO Box 920220, Norcross, GA 30010; URL: http://www.porecelainenamel.com.

.30 **SSPC** - The Society for Protective Coatings, 40 24th Street, 6th Floor, Pittsburgh, PA 15222-4656;URL: http://www.sspc.org.

.31 **TPI** - Truss Plate Institute, 583 D'Onofrio Drive, Suite 200, Madison, WI 53719; URL: http://www.tpinst.org.

.32 **UL** - Underwriters' Laboratories, 333 Pfingsten Road, Northbrook, IL60062-2096; URL: http://www.ul.com.

END OF SECTION

01 45 00 – Quality Control

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 21 00 - Allowances.

.2 Section 01 78 00 – Closeout Submittals and Requirements

.3 Section 01 79 00 – Demonstration and Training

.4 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. REFERENCES

.1 **ISO/IEC** 17025-2005 - General Requirements for the Competence of Testing and Calibration Laboratories.

.2 **SCC** (Standards Council of Canada).

1.3. INSPECTION BY AUTHORITY

.1 Allow Authorities Having Jurisdiction access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection whenever portions of the Work are designated for special tests, inspections or approvals, either when described in the Contract Documents or when required by law in the Place of the Work.

.3 If 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 inspections or tests satisfactorily completed and make good such Work.

1.4. REVIEW BY CONSULTANT

.1 Consultant may order any part of the Work to be reviewed or inspected if Work is suspected to be not in accordance with Contract Documents.

.2 If, upon review such work is found not in accordance with Contract Documents, correct such Work and pay the cost of additional review and correction.

.3 If such Work is found in accordance with Contract Documents, The owner will pay the cost of review and replacement.

1.5. INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection and Testing Agencies will be engaged by Contractor for the purpose of inspecting and fie portions of Work.

.2 The Board may, at their discretion, request that the Consultant direct the Contractor to engage independent inspecting and or testing agencies to review or test the Work.

.3 Allocate Costs for inspections and testing to Section 01 21 00.

.4 Provide equipment required for executing inspection and testing by appointed agencies.

.5 Employment of inspection and testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.6 If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and testing to ascertain the full degree of defect. Correct defects and irregularities as advised by the Consultant at no cost to the Owner. Contractor shall pay costs directly to the inspection agency for retesting and re-inspection.

1.6. ACCESS TO WORK

.1 Allow inspection and testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Cooperate to provide reasonable access and facilities for such access.

1.7. CONTRACTOR RESPONSIBILITIES

.1 Notify appropriate agency minimum 48 hours in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and 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 Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.8. DUTIES & AUTHORITY OF TESTING AGENCY

.1 Testing agency is expected to do the following:

.1 Act in a professional and unprejudiced basis and carry out inspection and testing functions to establish compliance with requirements of Contract Documents.

.2 Check work as it progresses and prepare reports stating results of tests and conditions of work and state in each report whether specimens tested conform to requirements of Contract Documents, specifically noting deviations.

.3 Distribute reports as follows

.1 Consultant

.2 Owner

.3 Contractor

.2 Testing agency is not authorized to amend or release any requirements of Contract Documents, nor to approve or accept any portion of work.

1.9. REJECTED WORK

.1 The Contractor shall remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by the Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If, it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the Owner may choose to accept the condition. The difference in value between Work performed and that called for by Contract Documents shall be deducted from the Contract value via Change Order. The amount of this change shall be determined by the Consultant. The Contractor shall warrant the work performed for the time period specified as if it were performed in accordance with the Contract Documents.

1.10. TESTING OF EXCAVATION & BACKFILL

.1 The Consultant must approve all Sample and fill tests prior to purchase.

.2 In coordination with the Consultant and Contractor, inspect and test backfill and fill to ensure the degree of compaction specified has been obtained.

.3 Inspect excavation at required levels in regard to bearing values for footings, foundations and floor slabs.

.4 Authorization and calculation of extra excavation work, if required, due to unsatisfactory bearing shall be adjusted by Unit Price.

1.11. CONCRETE STRENGTH TESTS

.1 Review the proposed concrete mix design and check test if considered necessary.

.2 Obtain representative samples of fresh concrete for each mix design of concrete placed in any one day as directed by the Consultant.

.3 Make standard slump tests.

.4 Mould three (3) standard 150mm diameter cylindrical test specimens from each sampling of fresh concrete. Store specimens as per best practice while they are on the site. Cure all cylinders in the laboratory under standard moisture and temperature conditions. Compression test one of the cylinders at 7 days and the remaining two at 28 days after sampling. Each concrete cylinder test report shall contain the specific location of concrete represented by sample, design strength, aggregate size, admixtures used, date, hour and temperature at time of sampling, percentage air content, unit weight and test strength of cylinder.

.5 When concrete is placed under the conditions of "Cold Weather Requirements" make one additional cylinder; store it in a heated enclosure for 24 hours and then store it on the job site in a place protected from disturbance and off the ground. Compressive test this cylinder 7 days after sampling.

.6 Determine the air content of air entrained standard weight concrete.

.7 Determine the air content and unit weight of light weight concrete by the volumetric method.

.8 Additional testing required because of changes in materials or proportions of the mix requested by the Contractor as well as any extra testing of concrete or materials occasioned by their failure to meet specification requirements or testing of the structure or performance of the structure, including load testing, shall be carried out at the Contractor's expense.

1.12. INSPECTION OF STRUCTURAL STEEL

.1 Ensure all steel has mill test reports that comply with the Specification prior to purchase.

.2 Inspect fabrication of steel in the plant.

.3 Inspect erection work at site including fit-up, placing, plumbing, levelling, temporary bracing, field cutting and alterations.

.4 Shop and field inspect welded and bolted connections and painting.

.5 High strength bolts - the installation and testing of bolts shall conform to the requirements of CSA S16-1969. Check one representative connection in ten by torque testing every bolt, and check each bolt in every connection with a tap of hammer for soundness. Enforce requirements of connection type.

.6 Examine visually all welded joints for inclusions, porosity, lack of fusion penetration or even contour, undercuts and cracks. Root passes shall be checked for penetration

and cracks from the back of the joint. Any suspect welds shall be checked ultrasonically.

1.13. INSPECTION OF METAL DECK

.1 Check deck for gauge, type and protective coating thickness to ensure compliance with Specification.

.2 Inspect erection work at the site including anchorage.

1.14. INSPECTION AND TESTING OF PAVING

.1 Testing shall be carried out in three stages as described below by means of sufficient site visits to ensure satisfactory results but in no case less than three site visits.

.2 Test within 16 hours from time called to do so by the Contractor, since paving is a critical item at the end of the project.

.3 Stage One:

- .1 Visual inspection and compaction tests of subsoil.

.4 Stage Two:

- .1 Inspection of granular sub-base (after each layer is placed or after the last layer is placed and compacted).
- .2 On site density tests.
- .3 Verify thickness of various levels. (Minimum of 4 checks shall be done on thickness in a paved area of 250m2 or less, and 1 additional check for each additional 250m2 or part thereof).
- .4 Laboratory tests: moisture content and grading of materials.

.5 Stage Three:

- .1 Inspection of asphalt installation.
- .2 Checking of thickness and density of material and checking suitability of equipment used.

.6 Standard Proctor Test shall be carried out for all projects.

.7 Further, grain size analysis and Marshall test shall be carried out if visual inspection is not satisfactory or, if there is reason to suspect materials supplied are not acceptable.

.8 All laboratory tests shall be performed according to A.S.T.M. methods, latest revisions

.9 Paving Contractor shall obtain from their supplier grading tables of materials used and submit them to the testing laboratory for approval. The paving contractor shall ensure material delivered complies with grading tables.

.10 Be responsible for all approvals given to the Paving Contractor. At completion of the paving project, inform the Consultant all tests were performed according to the Specifications and the Contractor's performance has been approved.

.11 The Consultant will not entertain any credits for work either not performed or incorrectly performed by the contractor. If thicknesses or consistencies of sub-base are not as specified, or if asphaltic material is not as specified, then the Contractor shall remove the same at their expense and provide proper specified materials.

1.15. BUILDING THERMOGRAPHIC SCAN

.1 Upon completion of the Work, the Consultant and/or Owner may arrange for an independent agency to carry out a thermographic scan of the building to determine acceptability of thermal performance of the building envelope.

.2 Consultant, prior to start of construction work, will designate a sample area of the building to include a portion of exterior wall and roof.

.3 Consultant will implement a special inspection program for this sample area to be carried out as construction progresses. Contractor shall not cover any completed work until notifying the Consultant and receiving acceptance of completed work. Contractor shall remove and replace any work which is installed in contravention of this requirement.

.4 Results of a thermographic scan of the entire building will be evaluated and compared to those of the sample area to determine acceptance or rejection of any part of the building envelope.

.5 Contractor shall carry out remedial work as required to bring the quality of any rejected portion of the building envelope to that of the sample area. Contractor shall pay for costs of any follow-up thermographic scans required to determine acceptability of remedial work. This procedure shall be repeated until all parts of the building envelope have been accepted.

1.16. 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 Contract Documents or beyond those required by law of Place of Work shall be appraised by Consultant and may be authorized as recoverable.

1.17. MOCK-UP

.1 Prepare mock-up for Work specifically requested in specifications. Include for Work of all Sections required to provide mock-ups.

.2 Prepare mock-ups for Consultants review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.

.3 Failure to prepare mock-ups 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.

.4 If requested, Consultant will assist in preparing a schedule fixing dates for preparation.

.5 Remove mock-up at conclusion of Work or when acceptable to the Consultant. Repair any damage and clean-up at place of mock-up.

.6 Approved mock-up may remain as part of Work.

1.18. EQUIPMENT AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical and electrical systems to the consultant.

.2 Refer to Sections 01.78.10 and 01.79.00 for definitive requirements.

END OF SECTION

01 51 00 – Temporary Utilities

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 52 00 - Construction Facilities.

.2 Section 01 53 00 - Temporary Construction.

.3 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Location of temporary facilities shall be subject to the Consultant's approval.

.3 Salvage and assist in recycling products for potential reuse wherever possible.

.4 Remove temporary facilities from the site when directed by the Consultant.

1.3. DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and the site free from standing water. Provide necessary pumps (including spare pumps) and temporary drainage for keeping the Work free of water throughout the construction period. Locate sumps away from foundation elements. Control grading around excavation to prevent surface water from draining into excavation and from damaging adjoining property.

1.4. WATER SUPPLY

.1 Provide continuous supply of potable water for construction use until such time as permanent municipal water supply is available.

.2 Hose extensions to be provided by subcontractors requiring them.

.3 For New Builds, arrange for connection with the appropriate utility company and pay all costs for installation, maintenance, removal, and usage costs until occupancy has been achieved.

.4 For Additions and renovations the contractor can use existing Board service unless noted otherwise.

1.5. TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction period, including unit rental costs, maintenance.

.2 Provide temporary heating fuel, if not already available on site, until such time as a permanent natural gas line is installed, and thereafter fuel costs shall be borne by the Board. The Contractor shall provide all connections and piping between the permanent fuel source and the heating appliance(s).

.3 Provide temporary heat and ventilation in enclosed areas as required to:

.1 Facilitate progress of Work.

.2 Protect Work and products against dampness and cold.

.3 Prevent moisture condensation on surfaces.

.4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.

.5 Provide adequate ventilation to meet health regulations for a safe working environment.

.4 Maintain temperatures of minimum:

.1 10 degrees C in areas where construction is in progress, until takeover by the Board. Contractor to ensure temporary enclosures remain sealed and penetrations are repaired or closed in a timely fashion.

.2 16 degrees C in areas where finishes are in progress.

.3 16 degrees C in building once it is enclosed.

.4 Refer to other Sections for intermittent heating requirements up to 21 degrees C. Provide insulated tarp enclosures for openings as required to enclose the building after completion of main building shell components and roof.

.5 If the Contractor fails to ensure the temporary enclosures remained sealed (including temp doors when not in use) the Consultant and or the Board shall require the contractor to pay 40% of that months usage charge

.5 Use forced hot air heaters. Open-flame type heaters or salamanders are not permitted. Ventilate direct fired heating units to the outside.

.6 Uniformly distribute heat to avoid hot and cold areas and to prevent excessive drying.

.7 Early heating of the building shell will be required to expedite interior finishing to meet the project schedule.

.8 Ventilating:

.1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into the atmosphere of occupied areas.

.3 Dispose of exhaust materials in a manner that will not result in harmful exposure to persons.

.4 Ventilate storage spaces containing hazardous or volatile materials.

.5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.7 Provide minimum 1 air change per hour for enclosed areas receiving architectural finishes.

.8 Do not allow excessive build-up of moisture inside the building.

.9 The permanent mechanical systems for the new building, when installed in safe operating conditions, may be used for temporary heating or cooling if approved in writing by the Consultant, without penalty to the warranty.

.10 Follow the requirements of "Temporary Use of New Permanent Services and Equipment" if the permanent heating system installed under the contract is intended to be used for temporary heating during the construction.

.11 Provide competent persons to operate and maintain permanent systems for the duration of temporary use period.

.12 Perform required repairs and maintenance immediately after each inspection. Pay for operating costs. Upon termination of temporary use period, services and equipment shall be inspected, tested, adjusted, fitters replaced, balanced, cleaned and lubricated.

.13 Permanent services and equipment shall be turned over to the Owner in new and perfect operating condition.

.14 Use of permanent systems and equipment as temporary facilities shall not affect the guarantee conditions and guarantee period for such systems and equipment. Make due allowance to ensure Owner will receive full benefits of the equipment manufacturer's warranty from the date of Substantial Performance.

.15 Ensure date of Substantial Performance of the Work and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Consultant.

.16 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform with applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.17 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.6. TEMPORARY POWER AND LIGHT

.1 Provide temporary electrical service and system including lighting and power system for use by all Sections.

.2 Contractor will provide a source for, and pay the costs of temporary power during construction for temporary lighting and operating of power tools until such time as a permanent source is available.

.3 Contractor to ensure that the use of power from a source provided by the Board shall not exceed the capacity of the current use required for the operation of any existing facility.

.4 Install and maintain temporary electrical service and systems in accordance with Construction Safety Association's "Temporary Wiring Standards on Construction Sites", the Ontario Electrical Code and other authorities having jurisdiction.

.5 Provide at least one temporary panel on each floor with service capacity suitable for construction requirements and to authorities and utilities approval.

.6 Provide temporary wiring with lighting to all areas of each floor to provide adequate lighting.

- .1 Lighting levels must be maintained at a minimum of 10 foot candles, or to suit the particular location or operation, whichever is greater.
- .2 Do not use materials of the temporary service in permanent installation.
- .3 Increase lighting levels equivalent to the final requirements when finishing operations are underway.

.7 Extension cords, lights, etc., required by various subcontractors and run from above outlet positions will be supplied and maintained by the party or parties requiring the same.

.8 Follow requirements of "Temporary Use of New Permanent Services and Equipment" if electrical power and lighting systems installed under the contract are intended to be used for temporary electricity and lighting during the construction.

.9 Electrical power and lighting systems installed under this contract can be used for construction provided damages are made good and all lamps that have been used for more than two months are replaced with new lamps.

.10 For New Builds, arrange for connection with the appropriate utility company and pay all costs for installation, maintenance, removal and usage costs until occupancy has been achieved.

.11 For Additions and renovations the contractor can use existing Board service unless noted otherwise.

.12 Provide and pay for temporary power for electric cranes and other equipment requiring temporary power in excess of above noted requirements.

1.7. TEMPORARY COMMUNICATION FACILITIES

.1 Contractor to provide and pay for temporary Phone, e-mail and printer hook up, for the duration of contract until completion for use by the contractor.

.2 The site superintendent is to have email access and a printer on site.

END OF SECTION

01 53 00 – Temporary Construction Facilities

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 51 00 - Temporary Utilities.

.2 Section 01 35 23 – Health and Safety

.3 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. INSTALLATION AND REMOVAL

.1 Provide temporary construction facilities in order to execute work expeditiously.

.2 Remove temporary facilities from the site when directed by the Consultant.

1.3. PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.4. PROTECTION OF SURROUNDING WORK

.1 Provide protection for finished and partially finished Work from damage.

.2 Provide necessary cover and protection.

.3 Be responsible for damage incurred due to lack of or improper or inappropriate protection.

1.5. ROOF AND STRUCTURE PROTECTION

.1 Ensure no part of Work or existing structures are subjected to a load, which will endanger its safety or will cause permanent deformation.

.2 The Contractor when indicated by the Board Contact or Consultant shall provide roof protection. Ensure all precautions are taken to avoid liability for roof damage.

.3 Typical roof protection shall consist of a layer of 1 inch rigid foam insulation set directly on the roof surface and a layer of 19 mm (3/4 inch) hoar in all places under scaffold legs, ladder legs and in areas of foot traffic or falling debris.

1.6. WORK SITE ENCLOSURE & SAFETY BARRIERS

.1 Erect and maintain for the duration of the work:

.1 a minimum 1800 mm high chain link fence or self-supporting, heavy duty, interconnected fence panels (commonly referred to as Insta-fence) for a temporary site enclosure (hoarding) completely around perimeter of work site,

.2 any temporary posts shall be completely removed by the contractor prior to occupancy,

.3 under no circumstance shall t-bar posts be used on board property

.4 any additional safety devices including full plywood hoarding to separate the area of work from the remainder of the occupied interior of the building, to protect the students, staff, public and private property from injury and damage,

.5 any additional requirements as regulated by authorities having jurisdiction, local by-laws and zoning.

.2 The Contractor is to assume full responsibility for any injury or damage caused due to failure to comply with Paragraph 1 above.

.3 Any hazardous conditions identified outside of the main fenced area will be barricaded with a fence complying to the above.

.4 Provide lockable truck entrance gate/gates and at least one (1) pedestrian door as directed and conforming to applicable traffic restrictions on adjacent streets. Equip gates with locks and keys with restricted availability, in the project office.

.5 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law.

.6 Provide barriers around trees and plants designated to remain.

.7 Protect from damage by equipment and construction procedures.

1.7. TREE PROTECTION

.1 Protect all existing trees to remain from damage during construction period. Make good, at Contractor's expense, trees damaged during construction.

.2 Confine movement of heavy equipment, storage of same, and storage of materials to a predetermined area. Do not store materials or place equipment over root systems of any existing trees to remain.

.3 Install fencing or approved equal at limits of drip line of existing trees to remain unless directed otherwise. Where this case is not practical, and only if approved by the Consultant, the trunks shall be protected with an approved tree guard.

.4 No rigging cables shall be wrapped around or installed in trees. Do not flush concrete trucks or cement mixing machines over root systems or near trees. Flush concrete trucks or cement mixing machines in areas approved by the Consultant.

.5 Areas where root systems of trees are exposed directly adjacent to a structure will be backfilled with good loam only.

.6 Whenever excavating is required within branch spread of trees that are to remain, the contractor shall contact the consultant for direction prior to the start of work.

.7 If any existing tree to remain is injured and does not survive the following year, it will, as determined by the Board, be removed in its entirety and be replaced with a tree of similar size and value, as directed by the Consultant.

.8 Should the destroyed tree be of such a size or shape that it cannot be feasibly replaced, the Contractor shall compensate the Owner for the minimum sum of five thousand dollars ($5,000.00) per destroyed tree.

1.8. GUARD RAILS AND BARRIERS

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stairwells, open edges of floors and roofs.

.2 Erect and maintain for the duration of the Work, safety devices and barricades including hoarding, as required, to protect the staff, students, public and private property, from injury and damage.

.3 The Contractor is to ensure that all requirements from authorities having jurisdiction and all requirements from the Owner are met.

.4 The Contractor is to assume full responsibility for any damage caused due to his failure to comply with paragraph 2 above.

.5 Hazardous conditions on the exterior shall be fenced.

1.9. 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.

1.10. DUST TIGHT BARRIERS

.1 Provide dust tight barriers and screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

.3 Where required, adjust air handling units to eliminate migration of dust.

1.11. INTERIOR PROTECTION

.1 Where indicated on the drawings, and as required for safety of building occupants, provide interior hoarding, constructed of 2x6 wood framing and ½" plywood cover to separate the area of work from the owner-occupied areas. Secure doors in the hoarding are permitted if kept locked.

1.12. SCAFFOLDING

.1 Erect scaffolding independent of walls and use in such a manner limiting interference with other work. When not in use, move scaffolding as necessary to permit installation of other work. Construct and maintain scaffolding in a rigid, secure and safe manner. Remove it promptly when no longer required. Protect the surface on which scaffolding is bearing.

1.13. SHORING, BRACING, PILING

.1 Provide shoring, bracing, piling, sheeting and sheet piling and underpinning required to support soil banks, existing work and property in accordance with Construction Safety Act and other applicable regulations. Maintain shoring until the building is strong enough and sufficiently braced to withstand pressure of backfilling. Make construction aids free of permanent work so they may be removed entirely when no longer required, without damaging the Work. Locate construction aids so adequate room is left for damp-proofing foundation walls, laying substructure drainage and other work.

.2 Shoring and false work over one tier in height shall be designed and shall bear the stamp of a registered professional engineer, having experience in this field.

1.14. HOISTING

.1 Provide, operate and maintain services required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof.

.2 Machinery shall be operated by qualified operator.

1.15. OVERHEAD LIFTING

.1 Any condition requiring the use of a crane or lifting device over a Board structure must follow the requirements of Health and Safety Section 01 35 23, Paragraph 1.15 Overhead Lifting.

1.16. ELEVATORS/LIFTS

.1 When elevators/lifts are to be used by construction personnel, provide protective coverings for finish surfaces of elevator cabs and entrances.

.2 Co-ordinate use of elevator cabs with Consultant and the Board.

1.17. USE OF THE WORK

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with Products.

.2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

1.18. CONSTRUCTION PARKING

.1 Construction personnel vehicle parking, to be confined to the work site enclosure, or.

.2 Parking will be permitted on site only where and if it does not disrupt the employees of the place of work as directed by the Board

.3 Permission to park vehicles on site does not imply any liability or responsibility for safe keeping of vehicles and contents thereof by the School Board.

1.19. ACCESS TO SITE

.1 Provide and maintain adequate access to the project site.

.2 Build and maintain temporary roads where necessary and provide snow removal within the area of work, and access to the work, during the period of Work. The area shall be restored to the satisfaction of the Board at the completion of the project.

.3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractors' use of roads.

.4 Clean roadways and taxi areas where used by Contractor's equipment.

1.20. SECURITY

.1 The Contractor shall ensure the security of the work site, contents, and built structures for the duration of the project.

.2 The Contractor shall be responsible to provide and pay for security personnel to guard the site and contents of the site after working hours and during holidays as required.

.3 Notify the Board of the use of security guards or systems.

.4 The Board shall not be responsible for the loss, theft, or vandalism.

1.21. OFFICES

.1 Provide and maintain, until completion of Contract, for Contractor's use, a temporary office, large enough to accommodate site administrative activities and site meetings, complete with light, heat, air conditioning, ventilation, table and chairs. Do not store materials in the office area; keep clean and tidy.

.2 Provide a clearly marked and fully stocked first-aid case in a readily available location.

.3 Subcontractors may provide their own offices as necessary. Direct location of these offices.

1.22. EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds and platforms for storage of tools, equipment and materials.

.2 Review storage areas on site with the Consultant. Store materials and equipment to ensure preservation of quality of product and fitness for the Work. Store materials and equipment on wooden platforms or other hard, clean surfaces, raised above the ground or in water tight storage sheds of sufficient size for storage of materials and equipment which might be damaged by storage in the open. Locate stored materials and equipment to facilitate prompt inspection.

.3 Store packaged materials and equipment undamaged, in their original wrappings or containers, with manufacturer's labels and seals intact.

.4 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.

.5 Storage sheds required by subcontractors shall be provided by them.

1.23. SANITARY FACILITIES

.1 Provide weatherproof temporary toilet/sanitary facilities for the work force in accordance with governing regulations and ordinances.

.2 Service temporary toilet/sanitary facilities as required by authorities but not less than weekly.

.3 Post notices and take such precautions as required by local health authorities.

.4 The use of existing washroom facilities is not allowed unless specifically approved by the Board. The Contractor will be required to clean and maintain the existing washrooms to Board standards.

.5 Except where connected to the municipal sewer system, periodically remove wastes from Site.

.6 Keep toilet/sanitary facilities clean and sanitary and protect from freezing.

.7 Keep sanitary facilities clean and fully stocked with the necessary supplies at all times.

END OF SECTION

01 54 00 – Materials and Equipment

1.0 GENERAL

1.1. RELATED SECTIONS

.1 This section describes requirements applicable to all Sections within Divisions 02 to 49

1.2. PRODUCT AND MATERIAL QUALITY

.1 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.

.2 Defective products 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 rejections.

.3 Should any dispute arise as to the quality or fitness of products, the decision rests strictly with the Board contact, based upon requirements of the Contract Documents.

.4 Current Material Safety Data Sheets shall be on file with the successful Contractor and shall be provided to the Board contact upon request, within twenty-four (24) hours.

.5 Material safety data sheets are not required for products currently WHMIS exempt.

1.3. EQUIPMENT/TOOL MATERIALS STORAGE, HANDLING, AND PROTECTION

.1 Handle and store products in a manner to prevent damage, adulterations, deterioration, and soiling, and in accordance with manufacturer’s instructions.

.2 Store packaged or bundled products in original and undamaged condition, with manufacturer’s seals and labels intact.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Provide and maintain tools, equipment and materials in a clean and orderly condition. Board tools, ladders, lifts, power cords, flashlights etc. are not to be used.

.5 Materials are to be stored in a manner to cause the least interference with WorK activities.

.6 The Contractor shall determine with the Board contact, prior to ordering materials, those locations that are suitable for receiving and storage of materials and equipment.

.7 All materials and equipment shall be kept in a secure area, at Contractor's expense, or removed from the job site when Work is not actually in progress.

.8 Vehicles, trailers or other similar apparatus may not be stored or parked overnight at site without written authorization from Board contact. Written requests are to be forwarded directly to the Board contact.

.9 Approval for parking does not imply any liability or responsibility for safe keeping by the Board.

.10 The Contractor may use the existing electrical and water services, as required, for the Work, and the costs of these services shall be borne by the Board.

1.4. 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 persons or anyone unskilled in their required duties.

.3 Decisions as to the quality or fitness of Workmanship in cases of dispute rest solely with the Board contact, whose decision is final.

.4 All Contractor personnel are restricted to the job site and necessary access routes. No personnel shall visit other areas or buildings without specific authorization.

.5 The Contractor shall make their own arrangements for emergency treatment of accidents.

.6 Any accidents shall be reported immediately to the Board contact.

.7 The Contractor agrees to hold the Board harmless of any and all liability of every nature and description, which may be suffered through bodily injuries, involving deaths of any persons, by reasons of negligence of the Contractor, his agents, employees, or his Subcontractors.

.8 The Contractor shall supply constant on-site supervision in the form of a Project Superintendent. The Project Superintendent shall have within their authority to negotiate minor changes regarding scheduling, manpower and equipment.

1.5. MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in the specifications, install, apply 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.

1.6. TOOLS OF THE TRADE

.1 The Board will not pay the Awarded Bidder a fee for tools and equipment that are considered "tools of the trade" that are required to perform the work in this Tender or any change orders.

1.7. EXISTING EQUIPMENT

.1 Contractor shall demolish and dispose of all existing equipment specified to be removed and or replaced including obsolete services not being reused. The Board shall have first rights of refusal on all demolished equipment and or parts and the Contractor shall provide a minimum of (5) working days notice prior to disposal of the equipment, parts, or equipment and set aside same in a suitable location to be recovered by Board technicians.

END OF SECTION

01 61 00 – Product Requirements

1.0 GENERAL

1.1. RELATED SECTIONS

.1 This section describes requirements applicable to all Sections within Divisions 02 to 49.

.2 Section 01 31 00 – Project Managing and Coordination

1.2. TERMINOLOGY

.1 New: Produced from new materials.

.2 Renewed: Produced or rejuvenated from an existing material to like-new condition to serve a new or existing service.

.3 Defective: A condition determined exclusively by the Consultant.

1.3. PRODUCT QUALITY

.1 The term 'new' in the following paragraph does not exclude re-manufactured products that have some or all of the materials recycled from other sources. Preference in recycling is for post-consumer recycled materials.

.2 Products, materials, equipment, parts or assemblies (referred to as Products) incorporated in Work:

.3 New Product, not damaged or defective, of best quality (compatible with specification requirements) for purpose intended. If requested, provide evidence as to type, source and quality of Products provided.

.4 Defective Products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective Products at own expense and be responsible for delays and expenses caused by rejection.

.5 Should any dispute arise as to the quality or fitness of Products, decision rests strictly with Consultant.

.6 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout the building.

1.4. AVAILABILITY

.1 Immediately upon receipt of the Board's Purchase Order, review Product delivery requirements and anticipate foreseeable supply delays for any items.

.2 Immediately upon receipt of the Board's Purchase Order the Contractor shall issue Purchase Orders and or Contracts to all Sub-trades. Provide proof to the Consultant and the Board within 3 days. The Subcontractors shall identify in writing any delivery issues within 14 days of receiving the Contractor's purchase order or contract. The Schedule noted in 01-31 00 1.7.1 shall incorporate all deliveries and installation.

.3 If delays in supply of Products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.4 In the event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves the right to substitute more readily available Products of similar character, at no increase in Contract Price or Contract Time.

1.5. STORAGE AND PROTECTION

.1 Store and protect Products in accordance with manufacturers' written instructions.

.2 Store with seals and labels intact and legible.

.3 Store sensitive Products in weather tight, climate controlled, enclosures in an environment favourable to Product.

.4 For exterior storage of fabricated Products, place on sloped supports above ground.

.5 Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.

.6 Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

.7 Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

.8 Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

1.6. TRANSPORTATION AND HANDLING

.1 Transport and handle Products in accordance with manufacturer's written instructions.

.2 Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.

.3 Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

.4 Suitably pack, crate and protect products during transportation to site to preserve their quality and fitness for the purpose intended.

.5 Store products in original, undamaged condition with manufacturer's labels and seals intact until they are being incorporated into completed work.

.6 Protect materials from damage by extreme temperatures or exposure to the weather.

1.7. EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum disturbance to the owner.

.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.

1.8. MANUFACTURER'S WRITTEN INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect Products to manufacturer's written instructions. Do not rely on labels or enclosures provided with Products. Obtain written instructions directly from manufacturers.

.2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant may establish course of action.

.3 Improper installation or erection of Products, due to failure in complying with these requirements, authorizes Consultant to require removal and reinstallation at no increase in Contract Price or Contract Time.

1.9. QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Consultant and or Board reserves right to require dismissal from site any workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Consultant, whose decision is final.

.4 Products, materials, systems and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the applicable manufacturer's printed directions.

.5 Where specified requirements are in conflict with manufacturer's written directions, follow manufacturer's directions. Where specified requirements are more stringent than manufacturer's directions, comply with specified requirements.

1.10. COORDINATION

.1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

.3 Contractor is responsible to ensure suppliers or distributors of materials specified or alternatives accepted, which he intends to use, have materials with original schedule, and similarly it shall be the responsibility of all subcontractors and suppliers to so inform the Contractor.

.4 Contractor shall contact Consultant immediately upon receipt of information indicating materials or items, will not be available on time, in accordance with the latest approved schedule, and similarly it shall be the responsibility of all subcontractors and suppliers to so inform the Contractor.

.5 The above, in no way releases the Contractor, or their subcontractors and suppliers of their responsibility for ensuring timely ordering of materials and items required, including the necessary expediting, to complete the Work as scheduled in accordance with the Contract Documents including temp accommodations and or materials to ensure occupancy date is achieved.

1.11. 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 interference. Install as directed by the Consultant at no additional cost to the Board.

1.12. REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.13. LOCATION OF FIXTURES

.1 Inform Consultant of conflicting installation. Install as directed.

1.14. FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use Type 304 or 316 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.15. PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading of any part of the Project.

.2 Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated, without written approval of the Consultant.

END OF SECTION

01 70 00 – Examination and Preparation

1.0 GENERAL

1.1. RELATED SECTIONS

.1 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. REFERENCES

.1 Owner's identification of existing survey control points and property limits.

1.3. SUBMITTALS

.1 Submit name and address of Surveyor to Consultant.

.2 On request of Consultant, submit documentation to verify accuracy of field engineering work.

.3 Submit certificate signed by surveyor certifying that elevations and locations of completed Work conforms with Contract Documents.

1.4. QUALIFICATIONS OF SURVEYOR

.1 Qualified registered land surveyor, licensed to practice in the Place of the Work.

1.5. SURVEY REFERENCE POINTS

.1 Existing base horizontal and vertical control points are designated on Drawings.

.2 Locate, confirm and protect control points prior to starting site Work. Preserve permanent reference points during construction.

.3 Make no changes or relocations without prior written notice to the Consultant.

.4 Report to Consultant when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

.5 Require the surveyor to replace control points in accordance with original survey control.

1.6. SURVEY REQUIREMENTS

.1 Establish existing and new permanent bench marks on site, referenced to established benchmarks by survey control points.

.2 Record locations, with horizontal and vertical data in Project Record Documents.

.3 Establish lines and levels, locate and lay out, by instrumentation.

.4 Establish pipe invert elevations.

.5 Stake batter boards
.6 Establish foundation and floor elevations.
.7 Establish lines and levels for mechanical and electrical work.

1.7. SUBSURFACE CONDITIONS

.1 Promptly notify Consultant in writing if discovered surface or subsurface conditions at Place of Work differ materially from those indicated in Contract Documents.
.2 Advise the Consultant of a reasonable assumption of probable conditions when determined.
.3 After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work.

1.8. EXAMINATION

.1 The Contractor is expected to be totally familiar with site conditions and shall assume full responsibility for the cost involved in repairing any damage to the building, site and services, city property, adjacent buildings, etc., during general construction, regardless of the extent of the damage.
.2 Inspect existing conditions, including elements or adjacent Work subject to irregularities, damage, movement, including Work during cutting and patching.
.3 The Contractor shall provide all equipment necessary to make a full and detailed site evaluation. This shall include but not be limited to ladders, flashlights and hand tools.
.4 The Contractor expressly agrees that conditions above existing suspended acoustic ceilings, but below fixed structure, unless obscured by an additional ceiling above, shall be considered exposed conditions for the purposes of making findings under the provisions of the Contract. There shall be no claims for extra costs for extra Work in these areas.
.5 After uncovering, inspect conditions affecting performance of the Work.
.6 Beginning of cutting or patching means acceptance of existing conditions.

1.9. PREPARATION

.1 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of the project from damage.
.2 Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

1.10. EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in the area of Work and notify the Consultant of findings.

.2 Remove abandoned service lines running through existing and new structures. Cap or seal lines at cut-off points as directed by the Consultant.

1.11. LOCATION OF EQUIPMENT AND FIXTURES

.1 Inform Consultant of conflicting installations, install as directed.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Consultant of impending installation and obtain approval for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Consultant.

1.12. SURVEY RECORD

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

.3 Record locations of maintained, re-routed and abandoned service lines.

END OF SECTION

SECTION 01 73 30 – EXECUTION AND CUTTING AND PATCHING

1.0 GENERAL

1.1. RELATED SECTIONS

.4 Section 01 32 00 - Construction Progress Documentation: Submittals and scheduling.

.5 Section 01 61 00 - Product Requirements.

.6 Section 01 70 00 – Examination and Preparation

.7 Individual Product Specification Sections:

.1 Cutting and patching incidental to work of the section.

.2 Advance notification to other sections of openings required in Work of those sections.

1.2. SUBMITTALS

.8 Submit written request in advance of cutting or alteration which affects:

.1 Structural integrity of any element of Project.

.2 Integrity of weather exposed or moisture resistant element.

.3 Efficiency, maintenance, or safety of any operational element.

.4 Visual qualities of sight exposed elements.

.5 Work of Owner or separate contractor.

.9 Include in request:

.1 Identification of Project.

.2 Location and description of affected Work.

.3 Necessity for cutting or alteration.

.4 Description of proposed Work and Products to be used.

.5 Alternatives to cutting and patching.

.6 Effect on work of Owner or separate contractor.

.7 Written permission of affected separate contractor.

.8 Date and time work will be executed.

1.3. TOLERANCES

.10 Monitor fabrication and installation tolerance control of Products to produce acceptable Work.

.11 Do not permit tolerances to accumulate beyond effective or practical limits.

.12 Comply with manufacturers' tolerances. In case of conflict between manufacturers' tolerances and Contract Documents, request clarification from the Consultant before proceeding.

.13 Adjust Products to appropriate dimensions; position and confirm tolerance acceptability, before permanently securing Products in place.

2.0 PRODUCTS

2.1. MATERIALS

.1 Primary Products: Those required for original installation.

.2 Product Substitution: For any proposed change in materials, submit a request for substitution described in Section 01 33 00.

3.0 EXECUTION

3.1. EXAMINATION

.1 Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

.2 After uncovering existing Work, assess conditions affecting performance of work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

3.2. PREPARATION

.1 Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of the Project from damage.

.2 Provide protection from elements for areas which may be exposed by uncovering work.

.3 Maintain excavations free of water.

3.3. CUTTING

.1 Execute cutting and fitting as needed to complete the Work. Prior to any cutting and or coring of concrete floors the contractor shall confirm the area is free of services or rebar. Notify the Consultant of any interferences.

.2 Uncover work to install improperly sequenced work.

.3 Remove and replace defective or non-conforming work.

.4 Remove samples of installed work for testing for Hazardous materials.

.5 Provide openings in the Work for penetration of mechanical and electrical work.

.6 Employ experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

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

.8 Do all cutting, patching, and making good, to leave a finished condition and to make the several parts of the work come together properly. Coordinate work to keep cutting and patching to a minimum.

.9 Make cuts with clean, true, smooth edges. Fit unit to tolerance established by test standard practice for applicable work. Make patches invisible in the final assembly.

.10 Cutting shall be done in a manner to keep patching to minimum. Obtain Consultant's approval of method to be used to conceal new mechanical and electrical services before beginning cutting. Chasing of concrete surfaces is not permitted.

.11 Cutting or coring of any structural concrete is to be reviewed and approved by the Consultant.

.12 Do not endanger any work by cutting, digging or otherwise altering, and do not cut nor alter any load bearing element without written authorization by Consultant. Provide bracing, shoring and temporary supports as required to keep construction safely supported at all times

.13 Any cost caused by omission or ill-timed work shall be borne by the party responsible thereof.

.14 Regardless of which Section of work is responsible for any portion of cutting and patching, in each case tradesmen qualified in work being cut and patched shall be employed to ensure it is correctly done.

3.4. PATCHING

.1 Execute patching to complement adjacent Work.

.2 Fit Products together to integrate with other Work.

.3 Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.

.4 Employ original installer to perform patching for weather exposed and moisture resistant elements, and sight-exposed surfaces.

.5 Restore work with new Products in accordance with requirements of Contract Documents.

.6 Fit work with adequate support to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.7 At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with firestop material.

.8 Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to the nearest intersection or natural break. For an assembly, refinish the entire unit.

.9 Complete and tightly fit all construction to pipes, ducts and conduits which pass through construction to completely prevent the passage of air.

.10 Patching and making good shall be done by trade specialists in material to be treated, and shall be made undetectable in finished work when viewed from a distance of 1.5m under normal lighting.

END OF SECTION

01 74 00 – Cleaning and Waste Management

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Common Work by All Trades

.2 This section describes requirements applicable to all Sections within Divisions 02 to 49.

.3 Conduct cleaning and disposal operations to comply with local ordinances and environmental protection legislation.

.4 Store volatile wastes in covered metal containers, and remove them from premises at the end of each working day.

.5 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

2.0 PRODUCTS

2.1. CLEANING PRODUCTS

.1 Cleaning Agents and Materials: Low VOC content wherever possible. The Consultant and the Board shall be notified prior to use of any exception.

3.0 EXECUTION

3.1. CLEANING DURING CONSTRUCTION

.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 work areas and deposit in a waste container at the end of each working day.

.3 Vacuum clean interior areas prior to the start of finishing work. Maintain areas free of dust and other contaminants during finishing operations.

.4 Individual Subcontractors are responsible for the daily clean-up and removal of debris related to, or generated by, their own work. The overall responsibility for project cleanliness rests with the Contractor.

.5 The Contractor shall be responsible for snow removal within the construction area.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Wherever possible recycle materials

.8 Containers:
  .1 Provide adequate number and sizes of on-site garbage and recycling containers within designated work site as required for collection of waste materials and debris on a daily basis.
  .2 Provide additional waste containers when the extent of work warrants.
  .3 Provide and use clearly marked, separate bins for recycling.

.9 Dispose of waste materials and debris at registered waste disposal and recycling facility.

.10 Remove oily rags, waste and other hazardous substances from premises at close of each day, or more often when required.

.11 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

3.2. WASTE MANAGEMENT

.1 Audit, separate and dispose of construction waste generated by new construction or by demolition of existing structures in whole or in part, in accordance with Ontario Regulations 102/94 and 103/94 made under the Environmental Protection Act.

.2 Containers:
  .1 Provide adequate number and sizes of on-site garbage and recycling containers within designated work site as required for collection of waste materials and debris on a daily basis.
  .2 Provide additional waste containers when the extent of work warrants.
  .3 Provide and use clearly marked, separate bins for recycling.

.3 Fires, and burning of rubbish or waste on site is strictly prohibited.

.4 Burying of rubbish or waste materials on site is strictly prohibited.

.5 Disposal of waste or volatile materials such as mineral spirits, oil, gasoline or paint thinner into ground, waterways, or sewer systems is prohibited.

.6 Empty waste containers on a regular basis to prevent contamination of site and adjacent properties by wind-blown dust or debris

3.3. PREPARATION FOR FINAL CLEANING

.1 Prior to final cleaning the General Contractor shall:
  .1 remove all surplus products, tools, construction machinery and equipment not required for the performance of remaining work, and thereafter remove any remaining materials, equipment, waste and debris,
  .2 replace all filters installed on any equipment in operation in the area of work,

.3 remove all paint spots or overspray from all affected surfaces, and

3.4. FINAL CLEANING PRIOR TO ACCEPTANCE: INTERIOR

.1 Prior to applying for Substantial Performance of the Work, or, prior to Owner occupancy of the building or portion of the building affected by the Work, whichever comes first, conduct full and complete final cleaning operations for the areas to be occupied.

.2 Final cleaning operations shall be performed by an experienced professional cleaning company, possessing equipment and personnel sufficient to perform full building cleaning operations. Contractors “broom cleaning” is not acceptable as a “Final Clean”. The cleaning contractor shall:

.1 clean interiors of all millwork and surfaces of any furniture and equipment present,

.2 use only cleaning materials recommended by the manufacturer of the surface to be cleaned,

.3 remove all stains, spots, scuff marks, dirt, dust, remaining labels, adhesives or other surface imperfections,

.4 clean and polish all glass and mirrors and remove remaining manufacturer's and safety "X" labels,

.5 clean and polish all finished metal surfaces such as enamelled or stainless steel, chrome, aluminum, brass, and bronze,

.6 clean and polish all vitreous surfaces such as plumbing fixtures, ceramic tile, porcelain enamel, or other such materials,

.7 clean all ceramic tile surfaces in accordance with the manufacturer's instructions,

.8 vacuum, clean and dust behind grilles, louvres and screens,

.9 steam clean all unprotected carpets immediately prior occupancy by Owner, and

.10 clean all equipment and fixtures to a sanitary condition.

.3 For any areas to be occupied after the owner’s initial occupancy, provide full cleaning operations as outlined above prior to turning over to owner,

.4 The Board’s supplies and equipment must not be used for any cleaning operations including, but not limited to: garbage cans, mops, brooms, rags, ladders, chemicals etc.

3.5. FINAL CLEANING PRIOR TO ACCEPTANCE: EXTERIOR

.1 For areas affected by construction final exterior cleaning operations shall be performed by the General Contractor or competent Subontractor. Contractor's "broom cleaning" only is not acceptable.

.2 Final exterior cleaning shall include:

.1 broom clean and wash exterior walkways, steps, and surfaces; rake clean other surfaces of grounds,

.2 remove dirt and other disfiguration from exterior surfaces,

.3 sweep and wash clean paved areas,

.4 replace filters of mechanical equipment for all equipment that was in use during construction,

.5 clean all roofs, gutters, downspouts, areaways, drywells, and drainage systems,

.6 remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.7 remove overspray

END OF SECTION

01 78 00 – Closeout Submittals and Requirements

1.0 GENERAL

1.1. RELATED SECTIONS

.1 Section 01 78 00 – WRDSB Warranty Card, Appendix 00 41 13A

1.2. TAKE-OVER PROCEDURES

.1 Take over procedures will be in strict accordance with the requirements as set out in this Section.

1.3. SUBSTANTIAL PERFORMANCE

.1 Prior to requesting a Substantial Performance deficiency inspection submit 2 hard copies, 1 digital copy of the Operating and Maintenance Manuals for Consultants approval.

.2 Application for Substantial Performance must include.

.1 One (1) electronic copy of inspection and acceptance certificates required from regulatory agencies, including but not limited to.

.1 Certificates of Approval of the Work by the local Building Department.

.2 Electrical Inspection Certificate of Inspection.

.3 Fire Alarm Verification Certificate.

.3 Advise Consultant in writing, when the project has been substantially completed. If Consultant agrees this stage has been reached, the Consultant shall prepare a complete list of deficiencies and submit copies of this list to Contractor and the Board.

1.4. COMMENCEMENT OF LIEN PERIODS

.1 The date of publication of the Certificate of Substantial Performance of the Work, provided to the contractor by the Consultant, shall be the date for commencement of the lien period.

1.5. TOTAL PERFORMANCE

.1 Prior to requesting a final inspection submit written certificate that the following have been performed:

.1 Work has been completed and inspected for compliance with Contract Documents and is ready for final inspection

.2 Defects have been corrected and deficiencies have been completed.

.3 Equipment and systems have been tested and are fully operational. Submit two copies of the balancing reports
.4 Certificates required by the contractor have been submitted.
.5 Operation of systems have been demonstrated to Owner's personnel.
.6 Submit Record drawings.
.7 Submit maintenance materials.
.8 Provide certified site survey

.2 When items noted above are completed, request final inspection of Work by consultant, and building inspector. If Work is deemed incomplete by Consultant, complete outstanding items and request re-inspection.

1.6. PAYMENT OF SUBSTANTIAL PERFORMANCE HOLDBACK

.1 Prior to the release of lien holdback provide one copy of the following by the Contractor and each subcontractor:
.1 Statutory Declaration or Declaration of Last supply
.2 Workplace Safety and Insurance Board “Certificate of Clearance”.

.2 The Contractor shall submit an application for payment of the holdback amount.

.3 After the receipt of an application for payment which will include a Statutory Declaration and WSIB Clearance from the, the Consultant will issue a certificate for payment of the holdback amount.

1.7. FINAL PAYMENT

.1 When the Contractor considers final deficiencies and defects have been corrected and it appears requirements of Contract have been completed, make application for final payment.

.2 When the Consultant finds the Contractor's application for final payment valid, the Consultant will issue a final certificate of payment

.3 The Board reserves the right to charge the Contractor for school access card(s) that have not been returned.

.4 The cost to reprogram or replace the card(s) access system is estimated at $50.00 (fifty dollars) for each card issued, $30.00 (thirty dollars) for each keybox key, plus $35.00 (thirty five dollars) administration fee.

1.8. CLOSEOUT SUBMITTALS

.1 Prepare instructions and data using personnel experienced in maintenance and operation of described products and submit them to the Consultant for review.

.2 Copy will be returned to the contractor with the Consultant's comments.

.3 Revise content of documents as required prior to final submission.

.4 Two (2) weeks prior to Substantial Performance of the Work, submit to the Consultant, the final copies of operating and maintenance manuals.

.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.

1.9. OPERATION AND MAINTENANCE MANUAL FORMAT

.1 Provide two copies of operating and maintenance data, prepared on 215 X 280mm sheets in printed or typewritten form, contained in 3-ring binders with soft vinyl covers for materials and equipment which require special maintenance or operating procedures.

.2 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder at the front of each volume.

.3 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.4 Arrange content by the divisions of the specifications under Section numbers and sequence of Table of Contents.

.5 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.6 Include the following in each manual:

.1 Complete list of subcontractors and suppliers, their addresses and telephone numbers. Provide 24 hour emergency telephone numbers for such subcontractors as Plumbing, Electrical, Sprinklers, Fire System, Heating, etc.

.2 Specified warranties for contractor, each subcontractor and supplier.

.3 WRDSB Project Asset and Warranty Card, Appendix 00 41 13A

.4 Copy of finish hardware list, complete with all amendments and revisions and lock manufacturer's descriptive and service literature.

.5 Schedule of paints and coatings. Include sufficient explanation to fully identify each surface with the applicable paint or coating used. Enclose a copy of the colour schedule.

.6 Maintenance instructions for finished surfaces.

.7 Brochures, cuts of equipment and fixtures.

.8 Operating and maintenance instructions for equipment.

.9 Submit copies of letters from manufacturers of equipment and systems indicating their technical representatives have inspected and tested systems and are satisfied with methods of installation, connection and operations. These letters shall state names of persons present at testing, methods used and list of functions performed.

.10 Submit one complete set of reviewed shop drawings of architectural, structural, mechanical and electrical items, folded to 215 x 280mm size, contained in heavy duty manila envelopes, numbered and labelled. Follow specification format with no more than one Section per envelope, hard copy and PDF.

.11 Relevant certificates issued by authorities having jurisdiction

.12 Computer disc or flash drive with all the above documentation in PDF format

1.10. RECORDING ACTUAL SITE CONDITIONS

.1 Record information on a set of black line opaque drawings, and within the Project Manual.

.2 Annotate with coloured felt tip marking pens, maintaining separate colours for each major system, for recording changed information.

.3 Record information concurrently with construction progress. Do not conceal Work of the Project until required information is accurately 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 warranties, test reports and samples required by individual specifications sections.

1.11. RECORD (AS-BUILT) DOCUMENTS AND SAMPLES

.1 Store AS-BUILT documents and samples in the field office apart from documents used for construction. Provide files, racks, and secure storage.

.2 Label AS-BUILT documents and file in accordance with section number listings in List of Contents of the Project Manual. Label each document AS-BUILT DOCUMENTS in neat, large, printed letters.

.3 Maintain AS-BUILT documents in clean, dry and legible condition. Do not use as-built documents for construction purposes.

.4 Keep as-built documents and samples available for inspection by the Consultant.

1.12. RECORD DRAWINGS

.1 Prior to Substantial Performance of the Work, update the marked up information from the AS-BUILT documents to a master set of drawing.

.2 Submit one set of completed AS-BUILT documents to the Consultant for review.

.3 Documents will be returned to the contractor with the Consultant's comments.

.4 Revise content of documents as required prior to final submission.

.5 After the review is completed resubmit to the Consultant for Consultant to produce electronic record drawings for the owner to use.

1.13. 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 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in the Maintenance Manual.

.4 Obtain receipt for delivered products and submit prior to final payment.

1.14. REPLACEMENT (MAINTENANCE) MATERIALS

.1 Deliver to site, unload and store where directed, replacement (maintenance) materials as required elsewhere in these Specifications. Obtain a signed receipt from the Owner's Representative for delivered materials and include a copy of receipt in Operation and Maintenance manuals.

.2 Package materials so they are protected from damage and loss of essential properties.

.3 Label packaged materials for proper identification of contents.

1.15. SPECIAL TOOLS

.1 Provide special tools, in quantities specified in the individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual

1.16. FINAL SITE SURVEY

.1 Submit final site survey certificate in accordance with Section 01 70 00, certifying that elevations and locations of completed Work are in conformance Contract Documents.

1.17. 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 Except for items put into use with Owner's permission, leave the date of beginning of time of warranty until the Date of Substantial Performance is determined. The date of Substantial Performance of the Work shall be the date for commencement of the warranty period.

.4 Verify that documents are in proper form, contain full information, and are notarized.

.5 Co-execute submittals when required.

.6 Retain warranties and bonds until time specified for submittals.

END OF SECTION

01 78 40 – Maintenance Requirements

1.0 GENERAL

1.1. SECTION INCLUDES

.1 Equipment and systems.
.2 Materials and finishes.
.3 Spare parts
.4 Maintenance manuals.
.5 Special tools.
.6 Storage, handling and protection.
.7 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. RELATED SECTIONS

.1 Section 01 45 00 - Quality Control.
.2 Section 01 78 40 – Maintenance Requirements.
.3 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3. 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
.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 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 a 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 01 45 00.

.15 Additional requirements: As specified in individual specification sections.

2.0 PRODUCTS

2.1. MATERIALS AND FINISH

.1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

.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 Building Envelope: include copies of drawings of building envelope components, illustrating the interface with similar or dissimilar items to provide an effective air, vapour and thermal barrier between indoor and outdoor environments. Include an outline of requirements for regular inspections and for regular maintenance to ensure that on-going performance of the building envelope will meet the initial building envelope criteria.

.5 Additional Requirements: as specified in individual specifications sections.

2.2. 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 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in the Maintenance Manual.

.4 Obtain receipt for delivered products and submit prior to final payment.

2.3. 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 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in the Maintenance Manual.

.4 Obtain receipt for delivered products and submit prior to final payment.

2.4. SPECIAL TOOLS

.1 Provide special tools, in quantities specified in the individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in the Maintenance Manual.

3.0 EXECUTION

3.1. DELIVERY TO SITE

.1 Deliver to place of work and store.

.2 General Contractor to receive and acknowledge delivery from contractors and subcontractors of all parts and materials assembled for maintenance requirements. Provide a summary inventory list to the Consultant and/or the Board after all materials are gathered and verification of location. Signatures of receipt will not be accepted from anyone except the General Contractor’s representative.

3.2. STORAGE, HANDLING AND PROTECTION

.1 Consult with the Board to determine location for storage.

.2 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.3 Store in original and undamaged condition with manufacturer's seal and labels intact.

.4 Store components subject to damage from weather in weatherproof enclosures.

.5 Store paints and freezable materials in a heated and ventilated room.

.6 Remove and replace damaged products at own expense and to the satisfaction of the Consultant.

END OF SECTION

01 79 00 – Demonstration and Training

1.0 GENERAL

1.1. SECTION INCLUDES

.1 Procedures for demonstration and instruction of Products, equipment and systems to Owner's personnel.

.2 Seminars and demonstrations.

1.2. RELATED SECTIONS

.1 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3. DESCRIPTION

.1 At Substantial Performance, at a time acceptable to Owner and Consultant, but not before operations and maintenance manual have been reviewed and accepted by the consultant; contractor shall give a complete demonstration in the presence of consultant; Sub-consultants, Owner and Owner's personnel of operation and maintenance of systems and equipment once they are 100% complete.

.2 Owner will provide a list of personnel to receive instructions and will coordinate their attendance at agreed-upon times.

1.4. COMPONENT DEMONSTRATION

.1 Manufacturer to provide authorized representative to demonstrate operation of equipment and systems.

.2 Instruct Owner's personnel, and provide written report that demonstration and instructions have been completed.

1.5. SUBMITTALS

.1 Submit schedule of time and date for demonstration of each item of equipment and each system one (1) week prior to designated dates, for Consultant's approval.

.2 Submit reports within forty eight (48) after completion of demonstration, that demonstration and instructions have been satisfactorily completed.

.3 Give time and date of each demonstration, with a list of persons present.

1.6. CONDITIONS FOR DEMONSTRATIONS

.1 Equipment has been inspected and put into operation in accordance with manufacturer's instructions and contract requirements.

.2 Testing, adjusting, and balancing have been performed in accordance with manufacturer's instructions and contract requirements, and equipment and systems are fully operational.

.3 Provide information packages as required for use in demonstrations and instructions.

2.0 PRODUCTS

2.1. NOT USED

.1 Not used.

3.0 EXECUTION

3.1. PREPARATION

.1 Verify that suitable conditions for demonstration and instructions are available.

.2 Verify that designated personnel are present.

.3 Prepare agendas and outlines.

.4 Establish seminar organization.

.5 Explain component design and operational philosophy and strategy.

.6 Develop equipment presentations.

.7 Present system demonstrations.

.8 Accept and respond to seminar and demonstration questions with appropriate answers.

3.2. PREPARATION OF AGENDAS AND OUTLINES

.1 Prepare agendas and outlines including the following:

.1 Equipment and systems to be included in seminar presentations.

.2 Name of companies and representatives presenting at seminars.

.3 Outline of each seminar's content.

.4 Time and date allocated to each system and item of equipment.

.5 Provide a separate agenda for each system.

3.3. SEMINAR ORGANIZATION

.1 Coordinate content and presentations for seminars.

.2 Coordinate individual presentations and ensure representatives scheduled to present at seminars are in attendance.

.3 Arrange for presentation leaders familiar with the design, operation, maintenance and troubleshooting of the equipment and systems. Where a single person is not familiar with all aspects of the equipment or system, arrange for specialists familiar with each aspect.

.4 Coordinate proposed dates for seminars with Owner and select mutually agreeable dates.

3.4. EXPLANATION OF DESIGN STRATEGY

.1 Explain design philosophy of each system. Include following information:

.1 An overview of how the system is intended to operate.

.2 Description of design parameters, constraints and operational requirements.

.3 Description of system operation strategies.

.4 Information to help in identifying and troubleshooting system problems.

3.5. DEMONSTRATION AND INSTRUCTIONS

.1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment.

.2 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.

.3 Instruct personnel on control and maintenance of sensory equipment and operational equipment associated with maintaining energy efficiency and longevity of service.

.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.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

.1 Hazardous Material removals.

1.2 Section Includes

.1 Demolition and removal as indicated.

.2 Breaking out of structure, and removal of fitments.

.3 Preparation of existing surfaces for other trades.

.4 Removal of existing concrete footings, foundations and slabs-on-grade.

.5 A report from a Professional Structural Engineer licensed in the Province of Ontario with the expert demolition company describing the structural design characteristics of the existing structure to be demolished and the method of demolition that satisfies the authorities having jurisdiction requirements.

.6 Site dust control plan that satisfies the authorities having jurisdiction requirements.

.7 Provide all work indicated in Demolition Documents, regardless whether located within or outside the Owner's property line. All hoarding and other protection pertaining to demolition and removal of the existing systems shall form scope of demolition work. Demolition work shall be done under the supervision of the Professional Engineer certifying the demolition portion of the work as required by the authorities having jurisdiction.

.8 All work shall be carried out by qualified tradesmen of the discipline concerned.

1.3 Regulatory Requirements

.1 Obtain and pay for any necessary permits for work of this Section. Give required notices.

.2 Comply with applicable requirement of jurisdictional authorities and CSA S350-M-1980 "Code of Practice for Safety in Demolition of Structures".

.3 Comply with the authorities having jurisdiction Noise By-laws.

.4 Comply with the authorities having jurisdiction – Demolition Procedures.

1.4 Qualifications

.1 Work of this Section shall be executed by a company able to deploy adequate equipment and skilled personnel to complete Work expediently in an efficient and orderly manner.

.2 Demolition work shall be done under the supervision of the Professional Engineer certifying the demolition portion of the work.

1.5 Examination

.1 Examine existing property. Review existing site conditions thoroughly to establish full extent of items to be removed, including secondary steel structures, building envelope, all finishes and secondary floor finishes. Commencement of work will be considered to be acceptance of existing site conditions and removal of such items.

.2 Examine adjacent properties. Determine extent of protection required.

1.6 Salvage

.1 Unless otherwise noted, materials resulting from demolition shall become property of Contractor who shall promptly remove demolished materials from Site.

.2 Do not sell material at Site.

1.7 Maintaining Traffic

.1 Do not close, obstruct, place or store material in Owner's driveways and passages. Conduct operations with minimum interference with roads, streets, driveways and passages.

1.8 Hauling Operations

.1 Haul and move machines, vehicles and equipment over designated route and within work areas as designated by Consultant.

.2 Maintain roadways and paving in the hauling areas clean on a daily basis and as required by Municipal authorities.

1.9 Safety Requirements

.1 Undertake Work and effect arrangements required by authorities having jurisdiction for protection of the public.

.2 Post danger signs conspicuously around property. Close doorways and thoroughfares giving access to area of demolition with barricades.

.3 Provide a competent, experienced supervisor in charge of the Work and on Site at times while Work is in progress.

.4 Review the designated substances report in Appendix 01 35 43A prior to start of demolition and refer to section 02 81 00 for abatement requirements and procedures.

1.10 Life and Fire Safety

.1 Provide fire extinguishers in acceptable locations to fire prevention authorities and of type suitable to enable personnel to cope with fire occurring during progress of Work.

1.11 Protection

.1 Ensure Work is done in accordance with Provincial Environmental Protection Act.

.2 Protect work to remain against damage of any kind. Repair or replace damaged work at the discretion of the Consultant, at no cost to Owner.

.3 Prevent uncontrolled movement, settlement, or damage. Provide shoring and bracing where required.

.4 Take steps to positively prevent uncontrolled falling of demolished materials.

.5 Prevent debris from blocking drainage systems. Ensure Work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.6 Ensure that temporary guards, hoardings are provided in accordance with applicable safety regulations.

.7 Protect trees, plants and foliage on site and adjacent properties where not designated for removal, as per drawings.

.8 Prevent uncontrolled water damage to existing systems and structures to remain.

PART 2 PRODUCTS

2.1 Not applicable.

PART 3 EXECUTION

3.1 Preparation

.1 Do not commence demolition work until occupants have permanently vacated demolition areas and materials and equipment not included in demolition work have been removed from demolition areas. Obtain Consultant's approval before commencing demolition.

.2 Verify that existing services in areas affected by demolition work are disconnected, capped or removed, prior to start of work.

.1 Post warning signs on electrical lines and equipment which must remain energized to serve other properties during the period of demolition.

.3 Legally dispose of demolished materials, except where noted otherwise and in accordance with authorities having jurisdiction.

.4 The Contractor shall make adequate arrangements for the protection of persons and property during the performance of the work under this specification. Proper barricades and warning devices shall be erected to prevent persons from entering unguarded work locations.

.5 All demolition and construction of hoardings and barriers for protection of the public shall be carried out in accordance with the “Construction Safety Act” of Ontario or other authority having jurisdiction.

3.2 Demolition

.1 Refer to Demolition Plans

.2 Demolish work in a safe and systematic manner, from top to bottom.

.3 Do not throw or drop demolished materials from heights. Use chutes, conveyors, or hoisting equipment to lower materials where necessary.

.4 Demolish in a manner to minimize dusting. Keep dusty materials wetted but prevent flooding or contaminated runoff.

.5 Demolish masonry and concrete elements in small sections.

.6 At the end of each work period, leave work in safe condition, so that no part is in danger of toppling or falling.

.7 Remove and legally dispose of all PCB containing ballasts.

.8 Disconnect and cap all main electrical and telephone services, in accordance with authorities having jurisdiction.

.9 If safety of adjacent structures or services appears to be endangered, cease operation and notify Architect.

.10 Prevent movement, settlement of damage to areas outside of scope of demolition work adjacent to structures and services and asphalt pavings. Make good any drainage caused by demolition.

.11 Disconnect and cap designated mechanical services in accordance with authorities having jurisdiction.

.12 Natural gas supply lines to be disconnected by Gas Company, or by qualified tradesman in accordance with gas company instructions.

.13 In removal of existing pavements and concrete works:

.1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by the Consultants.

.2 Project underlying granular materials.

3.3 Salvageable Items

.1 None

3.4 Disposal and Clean-up

.1 All materials, rubbish and debris resulting from demolition work shall become the Contractor's property and shall be removed from site and legally disposed of unless specifically indicated otherwise.

.2 Do not allow demolished materials to accumulate on site. Promptly, as work progresses, remove and legally dispose of materials away from site.

.3 Selling, burning and burying of materials on site is not permitted.

.4 Leave site in clean condition with all required guards in place.

.5 The General Contractor shall provide waste containers. Front load and roll off type containers shall be located on site. Waste, debris, generally all dirt resulting from the project, shall be disposed of in appropriate waste containers, as the work proceeds.

END OF SECTION

PART 1 GENERAL

1.1 Section Includes

.1 Masonry Procedures.
.2 Mortar and Grout for Masonry.
.3 Masonry Reinforcing & Connectors.
.4 Masonry Accessories.
.5 Plain Concrete Unit Masonry.

1.2 References

.1 CSA-A165 Series; CSA Standards on Concrete Masonry Units.
.2 CSA-A179; Mortar and Grout for Unit Masonry.
.3 CSA-A370; Connectors for Masonry.
.4 CSA-A371; Masonry Construction for Buildings.
.5 CSA-S304.1; Masonry Design for Buildings (Limit States Design).

1.3 Submittals

.1 Source Quality Control

.1 Manufacturers of concrete masonry units must submit independent laboratory test reports performed within the twelve month period immediately prior to date of delivery of material, certifying compliance of masonry units and mortar components with specification requirements, in accordance with Section 01 33 23.

.2 All concrete masonry units supplied for this project must be from one supplier only.

1.4 Quality Assurance

.1 Manufacturer/Fabricator

.1 Manufacturers or fabricators providing Products under this Section shall have sufficient plant, equipment and competent personnel to provide the Products, in accordance with the Contract Documents. Firm(s) shall have past experience in the manufacture or fabrication of the Products specified herein, and shall have successfully completed Projects of similar scope and type.

.2 Installation/Application

.1 Installers or applicators of the Products specified herein, shall be competent in the skills required to perform such tasks. Installation/ shall be performed in accordance with industry standards specified herein, warranty requirements, and in accordance with generally accepted, industry best practices.

.3 Documentation

.1 If requested by the Consultant, submit documentation to support the competency of firms and personnel.

.4 Pre-application Meeting

.1 Convene a pre-application meeting for the Products specified in this section. Attendees must include, as a minimum, representatives of the following:

.1 Contractor (Site Superintendent & Project Manager)
.2 Application Subcontractor (Site Foreman & Project Manager)
.3 Product Manufacturer and/or Distributor (Technical Representatives)
.4 Related Subcontractors whose work is affected by that of this Section.

1.5 Delivery, Storage & Handling

.1 Deliver materials to job site in dry condition. Keep materials dry until use except where wetting is specified.

.2 Deliver all masonry units cubed and banded on hardwood pallets, with polyethylene "shrink-wrap", or other non-staining covering. Prevent damage to units.

.3 Deliver mortar materials in original unbroken and undamaged packages with manufacturer's name and brand distinctly marked thereon, and upon delivery store in dry shed until used on work.

.4 Store or pile sand on a plank platform and protect from dirt and rubbish. Store mortar materials and sand in such a manner as to prevent deterioration or contamination by foreign materials.

.5 Lift skids with proper and sufficiently long slings or forks with protection to prevent damage to units. Protect edges and corners.

.6 Store masonry in a manner designed to prevent damage and staining of units.

.7 Place polyethylene or other plastic film between wood and other finished surfaces of units when stored for extended periods of time.

.8 Cover stored units with protective enclosure if exposed to weather.

.9 Do not use salt or calcium-chloride to remove ice from masonry surfaces.

1.6 Project Conditions

.1 Cold Weather Requirements

.1 Supplement Clause 5.16.2.1 of CSA-A371 with the following:

.1 Maintain mortar temperature between 5°C and 50°C for a minimum of 3 days after setting.

.2 Hot Weather Requirements

.1 Supplement Clause 5.16.4 of CSA-A371 with the following:

.1 Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.

2 PRODUCTS

2.1 Materials

.1 Use same suppliers of masonry units, accessory materials and source of aggregate for entire project.

.2 Portland cement: Type 10 to CSA-A5.

.3 Blended Cement: to CSA-A362.

.4 Aggregates: to CSA-A23.1.

.5 Hydrated Lime: to ASTM C207.

.6 Supplementary Cementing Materials: to CSA-A23.5.

2.2 Concrete Masonry Units

.1 The physical properties of the concrete masonry units at the time of delivery by the manufacturer to the site, shall conform to the requirements of Table 1 of CSA-A165.1, as classified herein. Test reports submitted to the Consultant by the manufacturer prior to delivery shall verify conformance, in order for material to be acceptable.

.2 Provide special shapes such as return corners, ashlar blocks, lintels, universal knock-outs, A-blocks, sash blocks, piers, bull-nosed blocks, etc., to perform masonry work with minimal cutting or breaking of masonry units.

.3 Concrete Masonry Units: to CSA-A165.1.
- .1 Classification: H/15/A/M.
- .2 Sizes:
  - .1 OCBA metric modular.
  - .2 Thicknesses: as indicated on the drawings.

2.3 REINFORCEMENT AND ANCHORAGES

.1 Single Wythe Joint Reinforcement: No.9 Truss type, 3.7 mm side rods with 3.7 mm cross ties; to CSA G30.3; hot dipped galvanized to ASTM A153, Class B2; Dur-O- Wal "DW-100" or an accepted alternate.

.2 Reinforcing Steel: as specified on Structural Drawings. Sizes as indicated on the drawings.

.3 Masonry Ties: to CSA A370 and CAN3-S304-M.

2.4 MORTAR AND GROUT

.1 Use aggregate passing 1.18mm sieve where 6 mm thick joints are indicated, to CSA-A179.

.2 Mortar for interior concrete masonry and all load-bearing masonry above grade, including inner wythe of exterior cavity walls: Type "S" based on specifications of CSA-A179.

.3 Mortar for all exterior veneer masonry above grade: Portland cement/hydrated lime, Type "N" (1:1:6) based on specifications of CSA-A179.

.4 Mortar Colour
- .1 Interior Concrete Block: Natural.

.5 All mortar products for masonry work shall be batch plant mixed on site for quality control. No hand mixing will be permitted. Use Maxi-Mix or other similar batch plant silo system.

.6 Grout: for masonry shall be pre-mixed, high strength, non-shrink cementitious grout, to CSA-A179, with minimum compressive strength of 30MPa.

.7 All mortar products for masonry work shall be batch plant mixed on site for quality control. No hand mixing will be permitted. Use Maxi-Mix or other similar batch plant silo system.

2.5 ACCESSORIES

.1 Control Joint Block Fillers: "Titewall" by Bloc-Lok Ltd., or "RS Series" by Hohmann & Barnard Inc.

3 EXECUTION

3.1 QUALITY OF WORK

.1 Perform masonry work in accordance with CSA-A371, except where specified otherwise.

.2 Build masonry plumb, level, and true to line, with vertical joints in alignment.

.3 Perform masonry mortar and grout work in accordance with CSA-A179 except where specified otherwise.

.4 Provide temporary bracing of all masonry walls until permanent bracing is installed.

.5 Lay out coursing and bond to achieve correct coursing heights and continuity of bond above and below openings, with minimum of cutting.

.6 Machine cut all exposed masonry units where adjusted in size.

.7 Tolerances in notes to Article 5.3 of CSA-A371 apply.

.8 Remove chipped, cracked, or otherwise damaged units and replace with new.

.9 Coordinate work of this section with work of mechanical and electrical trades for conduit, piping, and other items built-in to masonry work. Masonry Subcontractor must cooperate with mechanical and electrical trades, for placement of such items within masonry walls.

3.2 LAYING CONCRETE MASONRY UNITS

.1 Bond:

.1 Running Bond unless otherwise noted on drawings.

.2 Coursing Heights:

.1 Standard Block: 200mm for one 190mm high block + one joint.

.3 Provide bullnose concrete masonry units at all exposed corners, except at the first course at the floor level, and at the corresponding course located at the ceiling level.

.4 Construct all masonry walls full height to underside of structure or deck above, unless otherwise shown. Leave 25mm void between top of wall and structure above. Fill void with 25x152mm mineral wool insulation. Where walls are fire separations, firestop to Section 07 84 00.

.5 Set bearing plates for joists, beams, etc., at locations and elevations indicated, and grout into place.

.6 Special Shapes
- .1 Provide Universal Knock-out blocks for chases for piping and conduit.
- .2 Provide A-Blocks for all vertical reinforcing locations.

.7 Provide solid masonry units where required for mechanically fastening of blocking, furring or mechanically applied finishes.

.8 Do not form chases in load-bearing walls less than 240mm thick. Do not form chases closer than 2m apart in any wall, unless otherwise shown.

.9 Do not construct horizontal chases for piping or conduit unless other reasonable means of allowing for services are impossible. Where horizontal chases are required, construct chases using lintel blocks filled solid with concrete fill as specified.

.10 Build in conduits as required without breaking bond.

3.3 JOINTING

.1 Allow joints to set sufficiently to remove excess water;
- .1 Concave Joints: tool with round jointer to provide smooth, compressed, uniformly concave joints, vertical and horizontal.
- .2 Flush: 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.

.2 Remove all excess mortar from surface of masonry.

3.4 REINFORCEMENT AND ANCHORAGES

.1 Place masonry joint reinforcement continuous in every second horizontal joint.

.2 Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend 400 mm minimum each side of opening.

.3 Place joint reinforcement continuous in first and second joint below top of walls.

.4 Place reinforcing bars supported and secured against displacement.

.5 Secure wall ties to structural back-up for veneer at maximum 400 mm OC vertically and 900 mm OC horizontally. Place at maximum 75 mm OC each way around perimeter of openings, within 300 mm of openings.

.6 Reinforce joint corners and intersections with strap anchors 400 mm OC.

3.5 LINTELS

.7 Install loose steel lintels as scheduled. Set steel lintels dry to permit movement.

.8 Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled. Construct lintels using grout fill and reinforcing. Maintain minimum 200 mm bearing on each side of opening.

3.6 FIRE STOPPING OF CAVITY

.1 Install continuous "Z" bar fire stops in cavity prior to installation of insulation, fastened to inner wythe of masonry, to the requirements of the Ontario Building Code.

.2 Cavity fire stops shall span full depth of cavity from inner wythe to outer wythe of masonry. Vertical stops shall be placed at borders of area to be fire stopped.

3.7 CONTROL JOINTS

.1 Provide vertical control joints to CSA-A371, and as shown on the drawings.

.2 Width of control joints shall be 10mm.

.3 Horizontal reinforcing shall be continuous across control joints.

.4 Control joints shall be continuous across thickness of exterior wall. Where vertical joints in wythes of brick and block do not align, offset of maximum 200mm is allowable.

.5 Where not otherwise shown or detailed, the following minimum requirements for vertical control joints in unit masonry shall apply:

.1 Above all openings in masonry, extending from end point of lintel to top of masonry.
.2 At all structural column or pilaster locations.
.3 All locations where structural substrate changes.
.4 At all uninterrupted panels of masonry. Maximum panel width 7m.
.5 Within 1000mm each side of changes in direction of wall.

3.8 JOINING OF WORK

.1 Where necessary to temporarily stop horizontal runs of masonry, and in building corners, step-back masonry diagonally to lowest course previously laid. Do not "tooth-in" new masonry. Fill in adjacent courses before heights of stepped masonry reach 1220mm.

3.9 SUPPORT OF LOADS

.1 For all masonry under concentrated loads, where concrete fill is used in lieu of solid units, use minimum 15MPa concrete for width and depth equal to 3 times the length of bearing.

.2 Use grout to CSA-A179 where grout is used in lieu of solid units.

.3 Install building paper below voids to be filled with concrete. Keep paper 13mm back from faces of units.

3.10 FIELD QUALITY CONTROL

.1 The work of this section is subject to inspection and testing as specified in Section 01 45 00. Allow for independent inspection by an Independent Testing Authority. Costs for inspection and testing will be paid by the Owner.

.2 Prior to commencement of construction, the masonry Subcontractor shall prepare and mix on-site, under supervision of the Consultant and the Inspection and Testing Authority, mortar samples to determine compliance with the specifications

.3 Tests of such samples shall determine a ratio-by-mass value or "control value" for mortar mixes.

.4 Masonry Mortar shall be tested in accordance with CSA-A179; Mortar and Grout for Unit Masonry, supplemented as follows:

.1 Additional cubes shall be poured under on-site conditions for comparison with "ideal" samples.

.5 Subsequent sample ratio tests taken during the course of construction shall not vary from the control value by more than 15%.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

.1 Structural steel framing members, support members, suspension cables, sag rods, struts and loose steel lintels.

.2 Baseplates, shear stud connectors, expansion joint plates, and lintels.

.3 Grouting beneath baseplates.

1.2 Reference Standards

.1 Reference Standards are to be latest editions.
.2 Ontario Building Code
.3 CAN/CSA-S16.1-09 Design of Steel Structures
.4 CSA W47.1-09 Certification of Companies for Fusion Welding of Steel Structures.
.5 CSA W59-03(R2008) Welded Steel Construction (Metal-Arc Welding).
.6 CSA-G40.20-04 (R2009) General Requirements for Rolled or Welded Structural Quality Steel.
.7 CSA-G40.21-04 (R2009) Structural Quality Steels

.8 CAN/CGSB-1.40-M89: Primer, Structural Steel, Oil Alkyd Type.

.9 CGSB 85-GP-16M: Painting Galvanized Steel.

1.3 QUALIFICATIONS

.1 Work of this Section shall be executed by a company able to deploy adequate equipment and skilled personnel to complete Work expediently in an efficient and orderly manner.

.2 The steel fabricators and erectors must be certified under the requirements of CSA W47.1 as required by CSA-S16-09.

.3 Welding procedures, welders and welding operations shall be qualified in accordance with the Canadian Welding Bureau Standards.

.4 All connections shall be designed by a C.I.S.C. approved Fabricator unless otherwise noted.

1.4 EXAMINATIONS

.1 All dimensions taken from the Drawings are to be confirmed on site prior to fabrication. Contractor is to be responsible for the correctness of such measurements and report to the Consultant in writing all discrepancies between measurements at building and those shown on drawings prior to commencing work. Verify location of anchor bolts and embedded steel and ensure that work prepared by other trades is at a proper elevation, on-line, level, and true.

.2 Contractor to locate all mechanical/electrical openings required in structural members for existing systems prior to fabrication.

.3 Contractor responsible for all costs associated with site location of existing strands and embedded conduits.

1.5 SHOP DRAWINGS SUBMITTAL

.1 Submit erection and detail drawings to the requirements of Section 01 33 00.

.2 Shop drawings must bear the stamp and signature of a professional engineer registered in the Province of Ontario.

.3 Indicate profiles, sizes, spacing, and locations of structural members, openings, attachments, fasteners, connections, cambers, and loads.

.4 Submit copies of mill test reports, properly correlated to the materials, to the Consultant.

1.6 INSPECTION AND TESTING

.1 Testing agency shall be selected and paid for through the CASH ALLOWANCE.

.2 Allow free access to all parts of the work area for the purposes of inspection at all times.

.3 Submit certified results of testing in accordance with CSA-G40.20 properly correlated to the elements being fabricated.

.4 For the purpose of bidding, assume all welds will be examined by a non-destructive testing method.

.5 Testing of all connections and splices not indicated on the design drawings shall be undertaken by the Owner’s testing agency and will be to the Contractor’s account.

.6 The Engineer may reject at any time during the progress of the work a piece of material for any member which he may find defective or not in accordance with the detailed drawings. This material may be rejected notwithstanding any previous acceptance and components so rejected shall be replaced at no expense to the Owner. In case of dispute, the decision of the Engineer shall be final.

1.7 STORAGE AND HANDLING

.1 The Contractor shall be responsible for the protection of all steel work during fabrication, shipping, storage, and construction. All small bends and damage shall be reported to the Engineer for instruction. Steel work, which is bent, broken, or otherwise damaged, shall be replaced by the Contractor prior to erection, to the satisfaction of the Engineer, at no cost to the Owner.

.2 The Contractor shall be responsible for proper scheduling of delivery and erection for the structural steel, all in accordance with the construction schedule.

.3 Structural steel members shall be stored at the site above ground on platforms, skids, or other devices.

.4 Steel shall be protected from corrosion.

.5 Other material shall be stored in a weather tight and dry place until ready for use in the Work.

.6 Package materials shall be stored in their original unbroken packages or container.

1.8 CO-ORDINATION WITH OTHER TRADES

.1 Supply all necessary instructions and drawings to other trades for setting bearing plates, anchor bolts, and other members that are built in with the work of other trades. Supply the necessary material in accordance to the construction schedule.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Rolled shapes, rolled plate, and welded wide flange sections shall be to CSA-G40.21, Grades as per structural drawing notes.

.2 Structural Steel: to CAN/CSA-G40.20, and CAN/CSA-G40.21, grades as per Structural drawings.

.3 Hollow structural sections shall be to CSA-G40.21-350W Class C.

.4 High strength bolts shall be to ASTM A325M or A490.

.5 Welding material shall be in accordance with CSA W59 and CSA W47.

.6 Anchor bolts and nuts to ASTM A307.

.7 Touch-up primers for exterior exposure not to receive a shop or field paint finish shall be zinc chromate Type - 1, conforming to CGSB 1-GP-40D.

.8 Primers used in a multi-coat system where a final shop or field paint finish is to be applied shall be selected and pre-approved based on surface preparation, exposure conditions and compatibility with subsequent coatings.

2.2 DESIGN

.1 All connections and beam web openings shall be designed by the fabricator to the reference standards unless otherwise noted.

PART 3 EXECUTION

3.1 FABRICATION

.1 Verify all dimensions and take necessary field measurements before fabrication.

.2 All fabrication shall be to CAN3-S16-09.

.3 All welding shall be to CSA W59.

.4 All fabricated units shall be straight and true and without sharp kinks or bends.

.5 Angle lintels shall have a bearing of not less than 200 mm at each end. Where the upstanding legs are back to back they shall be bolted together.

.6 All plates and shapes shall be inspected visually for laminations. Repair plates or shapes that contain laminations in a manner approved by the Consultant.

.7 Provide punched holes for the convenience of other trades in attaching wood blocking or other materials. Co-ordinate with drawings of other disciplines for location and details.

.8 Obtain Consultant's approval for holes required through structural steel that are not shown on the drawings.

3.2 CLEANING AND PRIMING

.1 All steel shall be thoroughly cleaned of all loose mill scale, loose rust, oil, or dirt.

.2 All steel shall be primed except for steel to be encased in concrete, steel to be fireproofed, steel which will receive shear studs, and fraying surfaces of friction connections.

.3 Structural steel to be primed for exterior exposure or to receive a shop or field paint finish shall be cleaned in accordance with SSPC-SP6 "Commercial Blast Cleaning".

.4 All primers shall be applied strictly in accordance with the Manufacturers instructions. Apply one (1) coat of primer thoroughly and evenly and work well into the joints and other open spaces. Primer colour to be Grey for all non-galvanized steel.

.5 After erection and after connections are completed, provide a field touch up coat of primer to all surfaces that had no shop coat, or have been chipped or scraped.

3.3 SHOP PAINTING

.1 Steel shall be painted with shop primer meeting the requirements of CSA Standard CSA-S16-09 unless noted otherwise. Primer colour to be Grey for all non-galvanized steel.

.2 Cleaning, preparation of steel and the paint product shall be compatible with requirements of finish painting.

.3 Use paint as prepared by manufacturer without thinning or adding admixtures. Execute painting on dry surfaces, free from rust, scale, and grease. Do not paint in temperatures lower than 8 deg C.

.4 Interior structural steel - steel surfaces to be encased in concrete, welded, fireproofed, zinc coated, galvanized or to receive shear connector studs or embedment anchors shall not be painted.

.5 Clean contact surfaces by effective means before assembly but do not paint.

.6 Where shop painting is required give two coats of paint (preferably of different colours) to parts inaccessible after final assembly.

.7 Touch-up welds, bolts, and burnt or scratched surfaces of painted steel after completion of erection.

3.4 CONNECTIONS

.1 Use connections of the type and detail shown on the Drawings. Modifications to the specified connection types and details will not be permitted without prior approval from the Consultant.

.2 Connections designed by the fabricator shall be in accordance with CSA Standard CAN/CSA-S16.1 and stamped and sealed by a Professional Engineer registered in the Province of Ontario.

.3 All connections shall be designed to carry the loads specified on the Drawings. If loads are not given, the connection shall have the capacity not less than the members being connected.

.4 Column to beam and girder connections shall allow for a horizontal stability force in all directions equal to 2% of the design column axial load in addition to all other loads.

.5 Structural steel members spliced for ease of fabrication or transportation shall have splices designed to develop the full strength and stiffness of the member. Splices shall be subject to non-destructive testing as directed by the Consultant. The cost for such testing shall be borne by the Contractor.

.6 Use standard connection types where possible.

.7 Provide stiffeners in beam webs at all locations of beam continuity. Unless noted otherwise web stiffeners shall be 12 mm minimum.

.8 All bolted connections may be snug tight.

.9 Connections for seismic lateral load resisting elements, bolts in tension and elements connected with oversize or slotted holes unless designed to accommodate movement may be bearing connections but shall be pretensioned.

3.5 SEPARATORS AND MISCELLANEOUS SUPPORTS

.1 Provide separators for all double members in accordance with CSA-S16-09.

.2 Provide plates and / or angles for support of masonry where required.

3.6 ERECTION

.1 As erection progresses, the work shall be securely bolted up to take care of all dead loads, wind, and erection stresses. Any failure to make proper and adequate provisions for stresses during erection shall be solely the responsibility of the Contractor.

.2 The structural steel erector shall be responsible for the design of all hooks, erection connections and handling gear.

.3 Whenever piles of materials, erection equipment, or other loads are carried during erection, proper provision shall be made to take care of stresses resulting from it.

.4 All structural steel shall be assembled and erected in accordance with the approved erection drawings and specified reference standards.

.5 Structural steel work shall be carefully located at the proper grade and rigidly secured in place, using steel shims. All spaces under the steel shall then be filled with non-shrink pre-mix grout.

.6 Plumb, level and align individual members of steel work as specified in the latest CSA S16-09.

.7 Structural steel frames shall be accurately assembled to the lines and elevations indicated within the specified tolerances.

.8 The various members forming parts of complete frame of structure after being assembled shall be aligned and adjusted accurately before being fastened.

.9 Bearing surfaces and surfaces that will be in permanent contact shall be cleaned before the members are assembled.

.10 Temporary bolts, clips and angles etc. used to facilitate the erection shall be removed unless noted otherwise on the drawing.

3.7 TEMPORARY FLOORING

.1 Provide all temporary flooring, planking and scaffolding necessary in connection with erection of structural steel, or support of erection machinery in accordance with governing regulations or by-laws.

3.8 COMPLETION

.1 The Registered Professional Engineer responsible for the shop drawings, or his representative shall visit to review in place connections and components designed by that Registered Professional Engineer as required to substantiate compliance with his sealed shop drawings. He shall then submit a letter of compliance provide a seal and signed letter to the Consultant and Engineer.

.2 On completion of the work of this section, all protection erected in conjunction with the structural steel work shall be removed, all damage to this work and adjoining work shall be made good and all surplus materials and debris and all tools and equipment shall be removed from the site.

3.9 WELDING

.1 All welding shall be done by the shielded metal-arc method in accordance with the requirements CSA W59. The welding operators shall have passed within the preceding six (6) months, the qualifications test as set forth in CSA W47.1.

.2 Submit welding procedures prepared and sealed by a Professional Engineer registered in Ontario, and familiar with this discipline to the Consultant for his examination and comments.

.3 Surface to be welded shall be free from loose scale, rust, paint, or other foreign matter. Where weld material is deposited in two or more layers, each layer shall be cleaned before the next layer is deposited. Care shall be taken to minimize stresses due to heat expansion, contraction and distortion by using proper sequence in welding and by approved methods.

.4 Welding consumables for all processes shall be fully approved by the Canadian Welding Bureau and certified by the manufactures as complying with the requirement of this specification. Such certificates shall be not more than two years old.

.5 Electrode strengths to be equal to E480XX (E70xx) or better.

.6 Embedment anchors, shear stubs and deformed bar anchors shall be automatically end welded with suitable stud welding in accordance to the manufacture's recommendations. Fillet welding of anchors will be rejected.

3.10 CLEANING

.1 Thoroughly clean welds between passes and upon completion of slag with a descaling tool and wire brush.

.2 Ensure exposed steel connections, alignment, welding, etc. is neat and thoroughly cleaned.

.3 After final erection, thoroughly clean and paint field joints with a coat of shop primer. Where the shop coat has been rubbed off during erection, apply a touch-up coat of primer.

3.11 FIELD QUALITY CONTROL

.1 Construction review by the testing agency or the Consultant does not relieve the Contractor of his responsibility to furnish materials and workmanship in accordance with the Drawings and Specifications.

END OF SECTION

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Title:	Avenue Road P.S. Renovations
Subject:	STRUCTURAL STEEL
Author:	Mark Buckley;Jesse French
Keywords:	CCDC 5B, Construction Management Contract
Comments:	26-7842-RFT
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1 General

1.1 SECTION INCLUDES

.1 Light gauge load-bearing metal stud framing system.

.2 Bracing, fasteners and related accessories.

1.2 REFERENCES

.1 ANSI/AWS D1.3: Structural Welding Code - Sheet Steel.

.2 ASTM A653/A653M-99: Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.3 ASTM A591: Steel Sheet, Cold Rolled, Electrolytic Zinc-Coated.

.4 ASTM A792/A792M-99: Standard Specifications for Steel Sheet, 55% Aluminum-Zinc Alloy Coated by the Hot-Dip Process.

.5 CSA S16-01: Limit States Design of Steel Structures.

.6 CSA S136-01: Cold Formed Steel Structural Members.

.7 CSA W47.1-03: Certification of Companies for Fusion Welding of Steel Structures.

.8 CSA W59-03: Welded Steel Construction (Metal Arc Welding).

.9 CAN/CGSB-1.181-99: Ready-Mixed Organic Zinc-Rich Coating.

.10 CSSBI Lightweight Steel Framing Manual.

.11 ASTM A307-04: Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.

.12 ASTM A325M-05: Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

1.3 DESIGN REQUIREMENTS

.1 Load-Bearing Steel Stud System: axial loadbearing steel studs, designed in accordance with the requirements of CSA S16 and CSA S136, conforming to specified fire rated assemblies, and designed to accommodate specified erection tolerances.

.2 Bridging: designed to prevent member rotation and member translation perpendicular to the minor axis. Allow for secondary stress effects due to torsion between lines of bridging. Collateral sheathing may be used to help restrain member rotation and translation perpendicular to the minor axis.

.3 Maximum Live Load Deflection: L/360.

.4 Maximum Stud Spacing: 400 o.c.

.5 Design wind bearing stud end connections to accommodate floor/roof deflections such that the studs are not loaded axially.

.6 Determine resistance for sheet metal screws by multiplying manufacturer's lower bound test values by the appropriate resistance factor specified in CSA S136.

.7 Allow for appropriate end eccentricities in the design of axial load bearing members.

.8 Include diagonally braced stud walls to act as shear walls. The location of the shear walls and the applied factored lateral loads are indicated on the drawings.

1.4 SUBMITTALS

.1 Submit shop drawings and design data to requirements of Section 01 33 00.

.2 Submit mill test reports to requirements of Section 01 45 00.

.3 Design Data: include engineer's calculations or data verifying the capacity of the members and the ability of the assemblies to meet the design requirements.

.4 Shop Drawings:
- .1 Indicate shop details and erection diagrams, member sizes, locations, thicknesses exclusive of coating, coatings and materials.
- .2 Include connection details for attaching framing to itself and for attachment to the structure.
- .3 Show splice details where permitted.
- .4 Indicate dimensions, openings, requirements of related work and critical installation procedures.
- .5 Show temporary bracing required for erection purposes.
- .6 Indicate design loads.
- .7 Stamped, dated and signed by a registered professional engineer licensed to practice in the Province of Ontario.

1.5 QUALITY ASSURANCE

.1 Welding: individual or organization certified by the Canadian Welding Bureau to requirements of CSA W47.1.

.2 Fabrication: company specializing in fabricating light gauge loadbearing steel stud assemblies to requirements of CSA S16.1 with a minimum of three years documented experience.

.3 Retain a Professional Engineer registered in the place of the Work to design the lightweight Steel Framing System; to prepare, seal and sign all shop drawings; and to perform field review. Shop drawings shall show both design and installation requirements.

.4 Installer: company specializing in installing lightweight steel framing systems, with minimum of ten years experience and a member in good standing of the Interior Systems Contractors Association of Ontario (ISCA).

1.6 DELIVERY, STORAGE AND HANDLING

.1 Store materials protected from damage and corrosion.

.2 Handle and lift into place prefabricated panels in a method preventing distortion to any member or collateral material.

2 Products

2.1 MATERIALS

.1 Sheet Steel: colour coded cold rolled steel sheet. Use greater design thicknesses if required by the design criteria. Conform to the minimum design thicknesses listed below.

- .1 64mm Width: 0.84 mm thick.
- .2 92mm Width: 0.84mm thick.
- .3 102mm Width: 0.84mm thick.
- .4 152mm Width: 0.84mm thick.

.2 Fasteners: sheet metal screws, low profile heads, of sufficient length to penetrate beyond joined materials at least 3 exposed threads.

.3 Welding Materials: to CSA W59.

.4 Galvanized Paint: zinc-rich coating; to CAN/CGSB-1.181.

2.2 COMPONENTS

.1 Loadbearing Steel Studs: sheet steel construction; widths as indicated on drawings, height to suit; C-shape c/w perforated knock-outs.

.2 Track: sheet steel construction; width to suit stud size; C-shape, 30 mm high flange.

.3 Deflection track: : sheet steel construction; slotted track, width to suit stud size; C-shape, 64 mm high flange.

2.3 FABRICATION

.1 Fabricate all members and assemblies in accordance with approved shop drawings.

.2 Perform welding to CSA W59.

.3 Provide cut-outs centred in the webs of members to accommodate services.

.4 Limit unreinforced cut-outs to dimensions described in CSSBI Lightweight Steel Framing Manual, Table 1.

.5 Fabricate members to tolerances described in CSSBI Lightweight Steel Framing Manual, Table 2.

.6 Touch up welds with galvanized paint.

.7 Colour code all members, properly indicating the uncoated steel thickness.

2.4 SHOP FINISHING

.1 Interior Non-Exposed Members: Galvanized with a minimum coating of Z180 Class C to ASTM A653.

3 Execution

3.1 EXAMINATION

.1 Verify that field conditions are acceptable and are ready to receive work.

.2 Commencement of installation implies acceptance of existing conditions.

3.2 PREPARATION

.1 Make all field measurements necessary to insure proper fit of members.

3.3 ERECTION

.1 Erect lightweight steel framing true and plumb within specified tolerances.

.2 Employ temporary bracing to withstand all loads to which the structure may be subjected during erection and subsequent construction.

.3 Erect lightweight framing in accordance with CSA S136.

.4 Seat studs into top and bottom tracks.

.5 Provide Deflection track to top in all locations.

.6 Cut members by saw or shear. Do NOT torch cut members.

.7 Limit unreinforced field cut-outs to dimensions described in CSSBI Lightweight Steel Framing Manual, Table 1.

.8 Vertically align axially loaded members to allow full transfer of loads down to the foundation. Maintain vertical alignment at floor/wall intersections.

.9 Maintain complete bearing under tracks to accommodate load transfer in axially loaded assemblies. Notify Consultant of discrepancies.

.10 Do NOT splice axial load bearing members.

3.4 SITE TOLERANCES

.1 Axial Load Bearing Studs: out of plumbness and out of straightness (camber and sweep) not to exceed 1/1000 of member length.

.2 Wind Bearing Studs: out of plumbness not to exceed 1/500 of member length. Out of straightness (camber and sweep) not to exceed 1/1000 of member length.

.3 Track: camber not to exceed 1/1000 of member length.

.4 Stud Spacing: ± 3 mm from design spacing.

3.5 FIELD QUALITY CONTROL

.1 Field inspection and testing will be performed to requirements of Section 01 45 00.

.2 Arrange for design engineer responsible for production of shop drawings to review work periodically during construction, and submit reports to Consultant.

END OF SECTION

PART 1 GENERAL

1.1 Section Includes

.1 Provide all labour, materials and equipment necessary to complete the installation of all rough carpentry as indicated on the drawings and herein specified. No attempt is made to completely itemize the work of this Section. This can only be ascertained by a careful examination of the drawings and reference to other relevant sections of this specification, but generally the scope is as follows:

.1 Blocking, framing and grounds, for all other trades including mechanical.

.2 Framing, nailers, etc., as shown on the structural and architectural drawings.

.3 Nailing grounds for drywall at floor and ceiling, and around openings.

.4 Sub floor sheathing and overlay.

.5 Backboard and blocking for electrical and mechanical equipment.

.6 Wood joints where shown on contract documents.

1.2 Reference

.1 AWPA M2-81, Inspection of Treated Timber Products.

.2 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.3 CSA-B111-1974, Wire Nails, Spikes and Staples.

.4 CAN/CSA-G154-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.

.5 CAN/CSA-080, Series-M89 Wood Preservation.

.6 CSA-0121-M1978, Douglas Fir Plywood.

.7 CAN/CSA-0141-91, Softwood Lumber.

.8 CSA-0151-M1978, Canadian Softwood Plywood.

.9 NLGA, Standard Grading Rules for Canadian Lumber 1991.

1.3 Quality Assurance

.1 Lumber grading agency: N.L.G.A.

.2 Wood treatment: CSA 080M.

.3 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.4 Plywood identification: by grade mark in accordance with applicable CSA standards.

1.4 Storage, Delivery and Handling

.1 Store clear of ground or other bearing surfaces on blocking to prevent damage from moisture absorption.

.2 Store onsite for minimum amount of time prior to incorporating into building.

.3 Tarp or cover exposed materials for protection from elements.

1.5 Wood Preservation

.1 All exterior blocking, curbs, nailers and interior framing, blocking and other rough carpentry attached to masonry or concrete, shall be pressure treated Wolmanized lumber.

1.6 Rough Hardware

.1 Provide and install requisite rough hardware to frame and fix rough and finished carpentry and include for all proper nails, spikes, screws, bolts, anchors and other ironmongery which may be required.

1.7 Cutting for Other Trades

.1 Execute cutting and framing of woodwork required for installation of work of other trades including heating, plumbing and ventilation, and repair and make good such work after their work is in place.

PART 2 PRODUCTS

2.1 Materials Generally

.1 Materials shall conform to the requirements of the Ontario Building Code, latest edition.

.2 Materials shall be best merchantable lumber, straight and sized and shaped to correct dimensions from nominal sizes noted on the drawings. Lumber shall be selected from well-seasoned stock free from loose resinous knots, shakes, waxed edges, splits, dry rot or other defects which would impair the strength or durability.

.3 Moisture content of lumber for rough carpentry at the time of erection shall not exceed 17%.

2.2 Lumber Materials

.1 Lumber shall be in accordance with the following standards: CAN/CSA-0141 and Standard Grading Rules for Canadian Lumber.

.2 All framing materials to be #2 Spruce; grading standard to the N.L.G.A., well-seasoned and free from shakes, splits, rot mildew or other defects that would impair strength or durability.

.3 Where specified, beams and girders shall be laminated Jack Pine, well-seasoned and free from shakes, splits, rot mildew or other defects that would impair strength of durability.

.4 Framing members requiring wood treatment shall be pressure treated, using the CCA type.

2.3 Furring, Rough Blocking, Framing, Nailing Strips, Rough Bucks, Curbs and Sleepers

.1 Shall be Eastern Spruce or Jack Pine, construction grade. All lumber attached to masonry or concrete and on all exterior walls, parapets, and roof curbs shall be Wolmanized.

2.4 Plywood

.1 For Plywood where one side is exposed, use G1S grade and G2S where 2 sides are exposed to the exterior. Use Interior grades where specified or required by job conditions. Only veneer cores are acceptable. All plywood to be in accordance with CSA 0151, Standard Construction.

.2 Where T & G Plywood is specified, it shall be douglas fir with solid fir veneer core.

.3 Where waterproof plywood is specified, it shall be pressure treated Spruce plywood sheathing with solid spruce veneer core.

2.5 Accessories

.1 Fasteners: galvanized steel for exterior, high humidity and treated wood locations plain finish elsewhere.

.2 Anchors: toggle bolt type for anchorage to hollow masonry and gypsum walls. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolts or ballistic fasteners for anchorages to steel and in the joining of laminated beams.

2.6 Wood Preservatives

.1 All wood blocking, nailers, grounds and furring for roof curbs roof dividers, roof expansion joints and parapets shall be treated with "Pentox" manufactured by Osmose Pressure Treated Wood Products Limited, green colour, or equal. Wood blocking and furring on the outside face of exterior walls and wood sleepers supporting subfloors over concrete slabs in contact with grade shall be treated with wood preservative.

.2 Wood treated with preservative by pressure impregnation. Submit information on moisture content after drying, following treatment with water borne preservative.

.3 Submit information listed in AWPA.M2 and revisions specified in CAN/CSA-080 series, Supplementary Requirements to AWPA Standard M2 applicable to specified treatment.

.4 Preservative: to CAN/CSA-080 Series, odourless water borne for clear finish.

.5 Treat cut ends of wood members with field applied preservatives. Comply with AWPA.M2 and revisions specified in CAN/CSA-080 series Supplementary Requirements to AWPA Standard M2.

PART 3 EXECUTION

3.1 Control Joints

.1 Provide and set up in door openings, temporary enclosing partitions to keep out weather when and as required, with fastenings inside only. All doors but one shall be kept shut and it shall be fitted with lock and key. Window openings shall be closed as required.

3.2 Runways, Hoarding Walls, Ladders, Platforms, Walks, interior furnishings/finishing protection for Demolition

.1 Furnish set and maintain temporary stairs, walks, runways, platforms, ramps and ladders throughout project and for use of trades.

.2 Comply with safety regulations and applicable bylaws governing erection of above items. Provide and maintain necessary barriers, guards and rails.

.3 Create hoarding walls and all temporary interior protection using 16mm plywood and 38x140 / 38x89 wood framing members spacing at max. 600mm o.c.

3.3 Wood Rough Blocking

.1 Where indicated and called for on drawings, provide and install continuous wood rough blocking or framing throughout job of sizes noted or required.

.2 Use 38mm thick material unless shown or noted otherwise.

3.4 Site Applied Wood Treatments

.1 Brush apply two coats of preservative treatment on wood in contact with cementitious materials, roofing, and all site sawn ends of P.T. lumber.

.2 Apply preservative treatment in accordance with CSA .080M, and manufacturer's instructions.

3.5 Grounds

.1 Provide and fix grounds throughout building wherever required for this and other trades.

3.6 Nailing Strips

.1 Provide and securely fix nailing strips, blocks and whatever rough carpentry and fixing is required for cupboards and other fitments to be secured to walls. Set accurately and so that they will be completely concealed.

3.7 Strapping and Furring

.1 Strapping shall be 2" (50mm) x 2" (50mm) or 1"(25mm) x 2" (50mm) nominal, securely fixed to walls at locations where plaster or gypsum board on exterior walls are called for on finish schedules. Run horizontal straps bottom and top of each wall. Strapping shall be accurately spaced, true and plumb.

.2 Furr out for plumbing and heating pipes in finished rooms, above cupboards, fitments, where ceilings change level and at locations noted or indicated on drawings, except where metal furring is called for.

.3 Where the spaces between strapping and furring are filled in with insulation or shown on the drawings to be left unfilled, the spaces between the furring strips shall be fire stopped at the floor and ceiling levels and at mid-height and at intervals not exceeding 8 feet (2400mm) horizontally and vertically.

3.8 Installation – Electric and Telephone Backboards

.1 Supply and install 3/4" (19mm) thick backboards of fir plywood, fire pressure treated, solid good 1 side, sanded both sides, in electrical and telephone rooms to sizes indicated on drawings.

.2 Fasten to wall using fasteners and spacing suitable to wall type to provide secure, sturdy installation which will carry equipment load without damaging wall.

3.9 Clean-up

.1 Remove all waste and cuttings from the jobsite as work proceeds.

END OF SECTION

PART 1 GENERAL

1.1 Section Includes

.1 Shop fabricated fitments: casework and millwork. Provide all millwork and casework as shown on the drawings.

.2 Standing and running trim.

.3 Cabinetry and hardware.

.4 Factory and site finishing of architectural woodwork and casework.

.5 Counters.

.6 Provide cutouts in the countertops for the sinks, electrical outlets and all other necessary cutouts regarding millwork.

.7 Provision of rough hardware, including fastening devices required securing in place items of carpentry and millwork.

1.3 Quality Assurance and Reference Standard

.1 ANSI-A208.1-1993, Particleboard.

.2 NAAWS / AWMAC-Quality Standards for Architectural Woodwork, V4.0, 2021.

.3 CAN/CGSB-11.3-M87, Hardboard.

.4 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.

.5 CAN3-A172-M79, High Pressure Paper Base, Decorative Laminates.

.6 CSA-B111-1974, Wire Nails, Spikes and Staples.

.7 CAN/CSA 041-91, Softwood Lumber.

.8 CAN3-0188.1-M79, Interior Mat-Formed Wood Particleboard.

.9 National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber 1991.

.10 National Hardwood Lumber Association (NHLA) Rules for the Measurement and Inspection of Hardwood and Cypress January 1986.

.11 CSA 0112.5-M1977 Urea Resin Adhesive for WOOP.

.12 ANSI/BHMA-A156.9; Cabinet Hardware.

.13 Employ fully trained mechanics that are regularly employed in this field.

.14 Fabricate millwork by a manufacturer that is a recognized millwork supplier, well experienced in the manufacturing techniques of a millwork shop.

1.4 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

.2 Shop drawings:

.1 Shop drawings in accordance with Section 01 33 00

.2 Submit digital copies of drawings only.

.3 Indicate details of construction, profiles, jointing, fastening and other related details.

.4 Indicate all materials, thicknesses, finishes and hardware.

.5 Indicate locations of all service outlets in casework, typical and special installation conditions, and all connections, attachments, anchorage and location of exposed fastenings.

.6 The drawings are not to be photocopied, shop drawings to be in metric, paper size 11”x17”.

.7 Cabinets on a 22.5º angle to have a 25mm filler on each side of the intersection.

.8 Wall fillers to be 25mm, 90º corner fillers to be 60mm each way. Fillers to be mounted flush with gable face, unless otherwise drawn.

.10 Cabinet width and heights standards, for shop drawings.

.11 Base cabinets to be 915mm high, floor to top of counter top, unless otherwise noted on Drawings.

.12 Finished dimensions for all appliances to be confirmed prior to commencing work.

.13 Provide filters at appliances if required.

.14 Do not commence work until reviewed shop drawings have been returned and samples approved.

.15 Take critical measurements at the site to facilitate installation, fitting of work and access required in moving millwork into final location. Take such measurements prior to fabrication of the Work of this Section and in ample time to avoid delays in the Work.

.3 Samples

.1 Samples in accordance with Section 01 33 00

.2 Submit samples: sample size 300 x 300mm of typical finished door panel.

.3 Submit 300mm x 300mm colour samples of each type of laminated plastic selected and wood veneer.

.4 Submit one section of finished millwork for review by the consultant to determine the construction quality prior to manufacturing.

1.5 Qualifications & Quality Assurance

.1 Fabricator and Installer: A firm specializing in fabricating and installing custom casework, having a minimum 3 years documented experience and a member of AWMAC.

.2 Architectural woodwork shall be manufactured and installed to Custom Grade AWMAC Quality Standards.

1.6 Delivery, Storage, and Handling

.1 Protect casework and millwork against dampness and damage during and after delivery.

.2 Store casework and millwork in ventilated areas, protected from extreme changes of temperature or humidity.

.3 Do not delivery casework and millwork units to site until storage areas are complete and conditions permit, to ensure no damage will occur while in storage.

1.7 Warranty

.1 All millwork shall be warranted from defects in workmanship for a period of two (2) years from Takeover. Warranty will cover replacement, re-working, and refinishing of deficient product, resulting from faulty workmanship or defective materials.

PART 2 PRODUCTS

2.1 High Pressure Decorative Laminate (HPDL / P.LAM) Cabinetry and Countertops

.1 Where P.Lam is requested on the drawings, all cabinet frames whether for base, wall or tall floor standing cases, shall be fabricated so each is a self-contained module. Front side top and bottom, exterior and interior surfaces shall be finished allowing future relocation of any module, into any bench arrangement, without need of any additional finishing. Finish all semi exposed and unexposed edges.

.2 Countertops Conforming to CAN3-A172, General Purpose - standard grade (GP-S), 1.25 mm thick for tops, Post Forming - standard grade (PF-S) 1.25 mm thick for post forming. Post form counters to be complete with integral backsplash, front nose to be “Stone edge”.

.3 High Pressure Laminate for Flatwork: .050" (1.27 mm) thick decorative, melamine surfaced, high pressure laminated plastic sheeting in suede finish to conform to CAN3-A172-M1979 Grade G.P., Type 1. Manufacturer shall thoroughly sand back of sheet to form a homogeneous bonding surface. Backing sheet .020" (.5 mm) thick, sanded one side. Products may be selected based upon manufacturer's full standard range of colours and patterns. The finish will be suede; the colour will be non-stock.

.4 Submit product data.

.5 Laminates shall be bonded to 19mm thick plywood using adhesive as recommended by the manufacturer. At counters where sinks are installed, plywood to be waterproofed at exposed edge of sink opening.

.6 Drawer fronts shall be fabricated utilizing the same material and edge finish as doors. All four edges shall P.V.C. edging. Fronts will be secured to drawer bodies with five screw nails through the front of the drawer body into the core of the drawer front.

.7 Doors shall be fabricated from 19 mm thick HPDL surfaced panels. All four edges shall be P.V.C. edging.

.8 Sink units to be finished in HPDL inside and out.

.9 Gables and panels shall be fabricated from 19 mm thick P.LAM surfaced panels with a P.V.C. edging applied to exposed edges

.8 High Pressure Plastic Laminate - Cabinetry
- .1 Product: 86882
- .2 Colour: Hard rock Maple
- .3 Finish: Matte
- .4 Manufacturer: Formica

8 High Pressure Plastic Laminate - Cabinetry
- .1 Product: 9244
- .2 Colour: Classic White
- .3 Finish: Matte
- .4 Manufacturer: Formica

.9 High Pressure Plastic Laminate - Countertops
- .1 Product: 507
- .2 Colour: Folkstone Grafix
- .3 Finish: Matte
- .4 Manufacturer: Formica

2.2 Low Pressure Laminate Melamine

.1 All cabinet frames whether for base, wall or tall floor standing cases, shall be fabricated so each is a self-contained module. Front side top and bottom, exterior and interior surfaces shall be finished allowing future relocation of any module, into any bench arrangement, without need of any additional finishing.

.2 Melamine Composite Panel: NEMA LD 3, Grade VGL decorative laminate thermo-fused to both sides of particle board; Premium quality; Colour to be Hardrock Maple by Pionite, or White finish to interior of Cabinets.

2.3 Fabrication

.3 Bottoms shall be fabricated utilizing the same materials and edge finish as gables. Front edge will be edged with P.V.C. edging. All other edges will be thoroughly sealed and moisture proofed prior to attachment to gables.

.4 Rails shall be fabricated and machined to join the gables and form a rigid cabinet frame.

.5 Tops (applies to wall and tall units only) shall be fabricated utilizing the same material and edge finish as gables. Front edge will be edged with P.V.C. edging.

.6 Toe kick rail shall have a 100 mm x 19 mm section, machined to receive four screw nails for attachment to bottom front edge of gables. Cabinet base shall be water resistant plywood attached to cabinet separately, insuring the gables do not come in contact with the floor.

.7 Backs in wall and tall cabinets shall be fabricated from 13 mm thick melamine surfaced panels securely glued and screw nailed into the check out provided in the backs of gables, tops, and bottoms.

.8 Shelves shall be fabricated from melamine or Plam, as indicated on drawings clad 19 mm particle board with PVC edge. All shelves shall be adjustable at 13 mm increments and each will be supported by a shelf support resting in four pilaster strips attached to the gables.

.9 Drawer fronts shall be fabricated utilizing the same material and edge finish as doors. All four edges shall P.V.C. edging. Fronts will be secured to drawer bodies with five screw nails through the front of the drawer body into the core of the drawer front.

2.4 Accessories and Hardware

.1 Solid Plastic Edge Banding, 3 mm thickness PVC edgebanding with eased edge, colour and pattern to match cabinet panel faces, unless noted otherwise.

2.5 Hardware

.1 All cabinet hardware shall meet or exceed the requirements of ANSI/BHMA-A156.9, Grade 1.

.2 Manufacturers/Suppliers:

.1 CBH - Canadian Builders Hardware Mfg Inc.

.2 Richelieu Hardware.

.3 Salice Canada Inc.

.4 Sargent of Canada Ltd (Div. of ASSA ABLOY Canada)

.5 KV - Knape & Vogt Canada

.6 Hafele Canada Inc.

.7 Blum Canada Limited.

.8 Hettich Canada LP.

.9 Grass Canada Inc.

.10 Ives - HB IVES / Ingersoll-Rand Company IVES.

.3 Hardware Products

.1 Cupboard Door Hinges: 100 degree, 110 degree, 125 degree and 170 degree opening, as situations require; complete with self-closing spring; Blum, Hettich or Hafele.

.2 Coat Hooks: #1150-SS, Frost Products.

.3 Closet Rods and Accessories:

.1 Closet Rod: 32 mm Dia. CBH - No. 762 Finish: C19

.2 Rod Flanges: CBH - No. C19

.3 Rod Supports: CBH - No. 731- 152 mm high, Finish: C19

.4 Door and Drawer Pulls: Richelieu D-Pull, 110 mm overall length with 100mm centre to centre fastening and 35mm projection; eg. Urban Model 221170, by Richelieu, stainless steel.

.5 Drawer Box & Slides: full extension for 60 KG load at 500 mm, by roller runners for bottom mounting, steel construction with baked enamel finish, ball bearing rollers, and complete with soft-closing mechanism.

.6 Locks: To ANSI/BHMA A156.11, Operational Glass Grade 1, bored cam type cylinder lock, chrome finish; keyed to owners master system.

.7 Slide Bolt for Inactive Leaf: 60 mm long barrel bolt, nickel plated; Hafele Model 252.70.722.

.8 Elbow Catch: Heavy duty type, nickel finish; eg. Model 5540180 by Richelieu.

.9 Door Bumper: Richelieu Model MP303-11.

.10 Shelf Support for Drilled Gable : 5MM OD metal pin, plastic clad, eg. Model 34004011 by Richelieu.

.11 Magnetic Catch: 52 x 25 mm size, 3 kg pull strength; Model 918 ALUM by Knape & Vogt.

PART 3 EXECUTION

3.1 Reduce dust contamination by:

.1 Fully ensuring adjacent HVAC ducts are sealed prior to cutting

.2 Collecting and bagging dust from tools.

.3 Isolating cutting areas from adjacent workspaces.

.4 Sweeping and/or vacuuming daily.

3.2 Preparation and Protection

.1 Protect work of other trades from damage.

.2 Make good any resulting damage, to the satisfaction of the Consultant, at no additional cost to the owner.

3.3 Fabrication General

.1 Fabricate Products to AWMAC NAAWS V4.0, Custom Grade.

.2 Construction – P.Lam on all surfaces unless noted otherwise.

.3 Machine all surfaces of finished woodwork to an even smooth surface; fit all joints and miters accurately.

.4 Shop assemblies work for delivery to site in size easily handled and to ensure passage through building openings. Design units to fit together if site assembly is required.

.5 Frame materials with tight joints held in place.

.6 Conceal joints and connections where possible. Joints made on site shall be equal in equality of work to joints made in the shop.

.7 Finish all exposed edges with 3mm thick PVC edge banding material, applied by an Edge-Bander using Hot Melt adhesive unless noted otherwise. Colour to match the P.lam

.8 Radius all exposed edges and corners.

.9 Include all filler strips to match the face colour.

.10 Apply plastic laminate to Architectural woodwork Manufacturers Association of Canada (AWMAC) standards.

3.4 Fabrication Cabinets

.1 Provide architectural woodwork visible from any one space or room fabricated from a single flitch obtained from the same tree, matched in cut, grain, colour, finish, and other aesthetic effects.

.2 Fabricate woodwork to dimensions, profiles and details indicated with openings and mortises pre-cut, where possible, to receive hardware and other items of work.

.3 Complete fabrication, assembly, finishing, hardware application, and other work before shipment to maximum extent possible. Trial fit in shop and assemble components onl as necessary for shipment and installation where necessary, provide ample allowance for scribing, trimming, and fitting. Reassemble with concealed fasteners.

.4 Provide woodwork, solid tops and other indicated materials with pre-cut opening, where possible for hardware, appliances, plumbing fixtures, electrical work, telephone cut-outs and similar items. Locate openings accurately and Provide proper size and shape. Smooth edges of cut-outs and where located in countertops, seal edges of cut-outs with a water-resistant coating.

.5 Provide lumber framing for architectural woodwork, complete with all bracing and fastening devices as required for a rigid installation, and as required to sustain the imposed loads.

.6 Reinforcing shown as minimum. Provide additional reinforcing as required to ensure a rigid assembly. Take responsibility for the stability of furniture and fitments.

.7 Do fabrications from field measurements with provisions for scribing and required to meet built-in conditions.

.8 Maintain relative humidity and temperature during fabrication, storage and finishing operations matching that of the areas of installation.

.9 Exposed surfaces shall be free from dents, tool marks, warpage, buckle, glue and open joints, or other defects. Accurately fit all joints, corners and mitres.

.10 Provide balancing sheets as required, and specified, complying with the NAAWS Architectural Woodwork Standards, V4.0.

.11 Provide surface mount blocking& strapping necessary to support the work of this section. Such blocking shall not be exposed upon completion of work.

.12 Prefinish work at the factory, except where specified or indicated otherwise.

.13 Solid wood edging: No end grain shall be visible; mitre external corners; house internal corners.

3.5 Fabrication Solid Surfacing

.1 Fabrication to be performed by a solid surface manufacturer's certified fabricator/installer.

.2 Fabricate components in shop to greatest extent practical to size and shape indicated, in accordance with reviewed shop drawings and manufacturer's written requirements.

.3 Form joints between components using manufacturer's standard joint adhesive, Joints shall be inconspicuous in appearance and without voids. Attach 100 mm (4") wide solid surfacing material reinforcing strip under joints.

.4 Provide holes and cut-outs as indicated or as required.

.5 Rout and finish component edges to a smooth, uniform finish. Rout cut-outs then sand edges smooth. Repair or reject defective or inaccurate work.

.6 Surfaces shall have a uniform finish.

3.6 Finishing

.1 General: The entire finish of interior architectural woodwork is specified in this section, regardless of whether factory applied or applied after installation.

.2 Preparations for finishing:

.1 Prior to finishing, exposed portions of woodwork shall have handling marks or effect of exposed or moisture removed with a thorough final sanding over surfaces of the exposed portions, using appropriate grit sandpaper, and shall be cleaned prior to applying sealer of finish.

.2 concealed surfaces of woodwork that might be exposed to moisture, such as those adjacent to exterior concrete or masonry walls, shall be back – primed.

.3 Comply with referenced quality standard in Part 1 for sanding, filing countersunk fasteners, sealing concealed surfaces and similar preparations for finishing of architectural woodwork, as applicable to each unit of work.

.3 Transparent finish for veneer and solid wood:

.1 Comply with requirements indicated below for finish system, staining, and sheen.

.2 Sheen: Low.

.4 Factory finish with transparent, pigmented, catalysed lacquer in accordance with the Architectural Woodwork Standards, Edition 1, 2009, Section 5.

.1 Pigment colour: to later selection by the Consultant.

3.7 Installation

.1 Commencement of work implies total acceptance of surface and site conditions.

.2 Set and secure all materials and components in place, rigid plumb and square.

.3 Provide all furring stirps and strapping required fixing millwork and casework to walls, etc.

.4 Provide all filler strips to seal any openings or joints at adjacent surfaces.

.5 All cabinets installed to block walls to be fastened with Tapcons and cup washers.

.6 All cabinets installed to wood studding to be fastened with #10 screws and cup washers.

3.8 Installation Tolerances

.1 Install to a tolerance of 3 mm in 2400 mm for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.

3.9 Adjustment and Cleaning

.1 Repair damaged and defective woodwork where possible to eliminate defects functionally and visually; where not possible to repair, replace work.

.2 Clean, lubricate, and adjust hardware.

.3 Clean woodwork on exposed and semi-exposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.10 Protection

.1 Protect architectural woodwork during remainder of construction period to ensure that work will be without damage or deterioration at time of acceptance.

.2 Provide final protection and maintain conditions, in a manner acceptable to manufacturer and

installer, that ensure that woodwork is without damage or deterioration at time of Substantial Performance of the Work.

END OF SECTION

1 GENERAL

1.1 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to provide batt and blanket insulation.

1.2 REFERENCES

.1 CSA-B111; Wire Nails, Spikes and Staples.
.2 CAN/ULC-S102; Surface Burning Characteristics of Building Materials and Assemblies.
.3 CAN/ULC-S114; Determination of Non-Combustibility in Building Materials.
.4 CAN/ULC-S702; Standard for Mineral Fibre Thermal Insulation for Buildings.

2 PRODUCTS

2.1 INSULATION

.1 Sound Attenuation Insulation: mineral fibre processed from rock, slag, or glass, to CAN/ULC-S702, Type 1, thickness as shown on the drawings;

.1 Acoustical Performance:

.1 Airborne sound transmission loss: To ASTM E90.
.2 Rating sound insulation: To ASTM E413.
.3 Sound absorption co-efficients: To ASTM E423.
.4 NRC: 0.95 at 50mm thickness.

.2 Acceptable Products

.1 Sound Attenuation Batt Insulation, by Owens Corning Canada Inc.
.2 Roxul AFB, by Rockwool Group LLC.
.3 Noise Reducer Sound Attenuation Batt, by CertainTeed Canada .

2.2 ACCESSORIES

.1 Insulation clips: impale type, perforated 50 x 50mm cold-rolled carbon steel 0.8mm thick, self-adhesive back, spindle of 2.5mm diameter annealed steel, length to suit insulation, 25mm diameter self-locking washers.

.2 Tape: CCMC approved, Tuck 20502 Contractor's Sheathing Tape, by Canadian Technical Tape Ltd., Montreal PQ.

3 EXECUTION

3.1 INSULATION INSTALLATION

.1 Install insulation to maintain continuity of thermal protection to building elements and spaces.

.2 Where no means of securing is present, retain insulation in position with insulation clips, installed as recommended by manufacturer. Insulation clips shall be spaced 400mm vertically.

.3 Fit insulation closely around electrical boxes, pipes, ducts, frames, and other objects in or passing through insulation. Do not compress insulation to fit into spaces.

.4 Keep insulation minimum 75mm away from heat emitting devices such as recessed light fixtures.

.5 Do not enclose or build over insulation until it has been inspected and approved by Construction Manager.

.6 Install Sound Attenuation insulation in non fire-rated wall assemblies, as shown on the drawings.

.7 Install Ceiling Sound Attenuation insulation in non fire-rated ceiling assemblies, as shown on the drawings. Lay batts loosely over ceiling assembly, butted together.

END OF SECTION

PART 1 GENERAL

1.1 Section Includes

.1 Firestopping and smoke sealing shall be installed at all penetrations of fire rated separations between room spaces. This includes floors, walls and ceilings. Shall also be installed where fire ratings are noted on the fire separation drawing.

.2 Firestopping and smoke seals within mechanical and electrical assemblies (i.e. inside ducts, dampers and bus ducts) shall be provided as part of the work of Division 21 through Division 28 respectively. However firestopping and smoke seals around the outside of such mechanical and electrical assemblies, shall form part of the work of this section.

.3 All divisions whose work requires it to be firestopped and/or smoke sealed, such as Division 21 through Division 28, must use the same source products. The General Contractor shall ensure that these Divisions comply with this requirement.

.4 All firestopping materials to be the same colour for ease of instruction.

1.2 References

.1 CAN4-S115M - Standard Method of Fire Tests of Firestop Systems.

.2 ASTM E814 - Standard Method of Fire Tests of Through-Penetration Firestops.

1.3 Quality Assurance

.1 Work of this section shall be performed by a Subcontractor approved by the firestopping manufacturer and who has equipment and skilled tradesmen to perform the work expeditiously; and has completed work similar to that specified during the immediate past five years.

1.4 Regulatory Requirements

.1 Provide certificate of compliance from the manufacturer of the smoke seal and firestopping products.

1.5 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

1.6 Delivery, Storage and Handling

.1 Deliver and store materials in a dry, protected area, off ground in original, undamaged, sealed containers with manufacturer's labels and seals intact, and in accordance with manufacturer's instructions.

1.7 Project/Site Conditions

.1 Application temperature for multi-component foams and water-based products is critical. Consult manufacturer' data.

.2 Do not apply materials when temperature of substrate material and ambient air is below five degrees C.

.3 Maintain this minimum temperature before, during, and for three days after installation of materials.

1.8 Sequencing and Scheduling

.1 Sequence work to permit installation of firestopping and smoke seal materials after adjacent work is complete and before closure of spaces.

.2 Coordinate inspection visits by manufacturer's representative on completion of work but prior to closure of spaces.

1.9 Extended Warranty

.1 Submit a warranty of the firestopping installation specified in this Section covering a period of an additional five years beyond the expiration of the warranty period specified in the General Conditions of the Contract, including materials and application. Replacement of firestopping shall include removal of defective materials, preparation for and application of new material, and the repair and making good of damaged adjacent materials.

.2 Defective firestopping installation shall include, but not be restricted to, joint leakage, hardening, cracking, crumbling, melting, bubbling, shrinkage, running, sagging, loss of adhesion, loss of cohesion, and staining of adjoining or adjacent finished materials or surfaces.

PART 2 PRODUCTS

2.1. Materials

2.2 All materials for firestopping and smoke seals shall be supplied either by AD Fire Protection Systems Inc. or 3M Canada and whichever supplier is selected, all materials for all of the work shall be supplied by them and used by all trades. AD Products are referred to in the following systems, however 3M equivalents are equally acceptable.

2.3 System 1 - Firestopping at penetrations, flexible seal - A/D Firebarrier Seal, or A/D Silicon Firebarrier Sealant over A/D Firebarrier Mineral Wool Firestopping Insulation; for filling voids around multiple penetrations.

2.4 System 2 - Firestopping at penetrations, rigid seal - A/D Firebarrier Mortar; for filling gaps around non-moving penetrations.

PART 3 EXECUTION

3.1 Examination

.1 Examine surfaces to receive work of this section and report any defects which may affect the work of this section.

.2 Verify that openings are ready to receive the work of this section.

.3 Confirm compatibility of surfaces to receive firestopping and smoke seal materials.

.4 Beginning of installation means acceptance of substrate.

3.2 Preparation

.1 Prepare sample joints for approval by the manufacturer's representative for each type of firestopping condition. Approved installations shall become part of the finished work.

.2 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.

.3 Prepare surfaces in contact with firestopping materials and smoke seals to manufacturer's instructions.

.4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

.5 Install damming materials as required.

.6 Install clips and retainers for mineral wool insulation where required.

3.3 Application

.1 Install firestopping and smoke seal material and components in accordance with ULC listing 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.

.3 Apply to uniform density and texture in sufficient thickness to achieve rating.

.4 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing. Damming materials not to be removed.

.5 Tool or trowel exposed surfaces to a neat finish where required.

.6 Remove excess material promptly as work progresses and upon completion.

.7 Protect installed material until cured or set.

3.4 Examination and Certification

.1 On completion of the work but prior to closing in and concealing with ceilings etc., call for inspection by the manufacturer's representative who is required to approve and certify this work. Certification to be provided to Architect.

3.5. Schedule

.1 Service penetrations around mechanical ductwork and noncombustible piping, rigid electrical conduit and other assemblies penetrating fire separations and load bearing ground floor partitions.
  .1 Elastomeric seal and backup/forming material.
  .2 Firestop system rating: F.

.2 Service penetrations around combustible piping penetrating fire separations and load bearing ground floor partitions.
  .1 Intumescent mastic elastomer.
  .2 Firestop system rating: F.

.3 Service penetrations around multiple flexible cables penetrating fire separations and load bearing ground floor partitions.

  .1 Elastomeric seal and backup/forming material.
  .2 Firestop system rating: FT.

3.6 Cleanup

.1 Remove excess materials and debris from site, and clean adjacent surfaces immediately after application.

END OF SECTION

PART 1 GENERAL

1.1 Scope

.1 Provide and supply all caulking and sealants as required by the drawings and specified herein, and all materials, incidentals and equipment required to complete this work.

.2 Unless specifically called for by another section, caulk or seal all junctions as shown on the drawings and all openings which normally require caulking, including but not being limited to the following: Joints between wood and masonry, all joints between metal and masonry, joints between masonry and drywall, metal and drywall, control joints and expansion joints and generally all joints between dissimilar materials.

1.2 Submittals

.1 Submit Shop Drawings and samples for the Work of this Section in accordance with Section 01 33 00.

1.3 Warranty

.1 All work performed and materials supplied under this Section to be warranted from defects for a period of two (2) years from Substantial Completion.

PART 2 PRODUCTS

2.1 Manufacturers
.1 Dow Chemical Company.
.2 General Electric.
.3 Master Builders Solutions Canada, Inc.
.4 Tremco.
.5 Mapei.

2.2 Materials

.1 Weatherseal Sealant: To ASTM C920, Type S, Grade NS, Class 35, Use NT, M, A and O; one-part, moisture curing, low modulus polyurethane sealant; accommodating joint movement of plus or minus 35 percent, with a 30- to 90- minute skin time; eg. Dymonic FC by Tremco, colours as selected by Consultant.

.2 Weatherseal Sealant – High Movement: To ASTM C920, Type S, Grade NS, Class 50, Use NT, T, M, A and O; one-part, medium modulus, low VOC, UV stable, non-sag polyurethane sealant; accommodating joint movement of plus 100 percent and minus 50 percent, with a 120 minute skin time; eg. Dymonic 100 by Tremco, colours as selected by Consultant.

.3 Glazing Sealant: To CAN?CGSB-19.13-M, Type MG-2-25-A-L; one-part, moisture curing, acetoxy silicone sealant; eg. Proglaze by Tremco, Clear colour.

.4 Interior Sealant – General Purpose / Acoustical: To CAN/CGSB-19.17-M; one-part, siliconized acrylic latex, mildew-resistant, accommodating joint movement of plus or minus 12-1/2 percent; eg. Tremflex 834 by Tremco, colours as selected by Consultant.

.5 Interior Sealant – Mildew-Resistant: To ASTM C920, Type S, Grade NS, Glass 25, Use NT, G, A, and O; one-part, acetoxy silicone sealant; complete with integral fungicide; eg. Tremsil 200 by Tremco, colours as selected by Architect.

.6 Interior Sealant – Floor Tiling: Premium grade, sanded siliconized acrylic; Keracaulk S by Mapei, colours to match adjacent tile grout colours.

.7 Interior Sealant – Wall Tiling: Premium grade, unsanded siliconized acrylic; Keracaulk U by Mapei, colours to match adjacent tile grout colours.

.8 Backer Rod: Open cell polyethylene foam core wrapped in a closed cell polyethylene skin.

.9 Bond Breaker: Pressure-sensitive tape recommended by sealant manufacturer to suit application.

.10 Materials shall be delivered to job site in sealed containers with manufacturer's original labels attached and accompanied by certification of compliance with specification.

.11 Materials shall be stored and used in strict accordance with manufacturer's printed instructions.

.12 Colour of sealant or caulking shall be as selected by the Architects. Sealant colour for masonry control joints shall closely match colour of blockwork.

.13 Anti-tack agent shall be applied over all beads of mono to ensure dust-free surface.

PART 3 EXECUTION

3.1 Quality of Work

.1 All sealants shall be applied by skilled applicators.

.2 Work shall be of highest quality and in compliance with the specifications.

.3 Examine all surfaces prior to application and notify General Contractor and Architect of any conditions detrimental to satisfactory application. Proceeding with this work will imply acceptance of existing conditions.

3.2 Preparation

.1 All joints or channels shall be cleaned and free from dirt, oil, grease, moisture, loose mortar or other foreign matters.

.2 Metal surfaces shall be wiped with Xylol or MEK and then dried.

.3 Masonry surfaces shall be cleaned with a wire brush and then blown clean. Any waterproofing treatments contaminating the joint must be completely removed.

.4 Where joints are 10mm (3/8") wide, they shall be backed to within 10mm (3/8") of the surface.

3.3 Application

.1 Apply sealant with handgun or air gun under sufficient pressure and through nozzle openings of such a diameter to so that a full bead of sealant is run into the joint and fills the opening completely.

.2 All beads shall be tooled immediately after application to ensure firm and full contact with the inner face of the joint.

.3 Do not apply any caulking when temperature is below 4 degrees C. (40 degrees F.).

.4 Caulk between all dissimilar materials.

3.4 Work Included

.1 Clean out and caulk joints on inside between door and window frames and masonry.

.2 Caulk under all metal door thresholds, bedding them in Tremco Dymonic 100.

.3 Caulk joints between block walls and plaster or drywall screed at ceilings, between plastic laminate counter tops and wall, with Tremco Dymonic in non-wet areas, and with Tremco Proglaze White in all wet area such as showers and washrooms.

.4 Caulk joints between windows and adjoining materials;

.5 Caulk between all dissimilar materials.

3.5 Making Good

.1 Any joints which have been adultered by foreign material such as sawdust, sand etc. prior to set up, or joints which are uneven or crudely applied, shall be completely removed, the joint cleaned and be recaulked.

3.6 Inspection

.1 This contractor shall notify the Consultants when the caulking work is ready for inspection and no work shall be covered or concealed until approved. Samples of colours shall be applied to small (1 metre) panels for examination by Consultant.

3.7 Cleaning

.1 Remove all excess materials and smears adjacent to joint as work progresses.

.2 Remove off site all surplus materials and equipment and debris associated with this work as it is complete.

END OF SECTION

1 GENERAL

1.1 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to supply all steel (hollow metal) doors, frames, and screens.

.2 This section shall provide all factory fabrication, hardware preparation, and accessories specified herein.

1.2 REFERENCE STANDARDS

.1 ASTM A1008/A1008M; Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability.

.2 ASTM A653/A653M; Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-IronAlloy-Coated (Galvannealed) by the Hot-Dip Process.

.3 ASTM A924/A924M; Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

.4 ANSI/BHMA A156 Series; Hardware.

.5 CSA-G40.20/G40.21; General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.6 CSA W59; Welded Steel Construction (Metal Arc Welding).

.7 CAN4-S104; Fire Tests of Door Assemblies.

.8 CAN4-S105; Fire Door Frames.

.9 CAN/ULC-S102; Standard Method of Test for Surface Burning Characteristics of BuildingMaterials and Assemblies.

.10 CAN/ULC-S702; Standard for Mineral Fibre Thermal Insulation for Buildings.

.11 CAN/ULC-S704; Standard for Thermal Insulation, Polyurethane and Polyisocyanurate,Boards, Faced.

.12 CAN/ULC-S770; Standard for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulation Foams.

.13 Canadian Steel Door and Frame Manufacturers' Association, (CSDFMA) Canadian Manufacturing Specifications for Steel Door and Frames, 1990.

.14 CAN/CGSB-1.181; Ready Mixed Organic Zinc-Rich Coating.

.15 CGSB 41-GP-19Ma; Rigid Vinyl Extrusions for Windows and Doors.

.16 NFPA-80; Fire Doors and Fire Windows.

.17 UL Building Materials Directory.

.18 ULC List of Equipment and Materials, Volume 2.

.19 ITS/WH Certification Listings.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

.1 Steel fire rated doors and frames shall be labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 and CAN4- S105 for ratings specified or indicated.

.2 Install labelled, fire resistance rated, steel doors and frames in accordance with NFPA-80 except where specified otherwise.

1.4 QUALITY ASSURANCE

.1 Manufacturer/Fabricator

.1 Manufacturers or fabricators providing Products under this Section shall have sufficient plant, equipment and competent personnel to provide the Products, in

accordance with the Contract Documents. Firm(s) shall have past experience in the manufacture or fabrication of the Products specified herein, and shall have successfully completed Projects of similar scope and type.

.2 Installation/Application
.1 Installers or applicators of the Products specified herein, shall be competent in the skills required to perform such tasks. Installation/ shall be performed in accordance with industry standards specified herein, warranty requirements, and in accordance with generally accepted, industry best practices.

.3 Documentation
.1 If requested by the Consultant, submit documentation to support the competency of firms and personnel.

1.5 SHOP DRAWINGS
.1 Submit shop drawings in accordance with Section 01 33 00.

.2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, glazed and louvred openings, arrangement of hardware and fire ratings.

.3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and finishes.

2 PRODUCTS

2.1 MATERIALS
.1 Steel Sheet: Cold-rolled, commercial grade steel sheet, Type A, to ASTM A1008/A1008M1.519mm base metal thickness;

.1 Hot-dip Galvanized/Galvannealed: zinc-coated to ASTM A653/A653M, coating designation Z275.

.1 Primer: Zinc-rich rust inhibitive type to CAN/CGSB-1.181.

2.2 ACCESSORIES
.1 Door Bumpers: Single stud rubber/neoprene type.

.2 Exterior Top Caps: Rigid PVC extrusion conforming to CGSB 41-GP-19Ma.

.3 Frame Thermal Breaks: Rigid PVC extrusion conforming to CGSB 41-GP-19Ma.

2.3 FABRICATION
.1 General
.1 Fabricate frames as detailed, to CSDFMA Specifications forCommercial Steel Doors and Frames, except where specified otherwise.

.2 Blank, reinforce, drill and tap doors and frames for all hardware. Mortised cutoutsshall be protected with steel guard boxes.

.3 Reinforce frames for surface mounted hardware.

.4 Formed edges shall be true and straight with a minimum radius for the thickness of steel used.

.5 Provide for appropriate anchorage to floor and wall construction. Each wall anchor shall be located immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb.

.6 For rebate opening heights up to and including 1525mm, provide two anchors, and an additional anchor for each additional 760mm or fraction thereof.

.7 Frames in existing concrete, masonry or steel shall be provided with anchors located not more than 152mm from top and bottom of each jamb, and intermediate anchors at 660mm o.c. max.

.8 All screw anchors for frames shall be Robertson flat head type and fully countersunk.

.9 Each door opening shall be prepared for rubber stud door silencers, three (3) for single doors, two (2) for double doors.

.10 Factory-apply touch up primer to galvanized steel doors and frames where coating has been removed during fabrication.

.11 Provide all required internal steel frame reinforcement to ensure structural rigidity and integrity, including connections to nearest building structure elements.

.12 Door faces of all steel doors shall be fabricated without visible seams, free of scale, pitting, coil brakes, buckles and waves.

.13 Construct stile and rail doors in same manner as flush doors.

.14 Construct matching transom panels or inactive leaves in same manner as doors.

.15 Longitudinal edges of interior doors shall be mechanically interlocked, adhesive assisted with edge seams tack welded, filled and sanded flush with no visible seam.

.16 Lock and hinge edges shall be beveled 3mm in 50mm unless hardware or door swing dictates otherwise.

.17 Top and bottom of doors shall be provided with inverted, recessed, 1.519mm steel end channels, welded to each face sheet at 152mm on center maximum.

.18 Provide 1.519mm closer reinforcement channels at top of all doors (interior and exterior).

.2 Frames

.1 General

.1 Fabricate frames from tension leveled steel to ASTM A924, galvanized to ASTM A653/653M, Commercial Steel (CS), Type B.

.2 Interior Frames

.1 Fabricate from 1.6mm base metal thickness.

.2 Interior frame product shall be supplied set-up and welded.

.3 Corner joints shall be accurately mitered and tightly fitted with integral door stops mitered or butted when assembled.

.4 Corner joints shall be welded on the inside of the profiles' returns and faces for set-up and welded frames.

.5 Joints at mullions, transom bars, sills or center rails shall be coped accurately, butted and tightly fitted, with faces securely welded, matching corner joint faces.

.6 Frame product shall be fabricated with integral door stops having a minimum height of 16mm.

.7 Glazing stops shall be square, formed 0.912mm steel, 16mm minimum bevelled height channel, accurately fitted, butted at corners and fastened to frame sectionswith #6 x 31mm flat head countersunk scrulox (self-drilling) type screws at 300mm on center maximum. Stops shall be 20mm high at all labelled frames.

.8 Locate glazing stops on room side of screens, not corridor side.

.9 Where required due to site access, as indicated on schedules, when advised by the contractor responsible for co-ordination or installation, or when shipping limitations so dictate, frame product shall be fabricated in sections for splicing in the field.

.10 Field spliced jambs, heads and sills shall be provided with 1.519mm steel splice plates securely welded into one section, extending 100mm minimum each side of splice joint.

.11 Field splices at closed sections (mullions or center rails) shall be 1.519mm steel splice angles securely welded to the abutting member. Face of splice angle shall extend 100mm minimum into closed sections when assembled.

.12 Field splice joints shall be welded, filled and ground to present a smooth uniform surface.

.13 On factory-assembled frame product, each door opening shall be provided with two (2) temporary steel jamb spreaders welded to the base of the jambs or mullions to maintain proper alignment during shipping and handling. Spreaders shall be removed prior to anchoring of frame to floor.

.14 Each door opening shall be prepared for single stud door silencers, three (3) for single door openings, two (2) for double door openings. Silencers shall be shipped loose for installation after finish painting.

.15 Hardware Preparation

.1 Frame product shall be blanked, reinforced, drilled and tapped for fully templated mortised hardware only, in accordance with the final approved schedule and templates provided by the hardware supplier.

.2 Frame product shall be factory blanked and reinforced only for mortised hardware that is not fully templated.

.3 Frame product shall be reinforced only for surface mounted hardware.

.4 Drilling and tapping for surface mounted hardware or mortised hardware not templated shall be done at the time of installation.

.5 Frames shall be prepared for 114mm standard weight hinges (minimum).

.6 Hinge and pivot reinforcements shall be 3.416mm steel minimum reinforcing, high frequency type shall be provided.

.7 Strike reinforcements shall be 1.519mm steel minimum.

.8 Reinforcements for surface mounted hardware, concealed closers and holders and flush bolts shall be 2.657mm steel minimum.

.9 Mortised cutouts shall be protected with 0.759mm steel minimum guard boxes.

.10 Where electrically or electronically operated hardware is specified on schedules or details, or the final approved schedule and templates provided by the hardware supplier, hardware enclosures and/or junction boxes where indicated on templates shall be provided and inter- connected with CSA-approved 13mm diameter conduit and connectors.

.16 Anchorage

.1 Frame product shall be provided with anchorage appropriate to floor, wall and frame construction.

.2 Each wall anchor shall be located immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb, except as indicated below.

.3 Frame product installed in unit masonry partitions shall be provided with 4.0mm diameter steel wire anchors, 1.214mm steel adjustable stirrup andstrap or "T" type anchors as conditions dictate.

.4 Where frame product is installed prior to construction of the adjacent wall, each jamb shall be provided with 1.519mm steel floor anchors. Each anchor shall be provided with two (2) holes for mounting to the floor and shall be securely welded to the inside of the jamb profile designed so as not to permit thermal transfers from exterior to interior surfaces of the frame sections.

.5 All visible frame anchor screws shall be Robertson flat head countersunk type.

.6 Frame product installed in steel stud and drywall partitions shall be provided with 0.912mm steel snap-in or "Z" type stud type anchors.

.7 Jambs of frames in previously placed concrete, masonry or structural steel shall be punched and dimpled to accept machine bolt anchors, 6.4mm diameter, located not more than 152mm from the top and bottom of each jamb. Anchor preparations and guides shall also be located immediately above or below the intermediate hinge reinforcings and directly opposite on the strike jamb. Each preparation shall be provided with 1.519mm anchor bolt guides.

.8 After sufficient tightening of the anchor bolt, the head shall be welded so as to provide a non-removable application. Welded bolt and dimple shall be filled and ground to present a smooth uniform surface, prior to finish painting.

.9 Where indicated on schedules or details, channel extensions shall be provided from the top of the frame assembly to the underside of the structure above. Extensions shall be fabricated from 2.657mm steel formed channels, mounting angles and adjusting brackets, with mounting angles welded to the inside of frame head. Formed channels, adjusting brackets and fasteners shall be shipped loose. Channels shall be mechanically connected to mounting angles and adjusting brackets with supplied fasteners on site.

.10 For fire labeled frames, each strike jamb shall be provided with an additional snap-in anchor in each face, to be installed above or below the strike reinforcement. Each head for fire labeled pairs shall be provided with two (2) snap-in anchors, to be installed in the head faces at thecenter of the rabbet opening width.

.17 Finishing

.1 Remove weld slag and spatter from exposed surfaces.

.2 All tool marks, abrasions and surface blemishes shall be filled and sanded to present smooth and uniform surfaces.

.3 On exposed surfaces where zinc has been removed during fabrication, frame product shall receive a factory applied touch-up primer.

2.4 SIZES AND TOLERANCES

.1 Widths of door openings shall be measured from inside of frame jamb rabbet with a tolerance of +1.6mm - 0.8mm.

.2 Heights of door openings shall be measured from the finished floor (exclusive of floor coverings) to the head rabbet of the frame with a tolerance of ± 1.2mm.

.3 Unless builders' hardware dictates otherwise, doors shall be sized so as to fit the above openings and allow a 3mm clearance at jambs and head. A clearance of 19mm between the bottom of the door and the finished floor (exclusive of floor coverings) shall be provided. Tolerances on door sizes shall be ± 1.2mm.

.4 Manufacturing tolerances on formed frame profiles shall be ± 0.8mm for faces, door stop heights and jamb depths. Tolerances for throat openings and door rabbets shall be ± 1.6mm and ± 0.4mm respectively. Hardware cutout dimensions shall be as per template dimensions, +0.4mm, - 0.

2.5 HARDWARE LOCATIONS

.1 Hardware preparations in frame product shall be as noted below and locations on doors shall be adjusted for clearances specified above.

.2 Top of upper hinge preparation for 114.3mm hinges shall be located 180mm down from head, transom mullion or panel as appropriate. The top of the bottom hinge preparation for 114.3mm hinges shall be located 310mm from finished floor as defined above. Intermediate hinge preparations shall be spaced equally between top and bottom cutouts. For dutch door frames, top and bottom hinge locations shall be as above, with the tops of intermediate hinges located at 930mm and 1403mm from finished floor.

.3 Strike preparations for unit, integral, cylindrical and mortise locks and roller latches shall be centered 1033mm from finished floor. Strikes for deadlocks shall be centered at 1220mm from finished floor. Strikes for panic or fire exit hardware shall be located as per device manufacturer's templates.

.4 Push and/or pulls on doors shall be centered 1070mm from finished floor.

.5 Preparations not noted above shall be as per hardware manufacturer's templates.

.6 Hardware preparation tolerances shall comply with ANSI A156 Series standards.

3 EXECUTION

3.1 INSTALLATION

.1 General

.1 Install all doors and frames in accordance with NFPA-80.

.2 Doors

.1 Install doors in accordance with manufacturer's instructions and templates.

.2 Install hardware in accordance with hardware templates, manufacturer's instructions and Section 08 71 00.

.3 Provide maximum clearances at edges of doors as follows:
- .1 Between door and frame at head and jambs: 3mm.
- .2 At meeting edges pairs of doors and at mullions: 3mm.
- .3 At transom panels, without transom bars: 3mm.
- .4 At sills without thresholds: 16mm maximum above finish floor.
- .5 At sills with thresholds: 3mm above threshold.

.4 Adjust operable parts for correct function.

.5 Install louvres securely in doors.

.3 Frames

.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 1220mm 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 Install all frame reinforcing where indicated or required for structural rigidity.

3.2 FINISH REPAIRS

.1 Touch up with primer galvanized finish damaged during installation.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to provide all wood doors, including:

.1 Factory fabrication.
.2 Factory prep for finish hardware.
.3 Factory prime coat for field finishing.
.4 Shipment to the site.

1.2 REFERENCE STANDARDS

.1 AWI / AWMAC Quality Standards for Architectural Woodwork.
.2 CAN/CSA-O132.2 SERIES; CSA Standards for Wood Flush Doors.
.3 CSA-O115; Hardwood and Decorative Plywood.
.4 CSA O112.6/O112.7; Resorcinol Resin Adhesive.
.5 CAN/CGSB-71.19; Adhesive, Contact, Sprayable.
.6 CAN/CGSB-71.20; Adhesive, Contact, Brushable.
.7 WDMA IS 1A; Wood Door Manufacturers Association Installation Standard.

1.3 SUBMITTALS

.1 Product Data

.1 Manufacturer's specifications and technical data including the following:

.1 Detailed specification of construction and fabrication.
.2 Facing, core design and material, glue type, rails, and blocking for screw attached hardware.
.3 Details of construction, light and louver opening details, and glazing thickness.
.4 Indicate blocking for hardware attachment as applicable to each door type.
.5 Indicate lead thickness for lead lined doors.

.2 Manufacturer's installation instructions.
.3 Manufacturer's finishing instructions for field finished doors.
.4 Manufacturer's recommendations for care and maintenance of doors.

.2 Shop Drawings: Provide the following information:

.1 Door type,
.2 Door size,
.3 Fire Rating,
.4 Hardware types and locations,
.5 Hardware blocking requirements and location,
.6 Glazing stop details,
.7 Vision panel or louver cutout size and location, and
.8 Factory finish system/approved colour(s).

.3 Samples:

.1 Construction Samples. Corner sections with door faces, edges, and core representative of the specified door type(s). Corner samples to be not less than 152x228mm.

1.4 QUALITY ASSURANCE

.1 Material Qualifications

.1 Comply with requirements of AWMAC/AWI Quality Standards for material, fabrication, finishing, and installation except where otherwise indicated.

.2 Supply doors from one manufacturer for entire project.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Store and protect doors in accordance with manufacturer's recommendations.

.2 Store doors flat and off the floor on a level surface in a dry, well-ventilated building. Do not store on edge. Protect doors from dirt, water and abuse.

.3 Certain wood species are light sensitive. Protect doors from exposure to light (artificial or natural) after delivery.

.4 Do not subject interior doors to extremes in either heat or humidity. HVAC systems should be operational and balanced, providing a temperature range of 10-32□C and 30% to 50% relative humidity.

.5 When handling doors, always lift and carry. Do not drag across other doors or surfaces.
Handle all doors (finished or unfinished) with clean hands or gloves.

1.6 EXTENDED WARRANTY

.1 Provide a Warranty certificate from the door manufacturer which binds the manufacturer to replace all doors found to have defects in factory workmanship or materials, or which warp more than 6mm out of plane, under normal use, for a minimum of two (2) years from the Date of Substantial Performance. Replacement doors shall bear same warranty from date of replacement.

.2 "Replace" as used herein, does not include hanging, installation or field finishing. This work shall be performed by the Contractor for the warranty period stipulated in the General Conditions of the Contract. If doors were originally supplied factory finished, manufacturer must supply replacement doors with same finish.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

.1 Lambton Doors, Lambton PQ (distr. by Stegweit & Company Inc., Oakville ON).
.2 Door-Lam Manufacturing of Ottawa, Canada.
.3 Baillargeon.
.4 Jeld-Wen, Inc.
.5 Masonite International Corporation.
.6 Marchfield Door Systems.

2.2 SOLID CORE WOOD DOORS

.1 Grade: Premium (Architectural).

.2 Cores

.1 Solid Particleboard Core: to CAN/CSA-O132.2; 5 ply bonded and sanded core construction with no voids; minimum 115mm wide hardwood stile and rail

frame bonded to particleboard core and veneer crossbands; solid or engineered wood closer blocks, lock blocks, panic hardware blocks, and face veneer matches tiles.

.3 Finish

.1 All doors shall have maple veneer – to match existing school doors- laminated to each face of door leaf with matching edges. Stained with semi-gloss clear sealant.

2.3 FABRICATION

.1 Laminate door facing, cross banding, and assembled core in a hot press.

.2 Fit decorative laminate or wood veneer door edges to door stiles and rails prior to application of face veneers.

.3 Reinforcing

.1 Top Rail: 127mm wide Solid Lumber or LSL.

.2 Bottom Rail: 127mm wide Solid Lumber or LSL.

.3 Through-bolting of hardware or accessories is not permitted.

.4 Factory pre-fit and bevel doors (3°) to suit frame sizes indicated, with 4.76mm pre-fit in width, +0mm/ -0.79mm, tolerances. Pre-fit top of door 3mm +1.6mm/ -0mm, and undercut as designated by floor condition. For fire-rated doors comply with NFPA-80 for pre-fits and undercuts.

.5 Factory pre-machine doors for hardware that is not surface applied. Locations and hole patterns to comply with specified hardware requirements as per NFPA-80 standards for doors specified; and to maintain door manufacturer's warranty.

.6 Specific locations for hardware will be coordinated between frame and door manufacturers.

.7 Hardware preparations as per hardware schedule(s) provided by Section 08 71 00. Hardware preparations to be neatly and cleanly squared as required per hardware templates.

.8 Factory Preparation for Light Openings and Louvers: Cut and trim openings through doors to comply with NFPA-80 requirements where indicated; and to maintain door manufacturer's warranty.

.9 Prepare doors for louvres, opening frames and glass and where specified, provide matching hardwood glazing stops with mitred corners.

2.4 FACTORY FINISHING

.1 All doors to be finished at the factory. Factory pre-finished doors to be individually protected with either transparent or opaque poly-wrap at the factory. Final colour, build, and sheen to be approved by Consultant based on actual review samples.

.2 Finish Types

.1 Factory applied satin clear finish.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.

.2 Verify door frames are of type required and are installed as required for proper installation of doors.

.3 Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

.1 Comply with door manufacturer's recommendations, AWI Quality Standards, and WDMA IS-1.

.2 Install doors using hardware, including fasteners, and in strict conformance with hardware manufacturer's instructions as specified under Section 08 71 00.

.3 Install fire rated doors and transoms in compliance with requirements of labeling agency, and NFPA No. 80.

.4 Coordinate installation of doors with installation of hollow metal frames specified under Section 08 11 13.

.5 Coordinate installation of glass and glazing specified under Section 08 80 00.

.6 Field Trimming

.1 Trim door height by cutting bottom edge to not more than 19mm. Trim fire-rated door height at bottom edge only, in compliance with fire-rating requirements.

.2 Trim non-rated door width by cutting equally between both jamb edges.

.3 Pilot drill screw and bolt holes.

3.3 TOLERANCES

.1 Maximum Diagonal Distortion: 6mm measured with straight edge or taut string, corner to corner, over not more than 1066 x 2134mm surface area.

.2 Maximum Vertical Distortion: 6mm measured with straight edge or taut string, top to bottom, over not more than 1066 x 2134mm surface area.

.3 Maximum Width Distortion: 6mm measured with straight edge or taut string, edge to edge, over not more than 1066 x 2134mm surface area.

3.4 ADJUSTING

.1 Remove and rehang doors, which do not swing or operate freely. If door cannot be made to operate properly, remove and install new door.

.2 Remove doors damaged during installation and install new doors.

.3 Touch-up

.1 If field fitting of prefinished doors is required, refinish affected surfaces to match original factory finish as directed by the door manufacturer.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Supply of finishing hardware including but limited to all hardware for hollow metal and or wood doors, aluminium doors, and other doors as noted herein.

.2 The Hardware Supplier shall provide assistance to the Contractor on all matters pertaining to the Work of the Section.

.3 The Hardware Schedule shall be prepared by an acceptable hardware supplier (see item 1.2) and shall be provided to the Contractor who shall coordinate the Work of this Section.

.4 With the exception of the teacher closets locksets; all architectural millwork hardware shall be supplied and installed, including the teacher closet lockset by the Millwork Subcontractor per Section 06 40 00 – ARCHITECTURAL MILLWORK.

.6 The Contractor shall take delivery of hardware, furnish receipts, and store it in a safe place, systematically, according to the hardware list. The Contractor must check all items received and be entirely responsible for its custody after delivery to the job.

.7 The General Contractor shall install all finishing hardware and signs required for a complete job, in accordance with the manufacturer's directions and the Architect's instructions. Holes and locksets shall be made the exact and proper size and the Contractor will be required to replace doors which are damaged by poor and improper hardware installation.

.8 Power door operators, and Press to Lock supply and installation.

1.2 Acceptable Hardware Suppliers

.1 Upper Canada Speciality Hardware (905) 940-8358

.2 Knell's Door and Hardware (519) 743-4344

.3 JPW Systems (519) 474-9797

1.4 Related Work Specified Elsewhere

.1 Section 08 12 13 – HOLLOW METAL FRAMES

1.5 References

.1 Architectural Finish Hardware shall conform to the following as a minimum standard:

.1 CAN/CGSB-69.18-M, Butts and Hinges;
.2 CAN/CGSB-69.19-M, Exit Devices;
.3 CAN/CGSB-69.20-M, Door Controls, Closers;
.4 CAN/CGSB-69.21-M, Auxiliary Locks and Associated Products;
.5 CAN/AGSB-69.22-M, Architectural Door Trim;
.6 CAN/CGSB-69.29-M, Template Hinge Dimensions;

.7 CAN/CGSB-69.24-M, Door Controls - Overhead Holders;

.8 CAN/CGSB-69.29-M, Mortise Locks and Latches;

.9 CAN/CGSB-69.91-M, Closer Hold or Release Devices;

.10 CAN/CGSB-69.99-M, Self-Closing Hinges and pivots;

.11 CAN/CGSB-69.94-M, Materials and Finishes.

.12 CSA-HA Series, CSA Standards for Aluminium and Aluminium Alloys.

.13 CAN/ULC-S533-1987, Egress Door Securing and Releasing Devices.

.14 NFPA80, Standard for Fire Doors and Fire Windows, 2010 Edition.

1.6 Schedules

.1 Refer to door schedule on sheet A802 in architectural drawings.

1.7 Quality Assurance and Regulatory Agencies

.1 The supply of the Work contained in this Section shall be made by recognized architectural finishing hardware and or Subcontractors being well experienced in the supply finishing hardware and supply and installation.

.2 Hardware provided shall comply with codes and requirements of all governing authorities, and as specified.

.3 Provide hardware items with characteristics which will provide specified fire ratings, and conform to exit requirements of all governing authorities. Install only U.L.C. or U.L.I. listed hardware for all fire rated closures.

1.8 Performance Requirements

.1 Locks and Panic Hardware on fire rated doors shall be U.L.C. listed and labelled.

1.9 Submittals

.1 Architectural Finishing Hardware Schedule:

.1 Contractor to submit six (6) copies of the architectural finishing hardware schedule and product data of each product to be used on the project to the Consultant for review and approval. The architectural finishing hardware schedule shall list type, selected manufacturer's name and number, location and finish for all hardware, and complete cross reference to Door and Hardware Schedules.

.2 Once the architectural finishing hardware schedule is reviewed by the Consultant, the Contractor shall release the architectural finishing hardware schedule and product data to the architectural finishing hardware, aluminium door, power door and hollow metal door and pressed steel frame Subcontractors along with all required architectural finishing hardware templates. Contractor to furnish promptly to the applicable trades all templates and ¡formation required for proper preparation for all applications of hardware, n ample time to facilitate the progress of the Work.

.3 As requested by the Consultant, furnish samples of each architectural finishing

hardware item.

.4 The Contractor shall prepare and submit for review, a detailed keying schedule recognizing the Owner requirements which shall be determined after award of the Contract.

.2 Maintenance Instructions:

.1 Instruct the Owner's designated representative in proper care and preventative maintenance of all hardware to assure longevity of operation.

.2 Provide three (3) copies of descriptive information, operating, adjustment, and maintenance instructions, and "As-Built" record of location of each hardware group, spare parts list, and other pertinent information.

.3 Provide the information suitably identified in accordance with requirements of Section 01 73 00 - OPERATING AND MAINTENANCE DATA.

.4 Include servicing frequencies, instructions for adjustment and operation applicable to each type of component or hardware, and name, address and telephone number of nearest authorized service representative.

1.10 Product Handling

.1 Package each item of hardware individually, complete with all trim and necessary fastenings, and accessories, including wrenches, keys, and other appurtenances required to ensure correct installation. Mark each item as to contents and appropriate use in specified groups.

.2 All items of hardware subject to handling when installed shall be provided with an easily removable covering to protect against scratches, abrasions, coating with dissimilar finish materials on adjacent surfaces, and tarnishing.

.3 All aluminium door hardware to be itemized and packaged separately. Contractor to hand over finishing hardware to aluminium door supplier for installation.

1.11 Templates

.1 Provide to associated trades, and one (1) copy to Consultant, necessary copies of all templates, template information, installation instructions and details necessary to enable the preparation for, and installation of finish hardware in accordance with Door Hardware Institute Recommended Procedures. Submit templates arranged and marked coincident with specified hardware designations.

1.12 Coordination

.1 Coordinate work of this Section to ensure all information and material is promptly provided, to ensure orderly and expeditious progress of Work, and to comply with schedule for completion of all phases of Work.

.2 Assist in organizing hardware storeroom and provide qualified staff to correctly categorize, mark, and arrange each item in groups to enable efficient dispensing in specified hardware groups for each door to installation trades.

.3 Be responsible for coordination of hardware with doors, frames and other surfaces in which direct contact is made. This function shall include a review and acceptance of all hardware information on steel door and frame shop drawings, aluminium and stainless steel entrance shop drawings, overhead door shop drawings, and any other shop drawings affected by hardware supplied under this section. Return such drawings with review stamp and signature to applicable manufacturers with five (5) days of receipt.

.4 Provide qualified staff on site promptly to assist installation trades subsequent to being requested and to ensure that hardware is being correctly installed.

1.14 Warranty

.1 All work performed and materials supplied under this Section to be warranted from defects for a period of two (2) years from Takeover. Door closers to have a warranty against defect and poor workmanship for a period of 5 years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 Materials - General

.1 Architectural finishing hardware shall be supplied in strict accordance to the Architectural Finish Hardware Schedule attached to the Contract Documents. Hardware finish of different manufacturers shall be uniform in all respects.

.2 Provide all items complete with fastening devices necessary to ensure a neat and secure installation.

.3 One manufacturer's products shall only be used for similar items.

.4 The Contractor shall ensure that the hardware specified is suitable in both dimension and function for the intended purpose. The Contractor shall advise the Hardware Consultant and Consultant of discrepancies or omissions.

2.2 Materials - Specific

.1 Refer to Hardware Schedule.

.2 Miscellaneous

.1 Provide new cylinders to owners’ existing keying system.

PART 3 - EXECUTION

3.1 Examination

.1 Before furnishing any hardware, carefully check drawings of Work requiring hardware, verify door swings, door and frame materials and operating conditions, and assure that hardware will fit Work to be attached.

.2 Check shop drawings and frame and door lists affecting hardware type and installation, and verify to correctness thereof, or advise of required revisions. Check that doors, frames and panels requiring additional support are reinforced.

.3 Point out special requirements to installer. Make final adjustment of hardware, in particular closer arms, valves and locksets; all to work properly.

.4 Adjustments and inspection of initial closers shall be witnessed by Consultant. Provide adequate 48 hours notice and staff to reach satisfactory conclusion to witnessed tests.

3.2 Installation

.1 Install architectural finish hardware, including wiring, conduits and controls in accordance with shop drawings and manufacturer's instructions.

.2 Architectural finish hardware shall be installed to manufacturers' standard heights unless noted below or as defined by the requirements of the O.B.C. or as shown on the Contract Document drawings

3.4 Demonstration

.1 Demonstrate to the Owner the operation and maintenance requirements for the equipment of this section.

3.5 Field Quality Control

.1 Inspect the installation of finish hardware on an agreed frequency.

.2 Advise the Consultant in writing of any Work being performed which will prejudice the installation or correct operation of any item of hardware.

.3 Upon completion of installation of hardware, hardware supplier shall arrange and conduct, in company of Owner, Consultant and Contractor, inspections to verify that all hardware is installed, adjusted and functioning satisfactorily, complete with required trim and accessories, and fastenings are adequately secured and accepted. Where necessary, recommend adjustments of such items as closer arms, valves, door holders and latch and locksets. Report all comments in writing to Owner, Consultant and Contractor.

.4 Any and all substitutions of specified products which do not meet conditions of this specification shall be removed from site and replaced with those products specified at no additional cost to Owner.

END OF SECTION

2090 Shirley Drive Kitchener Ontario N2B 0A3
Phone: (519) 578.1000 Toll Free: (800) 265.8959 Fax: (519) 578.3262

Schedule of Finish Hardware

ARCHITECT/DESIGNER: MARTIN SIMMONS SWEERS ARCHITECTS INC.
200-113 BREITHAUPT ST.
KITCHENER ON N2H 5G9
PHONE - 519-745-4754
FAX - 519-745-0061

CONTRACTOR: GENERAL TENDER

PHONE -
FAX -

PROJECT: WRDSB - AVENUE RD PS 2026
40 GAIL ST.
CAMBRIDGE ON N1R 4M2
7976

PROJECT CONSULTANT: MIKE WICKENS

PREPARED: February 04, 2026

REVISED: February 04, 2026 ORIGINAL

Scan to check out our website

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DOOR INDEX

Mark	Heading #	Mark	Heading #	Mark	Heading #
13A	01				
13B	02				
13C	03				
EXST1	04				
EXST2	04				
EXST3	04				

Hardware Finishes

Finish	Description
26D	SATIN CHROMIUM
626	SATIN CHROMIUM PLATED
630	SATIN STAINLESS STEEL
ALUMINUM	ALUMINUM
C26D	SATIN CHROMIUM
C32D	STAINLESS STEEL, SATIN

HARDWARE SCHEDULE - CODE # 7976

WRDSB - AVENUE RD PS 2026

40 GAIL ST.

Heading # 01

1 SGL DOOR 13A CORRIDOR TO ` º LH

914 x 2438 x 45 WD Door/ HMF Frame NON-RTD Door/NON-RTD Frame

4	HINGE, 4 1/2, HVY WT	TA786 114MM X 114MM	26D	MCK
1	CLASSROOM INTRUDER LOCK	ND78LD-CO6 X SPA X 13-247 X 10-025	626	SCH
2	CYLINDER	CR2000-034 X R1001EN	626	COR
1	WALL STOP	GSH 240	C26D	GAL
2	KEYING	MASTERKEY CYLINDER (MASTERKEYING CYLINDER BY G & A)		G&A

Heading # 02

1 SGL DOOR 13B SPEC. ED. TO PANTRY 13B º LH

914 x 2134 x 45 HMD Door/ HMF Frame NON-RTD Door/NON-RTD Frame

3	HINGE, 4 1/2, HVY WT	TA786 114MM X 114MM	26D	MCK
1	CLASSROOM LOCK	ND70LD-CO6 X SPA X 13-247 X 10-025	626	SCH
1	CYLINDER	CR2000-034 X R1001EN	626	COR
1	KICK PLATE	GSH 80A X 2-SIDED TAPE X 203MM X 876MM	C32D	GAL
1	WALL STOP	GSH 240	C26D	GAL
1	KEYING	MASTERKEY CYLINDER (MASTERKEYING CYLINDER BY G & A)		G&A

Heading # 03

1 SGL DOOR 13C SPEC. ED. TO BF W.R. 13C º RH

914 x 2134 x 45 HMD Door/ HMF Frame NON-RTD Door/NON-RTD Frame

3	HINGE, 4 1/2, HVY WT	TA786 114MM X 114MM	26D	MCK
1	SOREROOM LOCK	ND80LD-CO6 X SPA X 13-247 X 10-025	626	SCH
1	EXIT CONTROL LOCK	CX-WC13AXFM		CAM
1	CYLINDER	CR2000-034 X R1001EN	626	COR
1	ELECTRIC STRIKE	1500C-12/24D-630	630	ES-CD
1	AUTO OPERATOR	SW200I BESAM OPERATOR	AL	BEA
1	KICK PLATE	GSH 80A X 2-SIDED TAPE X 203MM X 876MM	C32D	GAL
1	WALL STOP	GSH 240	C26D	GAL
1	TRANSFORMER	CX-TRX-4024		CAM
1	RELAY	CX-33		CAM
1	MISCELLANEOUS	INSTALLATION		DLR
1	POWER SUPPLY	CX-PS13V3		CAM

120V AC TO HEAD, CONDUIT, WIRING AND BACK BOXES BY OTHERS.

HARDWARE SCHEDULE - CODE # 7976

WRDSB - AVENUE RD PS 2026

40 GAIL ST.

Heading # 04

1 PR DOORS EXST1 EXTERIOR FROM VESTIBULE		o	LHRA
1 PR DOORS EXST2 EXTERIOR FROM VESTIBULE		o	LHRA
1 PR DOORS EXST3 EXTERIOR FROM VESTIBULE		o	LHRA
914/914 x 2134 x 45 EXST Door/ EXST Frame			NON-RTD Door/NON-RTD Frame
3	THRESHOLD	CT-45A X 1828MM	ALUMINUM KNC

BALANCE OF EXISTING HARDWARE TO REMAIN.

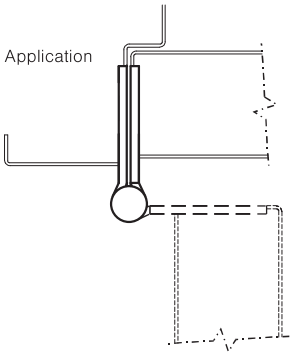
Three Knuckle Heavy Weight Series

Recommended for use on high frequency and/or heavy wood or metal doors in schools, hospitals or other public buildings where heavy traffic is experienced.

- Heavy weight hinges should be used on all extra heavy doors or those exposed to high frequency use
- Use for the common flush door/frame/wall application
- Beveled Edge - where doors are beveled on hinge side specify TA5386 or TA5786
- For available finishes see page 28
- Decorative flat tips are available on 4½" and 5"

TA386
TA786





No.	ANSI Cross Reference	Base Material	Weight
TA386	A5111	Stainless	HVY
TA386	A2111	Brass	HVY
TA786	A8111	Steel	HVY

Specifications

Inches	mm	Gauge	No. of Holes	Fasteners	
				Machine	Wood
4½" x 4"	114.3 x 101.6	.180	8	½ x 12-24	1¼ x 12
4½" x 4½"	114.3 x 114.3	.180	8	½ x 12-24	1¼ x 12
5" x 4½"	127 x 114.3	.190	8	½ x 12-24	1¼ x 12
5" x 5"*	127 x 127	.190	8	½ x 12-24	1¼ x 12
6" x 5"*	152.4 x 127	.203	10	½ x ¼-20	1½ x 14
6" x 6"*	152.4 x 152.4	.203	10	½ x ¼-20	1½ x 14

* Not available in Brass Base material.

Steel & Stainless Approved for NFPA 80 fire rated openings

Options:

Code	Description
NRP	Non-Removable Pin
RC	Round Corner – ¼" radius furnished unless specified otherwise
HT	Hospital Tip
SSF	Safety Stud Feature
QC	ElectroLynx® Hinge – 4, 8 or 12 wire available
CC	Concealed Circuit – 4, 8 or 12 wire available
CC-18	Concealed Circuit –2, 4, 6, 8 or 10 wire available (2-18AWG wires and the remainder 28AWG wires)
MM	Magnetic Monitoring
FT	Flat Tip
BT	Ball Tip
RT	Round Tip
GT	Grooved Tip
LT	Lined Tip
KT	Knurled Tip

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ASSA ABLOY
Experience a safer and more open world

ND MECHANICAL



Applications

The ND Series' functional and trim offerings are the most expansive of the Schlage cylindrical lock portfolio. This extremely versatile lock is made to handle the abuses of heavy use in any commercial setting. Options include best-in-class lock status indication ideal for classroom security and ligature-resistant options for the healthcare market.

Because ND uses an ANSI door prep common across cylindrical locks, it is ideal for both new construction and retrofit upgrades.



Key Features

- Significantly exceeds ANSI/ BHMA A156.2 requirements for Grade 1 cylindrical locks
- 25 mechanical functions plus eight that feature Vandlgard® locked lever protection
- Nine lever designs, two rose designs, status indication and ligature-resistant trim options
- Nine standard finishes, plus an antimicrobial coating option
- Supports Conventional, FSIC, and SFIC cylinder formats plus high-security UL 437 options
- Multiple key systems available – open, patented, restricted, and geographically exclusive
- Support for 10 non-Schlage cores (see cylinder section)

ND WIRED ELECTRIFIED



Applications

Electrified locks complement mechanical ND Series where wired electronic access control solutions are desired. They can be applied as part of a network or independently with a remote access switch such as may be used for a reception area.

Electrified ND locks are ideal for high-traffic areas where line power ensures continuous operation. They are most easily incorporated into new construction where electrified door prep, conduit hinges, and wiring is planned for the building.

Key Features

All mechanical features plus:

- Combines mechanical strength with the convenience of electronic access control
- Auto-detects 12V or 24V DC
- Selectable EL/EU operation
- Four electrified functions
- Low 0.24 amp max current draw allows multiple locks on a single power supply
- Low 0.01 amp holding current eliminates "hot levers" in electrically locked applications
- Modular Request-to-Exit (RX) can be added at any time

NDE WIRELESS ELECTRONIC



Applications

NDE mobile enabled wireless locks are designed to affordably extend electronic access control deeper into the building beyond traditional perimeter and high security openings.

The NDE is ideal for both commercial new construction and retrofit. Facilities can benefit from the enhanced security, efficiency, and convenience of upgrading to electronic credentials.

Key Features

All mechanical features[1] plus:

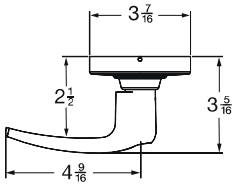
- Interior push button with indication for storeroom, office, privacy and apartment functionality
- Compatible with Bluetooth, NFC, smart, or proximity credentials
- Integrated credential reader, door position sensor, and request-to-exit (RX) switch
- Built-in Bluetooth® enables wireless configuration from smart phones/tablets
- Functions in offline or No-Tour mode or as a networked lock with either periodic check-ins or real-time management
- Up to 2 years of battery life

1. NDE wireless electronic is not available in 613 finish.

Lever Designs & Finishes

Athens (ATH)

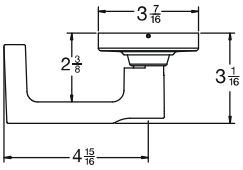




Cores *KIL, FSIC, SFIC, L-CO, L-SA, J-CO6, J-ME, J-SA, J-YA6*

Boardwalk (BRK)[1]

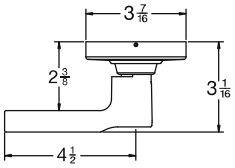




Cores *KIL, FSIC, SFIC*

Broadway (BRW)

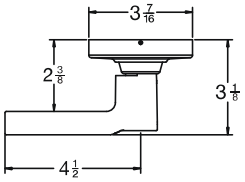




Cores *KIL, FSIC, SFIC*

Latitude (LAT)

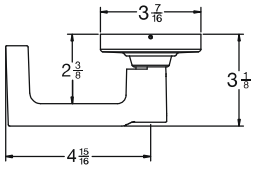




Cores *KIL, FSIC, SFIC*

Longitude (LON)[1]

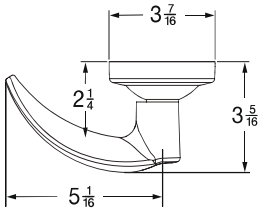




Cores *KIL, FSIC, SFIC*

Omega (OME)[1]

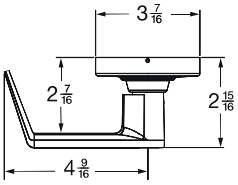




Cores *KIL, FSIC, SFIC*

Rhodes (RHO)[1]

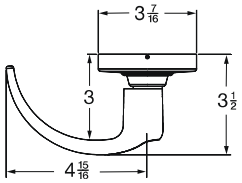




Cores *KIL, FSIC, SFIC, L-CO, L-SA, J-CO6, J-CO7, J-ME, J-SA, J-YA6, J-YA7*

Sparta (SPA)[1]

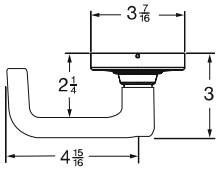




Cores *KIL, FSIC, SFIC, L-CO, L-SA, J-CO6, J-ME, J-SA, J-YA6*

Tubular (TLR)[1]





Cores *KIL, FSIC, SFIC, L-CO, L-SA, J-CO6, J-ME, J-SA, J-YA6*

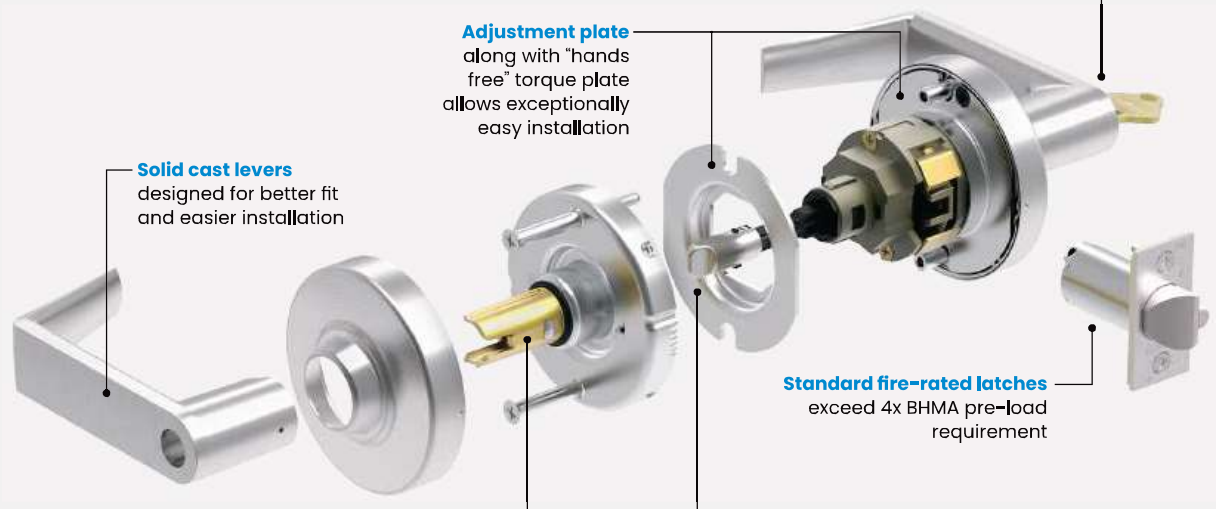
Finishes



605	606	612	613[2]	619	622	625	626/626AM	630[3]	643e
Bright Brass	Satin Brass	Satin Bronze	Oil Rubbed Bronze	Satin Nickel	Matte Black	Bright Chrome	Satin Chrome/ Antimicrobial	Satin Stainless Steel	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.

ND Mechanical



Quality You Can See and Feel

Strength and durability are more than numbers, you can actually feel it in the lock — in the weight and movement of the lever and in the lasting beauty of the finish. Expect exceptional durability from ND Series.

- Tested to over 16 million cycles with near zero droop or wobble in the lever (16x the BHMA requirement)
- Latch retraction with 200 lb preload for confident operation in warped and preloaded doors (4x BHMA requirement)
- Prevents access even when subjected to torque loads up to 3,100 in-lbs (2.6x the BHMA standard)
- Withstands pry bar attacks of 1,600 lbs (8x BHMA requirement)
- Withstands 100 sledgehammer blows (20x BHMA requirement)

The Added Benefits of Layered Key System Security

A strong lock is only part of the security equation for mechanical locks–proper key security is equally important.

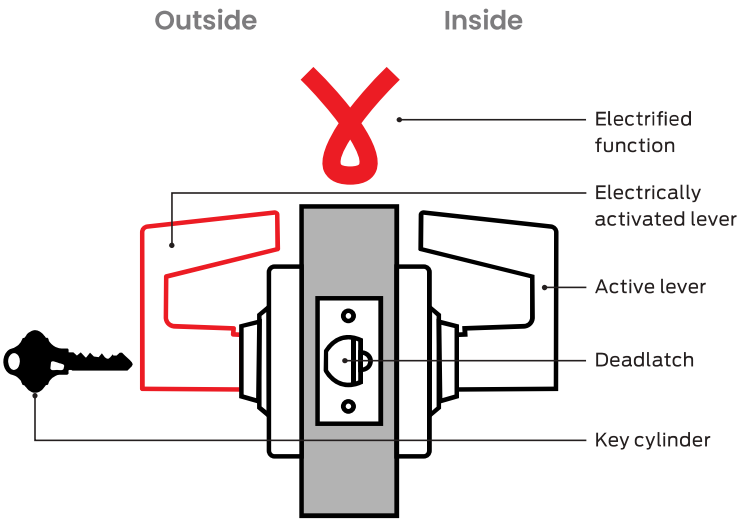
- Patented Everest 29™ cylinders prohibit unauthorized key duplication at local retail stores
- Dealer and end user restricted, geographically exclusive Primus cylinder options for advanced key control
- Available compatibility with 10 different non-Schlage key systems

Key Features

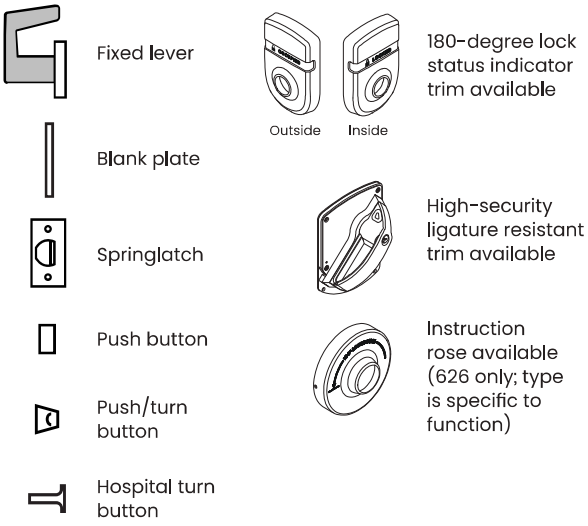
ND Series offers Schlage's widest array of finishes, styles and functions available in a cylindrical lock.

- 25 mechanical, cylindrical functions plus eight that feature Vandlgard® locked lever protection
- Nine standard finishes, plus an antimicrobial coating option
- Nine ADA compliant lever options
- Status indication and ligature-resistant trim options
- BAA compliant
- Locks are ANSI/BHMA Grade 1 certified
- Available with lead lining
- UL Listed 3-hour fire rated
- Perfectly suited to the ALX Series Grade 2 cylindrical locks
- Supports Conventional, FSIC, and SFIC cylinder formats plus high-security UL 437 and competitive core options
- Multiple key system options include open, patented, restricted, and geographically exclusive

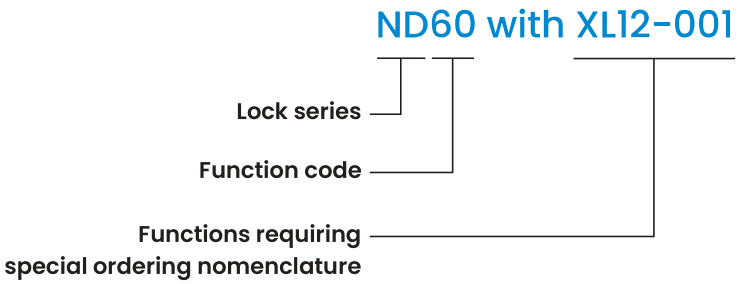
Legend



Key



Product Identification Guide



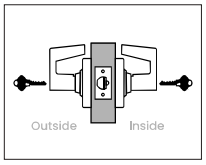


Vandlgard® functions.

Some functions feature Vandlgard locked lever protection. It allows the outside lever to rotate freely up and down when locked to limit the ability of vandals to apply excessive force to the chassis helping to prevent damage to internal components.

Keyed, Double Cylinder Functions

Schlage **ANSI**
ND60 **F88**



Vestibule lock

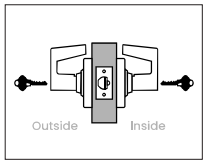


- Lever with key cylinder both sides; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is made inoperative by key inside; key outside does not lock
- Key outside retracts latch but cannot unlock outside lever; only key inside unlocks
- Inside lever always free for immediate egress

Note: Available with optional instruction rose identifying key rotation direction for rapid lockdown. 626 finish only.

To order with instruction rose specify function and note XN12-035 as a special option.

Schlage **ANSI**
ND66 **F91**



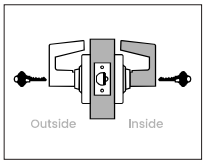
Store lock



- Lever with key cylinder both sides; deadlatch
- In unlocked state latch is retracted by either lever
- Key in either lever locks or unlocks both levers

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.

Schlage **ANSI**
ND70 x 80 **-**

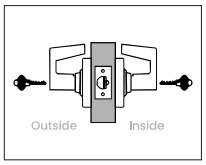


Classroom by storeroom lock

- Lever with key cylinder both sides; deadlatch
- In unlocked state inside lever is always fixed; latch retracted by outside lever
- Outside lever is locked or unlocked by key outside; key inside retracts latch but does not unlock either lever

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

Schlage **ANSI**
ND72 with XN12-002 **F80**



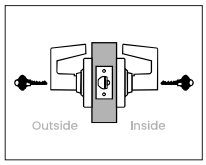
Communicating lock

- Lever with key cylinder both sides; deadlatch
- In unlocked state latch is retracted by either lever
- Key in either lever makes inoperative only that lever
- Key in either lever retracts the latch and unlocks only that lever

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, specify function and note XN12-002 as a special option.

Schlage **ANSI**
ND72 with XN12-003 **F80**



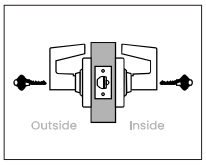
Vandlgard® communicating lock

- Lever with key cylinder both sides; deadlatch
- In unlocked state latch is retracted by either lever
- Key in either lever makes inoperative only that lever; Vandlgard® allows locked lever to rotate freely when locked
- Key in either lever retracts the latch and unlocks only that lever

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, specify function and note XN12-003 as a special option.

Schlage **ANSI**
ND78 **F110**



Classroom security lock (180-degree lockdown)



- Lever with key cylinder both sides; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is made inoperative by rotating key in either lever 180 degrees counter-clockwise and returning to start position
- Unlock outside lever by rotating key 180 degrees clockwise in either lever and returning to start position
- Inside lever always free for immediate egress

Locks ordered in 626 finish come standard with instruction rose (47342586) identifying key rotation direction for rapid lockdown. Other finishes receive a standard rose.

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".

Cylinders & Key Systems

A strong lock is only part of the security solution—proper key control is equally important. Schlage offers extensive options to meet the security needs of the specific project.

Cylinders







Conventional (KIL) & Full Size Interchangeable Core (FSIC) Cylinder Options[1]

- 6-pin large format keying (standard)
- 7-pin small format keying (A2 pinning) available in SL cylinders
- 6-pin available in Schlage Classic Obverse and Everest 29 S and T keyway families plus supported legacy keyways
- Primus security upgrades offer geographic exclusivity
- Primus UL 437 listed high-security cylinders are capable of withstanding extreme physical attack

Small Format Interchangeable Core (SFIC) Cylinder Options[2]

- 7-pin small format keying (A2 pinning)
- Available in Schlage Everest 29 R and legacy Everest B restricted keyway families[2]

SL Format Cylinders

- Same A2 pinning style as SFIC cylinders but in Conventional and FSIC formats
- Enables an Everest 29 R or Everest B keyway facility to gain Primus XP program security

1. Everest 29 S123 keyway is the default keyway on all Schlage locks unless specified otherwise.
2. Restricted keyway cores require authorization from the end user.

Key Systems

Everest 29 Keyway Families

- Patented through 2029
- Available restricted keyway families provide a higher level of administrative security
- Can be integrated into an existing legacy Everest key system
- Upgradeable to Primus XP and UL 437 levels of security

Classic Obverse Keyway Family

- Open keyway – keys are duplicated and available without ordering formalities
- Upgradeable to Primus RP and UL 437 levels of security

Legacy Keyway Families

- Patent expired keyway families include legacy Everest, Quad, Numbered and Reversed
- Everest and Quad are upgradeable to Primus XP and UL 437 cylinders to regain patent and key control protection for critical points of entry



Cylinder Options

When ordering a configured lock, specify cylinder type in the product ordering string as shown on page 36. The chart below shows part numbers when ordering Schlage cylinders and tailpieces separately.

For These Keyed Functions:

ND25 x 70
Classroom exit lock

ND25 x 80
Storeroom exit lock

ND50 (ND91 Vandlgard)
Entrance/office lock

ND53 (ND92 Vandlgard)
Entrance lock

ND60 (ND93 Vandlgard)
Vestibule lock

ND60 with XN12-001
Vestibule lock with interior unlocking only

ND66
Store lock

ND70 (ND94 Vandlgard)
Classroom lock, exterior lockdown only

ND70 x 80
Classroom by storeroom lock

ND72 with XN12-002 (ND72 with XN12-003 Vandlgard)
Communicating lock

ND73 (ND97 Vandlgard)
Corridor lock

ND78 (ND98 Vandlgard)
Classroom security lock (180-degree lockdown)

ND80 (ND96 Vandlgard)
Storeroom lock

ND81
Accessible storeroom lock

ND82
Institution lock

ND85
Faculty restroom lock

ND80EL/EU (ND96EL/EU Vandlgard)
Storeroom lock, electrically locked/ unlocked outside lever

NDEB

NDEBSi

Specify keyway and plug face finish when ordering cylinders as parts (606, 622, 626, or 643e).

1. Available for Athens, Rhodes, Sparta and Tubular levers only.
2. Available for Rhodes levers only.

Conventional (KIK/KIL) Cylinders

Cylinder type	Sold separate part number	Pins	Cylinder mechanism
P, P6	23-065	5, 6	Pin and tumbler (P6 is default)
Z	91-018	7	SL cylinder (restricted Everest 29R or Everest B)
L	20-765	6	Primus
L	20-565	6	Primus UL 437 high security
L	20-765-RP	6	Primus RP Classic Obverse keyways
L	20-565-RP	6	Primus RP UL 437 high security
L	91-718-XP	7	Primus XP SL (restricted Everest 29R and Everest B keyways)
L	20-565-XP	6	Primus XP (restricted Everest 29S or T and Everest C or D keyways)
L	91-518-XP	6	Primus XP UL 437 high security
L-CO[1]	–	6	Lever is made to fit Corbin Russwin® CR2000-034 KIL cylinder
L-SA[1]	–	6	Lever is made to fit Sargent 6 and 10 line KIL cylinders

Interchangeable Cores

Cylinder type	Sold separate part number	Pins	Cylinder mechanism
R	23-030 23-031 (no logo)	6	FSIC pin and tumbler (default)
M	91-161 91-162 (no logo)	7	FSIC SL cylinder (restricted Everest 29R or Everest B)
M	91-861-XP 91-862-XP (no logo)	7	FSIC Primus SL (restricted Everest 29R and Everest B keyways)
J	20-740 20-741 (no logo)	6	FSIC Primus
J	20-740-XP 20-741-XP (no logo)	6	FSIC Primus XP
J-CO6[1]	–	6	Lever is made to fit Corbin Russwin® 8000 LFIC
J-CO7[2]	–	7	Lever is made to fit Corbin Russwin® 8000-7 LFIC
J-MED[1]	–	6	Lever is made to fit Medeco 32 Series FSIC
J-SA[1]	–	6	Lever is made to fit Sargent 6300 LFIC
J-YA6[1]	–	6	Lever is made to fit Yale 1210 or Medeco 31 FSIC
J-YA7[2]	–	7	Lever is made to fit Yale 1220 FSIC
T	23-030-ICX	6	FSIC refundable construction core – color coded
G	80-037	7	SFIC combinated (Everest 29R) (default SFIC)
H	80-035	6	SFIC refundable construction core – color coded

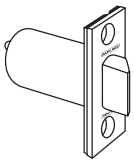
Latches & Strikes

Latches

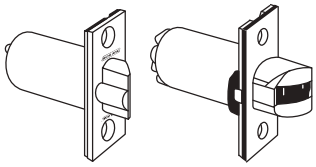
ND latches are adjustable for flat or bevel edged doors, and are finished to match the lock trim. All ND Series latches have 1/2" throw and 1" housings except the anti-friction fire door latch, which has a 3/4" throw. Please see the Schlage pricebook for more options including extended backset strikes (up to 5") and rabbited latch and strike kits.

	Part Number	Backset	Description
Springlatch	13-248	2-3/4"	Square corner, 1-1/8" x 2-1/4" (default springlatch)
	14-010	3-3/4"	Square corner, 1-1/8" x 2-1/4"
Deadlatch	14-047	2-3/8"	Square corner, 1-1/8" x 2-1/4"
	14-048	2-3/8"	Square corner, 1" x 2-1/4"
	13-247	2-3/4"	Square corner, 1-1/8" x 2-1/4" (default deadlatch)
	14-042	2-3/4"	Anti-friction fire door latch (3/4" throw)
	14-028	3-3/4"	Square corner, 1-1/8" x 2-1/4"

Springlatch



Deadlatch



3/4" throw anti-friction deadlatch for pairs of fire doors

Strikes

The ND Series is available with both T-Strike and ANSI strikes in a variety of lip lengths to accommodate different door preps.

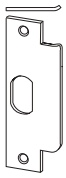
	Part Number	Available Lip Lengths[1]	Description
T-strike	10-013 xx	1-1/8" 1-1/2"	T-strike, square corner, with strike box, 1-1/8" x 2-3/4". For ND and wired ND only.
	10-016	1-1/8"	T-strike, square corner, with deep strike box, for fire door latch. 1-1/8" x 2-3/4". For ND and wired ND only.
	10-132 xx	1-1/8" 1-1/2"	T-strike, square corner, with strike box, DPS magnet, 1-1/8" x 2-3/4". For NDE only.
	10-133	1-1/8"	T-strike, square corner, with deep strike box, DPS magnet, for fire door latch. 1-1/8" x 2-3/4". For NDE only.
ANSI	10-025 xx	1-3/16" 1-3/8" 1-1/2"	ANSI, no box, 1-1/4" x 4-7/8" (1-3/16" lip is default strike). For ND and wired ND only.
	10-130 xx	1-3/16" 1-3/8" 1-1/2"	ANSI, no box, DPS magnets, 1-1/4" x 4-7/8" (1-3/16" lip is default strike). For NDE only.
	K510-066	–	Box for ANSI strike.

1. Specify lip length (xx) as LIP1-1/8 for 1-1/8", LIP1-1/2 for 1-1/2", etc.

T-strike
(10-013)
1-1/8" x 2-3/4" x 3/32"



ANSI strike - default
(10-025)
1-1/4" x 4-7/8" x 3/32"



ND Series Ordering Instructions

To order ND Series products, attribute values should be provided in the same sequence shown below. Each value should be separated by a period.

Example

Inside lever design different than outside

ND80	.	P6	.	8RO	.	626	.	RHO
2		3		4A		4C		5A

	Required for all lock orders		Outside style			Inside style						Door dimensions			Options										Keying		
Brand	Series + Function	Cylinder type (keyed functions only)	Outside lever design	Outside rose design	Outside finish	Inside lever design	Inside rose design	Inside finish	Handing (HSLR or Indication trims)	Latch	Strike	Door thickness	Extended	Strike lip length	Latch extension	Box for ANSI strike	Pack cylinders loose (PLC)	Trim options	Breakaway Rhodes lever	Special options	Screw option	Request to Exit (RX)	Buy American Act compliant	Keying code	Keyway	Pack keys independently
1	2	3	4A	4B	4C	5A	5B	5C	6	7	8	9A	9B	9C	10A	10B	10C	10D	10E	10F	10G	10H	10I	11A	11B	11C

Only required if specifying less rose.

Only required if specifying different than outside style.

Only required when deviating from the products default. Specify only the deviated attribute(s).

Only required when deviating from the product default. Specify only the deviated attribute(s).

Detail		
1	Brand	Specify SCH for Schlage (required only when specifying a product Less "LLL" any attribute).
2	Series + Function	Specify ND + function choice from list
3	Cylinder type (specify code for keyed functions only)	**Conventional cylinders** **P6** 6-pin cylinder (default) **P** 6-pin cylinder, keyed 5 **Z** Everest SL cylinder, 7-pin **L** Less Schlage cylinder **C** Less double cylinder **FSIC – Full size interchangeable core** **R** FSIC, 6-pin **T** FSIC – Construction Core **M** Everest SL – FSIC, 7-pin **J** Less Schlage FSIC **SFIC – Best® style, small format interchangeable cores** **G** SFIC 7-pin **H** Refundable Construction SFIC **BDC** Disposable Construction SFIC **B** Less SFIC Other options feature levers made to fit competitive cylinders (see page 34 for complete list).
4	Outside style	**4A:** input lever code **4B:** required only if specifying less rose **4C:** input ANSI finish code
5	Inside style	Specify only if different than outside design choices or if specifying a product Less (LLL) any attribute
6	Handing	When ordering HSLR or Indication trims, specify: **LH** Left Hand; **LHR** Left Hand Reverse; **RH** Right Hand; **RHR** Right Hand Reverse
7	Latch	Leave blank or specify part number if different from default latchbolt 13-247: 2-3/4" backset-with 1-1/8" x 2-1/4" square corner faceplate
8	Strike	Leave blank or specify part number if different from default strike 10-025: ANSI, no box, 1-1/4" x 4-7/8"
9	Door dimensions	Specify only attributes that deviate from these defaults: **9A:** 1-3/4" thickness **9B:** EE (Extended equally) **9C:** 1-3/16" lip
10	Options	Specify desired additional options: **10A:** 43-005 (5" backset extension) **10B:** K510-066 **10C:** PCL **10D:** Indicator message or instruction rose options – see price book **10E:** Breakaway Rhodes lever is dependent on type (closed, KIL, FSIC, or SFIC) – see price book **10F:** XN12-012 (standard trim chassis spacers) or XN12-307 (lead lining) **10G:** TORX **10H:** RX (functions ND10, ND12, ND80, ND81, and ND96) **10I:** BAA
11	Keying	Specify desired additional options: **11A:** Keyed Different (KD) **11B:** Specify only if different from default of Everest 29 S123 (Conventional and FSIC cylinders) or, if master keyed, Everest 29 S145 (Conventional and FSIC) and R125 (SFIC) **11C:** Specify only when requesting that keys be packed independently.

NDE Wireless Electronic Lock Ordering Instructions

NDEB - P6 - SPA - 626 - LAT - XXX - XX-XXX - XXXXXXXX - XXX - S123

1	2	3	4	5	6	7	8	9	10
Series	Lever Cylinder	Outside: Lever Style	Outside: Finish	Inside (optional): Lever Style	Inside (optional): Finish	Backset & Latch	Strike	Dim	Additional Details

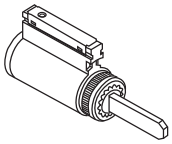
Selections correspond with the numbers above. See price book for specific configuration options.

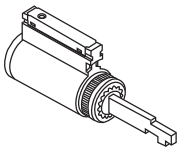
Detail		
1	Series	Specify NDEB: Mobile enabled cylindrical lock with configurable functions Specify NDEBSi: Mobile enabled cylindrical lock with configurable functions that fully support the security application area of HID® credential types
2	Lever cylinder	Conventional P6 6-pin cylinder (default) Z Everest SL cylinder, 7 pin L Less cylinder FSIC – Full size interchangeable core R FSIC, 6-pin J Less FSIC T FSIC – Construction Core SFIC – Best® Style, Small format interchangeable core G SFIC 7-pin B Less SFIC H Refundable Construction SFIC BDC Disposable Construction SFIC Other options feature levers made to fit competitive cylinders (see page 34 for complete list).
3	Outside lever style	Input lever code: ATH (Athens), BRK (Boardwalk), BRW (Broadway), LAT (Latitude), LON (Longitude), OME (Omega), RHO (Rhodes), SPA (Sparta), TLR (Tubular), or tactile warning options
4	Outside finish	Input ANSI finish code: 605 (Bright Brass), 606 (Satin Brass), 612 (Satin Bronze), 619 (Satin Nickel), 622 (Matte Black), 625 (Bright Chrome), 626 (Satin Chrome), 626AM (626 with antimicrobial), 643e (Aged Bronze)
5	Inside lever style	Specify only if different than outside style
6	Inside finish	Specify only if different than outside finish
7	Backset & latch	Leave blank or specify part number if different from default latchbolt 13-247: 2-3/4" backset, deadlatch, square corner, 1-1/8" x 2-1/4"
8	Strike	Leave blank or specify part number if different from default strike 47267101: ANSI, no box, 1-1/4" x 4-7/8"
9	Dim (strike lip length)	Leave blank or specify part number if different from default 1-3/16" lip
10	Additional details (keying)	Specify only if different from these defaults: Keyed Different (KD); Everest 29 S123 (Conventional and FSIC cylinders) or, if master keyed, Everest 29 S145 (Conventional and FSIC) and R125 (SFIC)

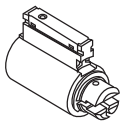
Conventional

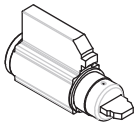
Key Systems

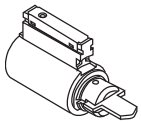
Component Cylinders
Finishes 606, 626, BSP

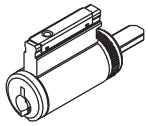

CR2000-031, 033, 034 or 037


CR2000-038


CR2000-052

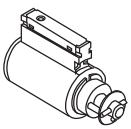

CR2000-044

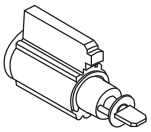

CR2000-051

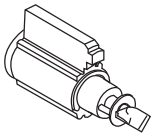

CR2000-031H

Type	Tailpiece	Series	Lever (Plug diameter)	Knob (Plug diameter)	Tailpiece Part Number (Length) 6-Pin	Tailpiece Part Number (Length) 7-Pin
CR2000	031	CL3100 Lever Trim	(.509")		778F778 (.692")	778F768 (.536")
	031H	CK4300		(.509")	778F778 (.692")	NA
	033	CL3300, CL3500, CL3800, CL3600 (June 2000 and after) Lever Trim - A6/N6/PR6	(.509")		622F308 (.950")	682F298 (.794")
	033H	G1055 ED Trim (Horizontal Tailpiece)		(.509")	622F308 (.950")	682F298 (.794")
	034	CLX3300 Mechanical Functions (1-3/8" - 2" doors) CL3400 (Lockset Series Obsolete) CL3600 (Prior to June 2000), A5/N5 CK4800	(.509")		862F998 (1.056")	863F018 (.900")
	034L	CLX3300 Mechanical Functions (2-1/4" doors)	(.509")		863F008 (1.280")	863F028 (1.124")
	E34	CLX3300 Electrified Functions (1-3/8" - 2" doors)	(.509")		886F140 (.895")	886F160 (.739")
	E34L	CLX3300 Electrified Functions (2-1/4" doors)	(.509")		886F150 (1.058")	886F170 (.902")
	037	CL3700	(.509")		682F298 (.794")	NA
		CK4700		(.509")		
	038	CL3800 (Obsolete 1993-1997 model)	(.509")		596F898 (1.056")	NA
	039	CL3900	(.509")		680F608 (1.700")	NA
	039L	CL3900 (2", 2-1/4" Thick Doors)	(.509")		681F068 (1.950")	NA
	044	CK4400		(.509")	NA Separately	NA
	051	B2/G2/G3 ED Trim		(.552")	489F028 (.890")	NA
	052	UT5200/CK4200	(.552")	(.552")	No Tailpiece	NA

Note #1= For 7-pin version, suffix -7 i.e. CR2000-033-7

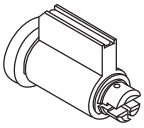

CR2001-052


CR2001-044


CR2001-066

Type	Tailpiece	Series	Lever (Plug diameter)	Knob (Plug diameter)	Tailpiece Part Number (Length) 6-Pin	Tailpiece Part Number (Length) 7-Pin	Remarks
CR2001	031	CL3129	(.509")		775F958 (.808")	775F968 (.652")	Use CR2001-031-E8 for EMK Blank
	034	CL3329/CL3629 CL3429 (Lockset Series Obsolete)	(.509")		585F338 (1.046")	585F358 (.890")	Use CR2001-034-E8 for EMK Blank
	034A	CLX3329	(.509")		864F568 (.202")	864F578 (.046")	Use CR200-034-E8 for EMK Blank
	044	CK4429 (Straight Tailpiece)		(.509")	564F508 (.764")	NA	Use CR2001-044-E4 for EMK Blank
	052	CK4229	(.552")	(.552")	No Tailpiece	NA	Use CR2001-052-E4 for EMK Blank
	066	CK4429 (Twisted Tailpiece)		(.509")	574F128 (.835")	NA	Use CR2001-066-E4 for EMK Blank

Note #1= For 7-pin version, suffix -7, i.e. CR2000-033-7
Note #2= CR2003-044 used for CK4455 & CK4482 prior to August 1993


CR2100-052

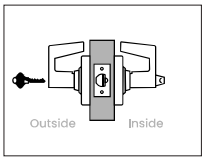
Type	Tailpiece	Series	Lever (Plug diameter)	Knob (Plug diameter)	Tailpiece Part Number (Length) 6-Pin	Tailpiece Part Number (Length) 7-Pin	Remarks
CR2100	052	Ronde and Continental Knob (Obsolete)		(.552")	No Tailpiece	NA	Finishes 605, 606, 611, 612, 613, 625, 626

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Keyed Functions

Schlage **ANSI**
ND53 **F109**

Entrance lock





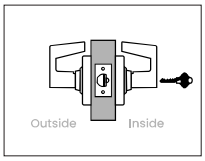
- Lever with key cylinder outside; push/turn button in lever inside; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is made inoperative by pushing button or pushing and turning button on inside lever; key outside does not lock
- **Pushed button unlocking:** key outside 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

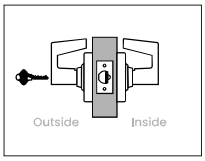


- Lever outside; lever with key cylinder inside; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is locked or unlocked by key inside
- Inside lever always free for immediate egress

To order, specify function and note XN12-001 as a special option.

Schlage **ANSI**
ND70 **F84**

Classroom lock, exterior lockdown only

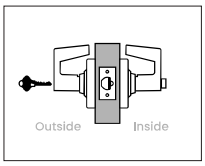




- Lever with key cylinder outside; lever inside; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is locked or unlocked by key outside
- Inside lever always free for immediate egress

Schlage **ANSI**
ND73 **F90**

Corridor lock

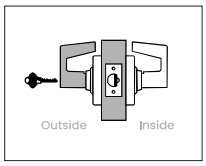




- Lever with key cylinder outside; push button in lever inside; deadlatch
- In unlocked state latch is retracted by either lever
- Outside lever is made inoperative by pushing button on inside lever or by key outside
- **When locked by pushed button:** rotating inside lever retracts latch and releases 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



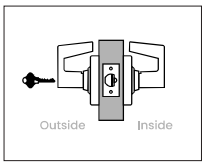


- Lever with key cylinder outside; lever inside; deadlatch
- Outside lever always fixed; latch retracted by inside lever
- Key in outside lever retracts latch only
- Inside lever always free for immediate egress

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.

CX-WC Series
Barrier Free Restroom Control

UL Listed Components

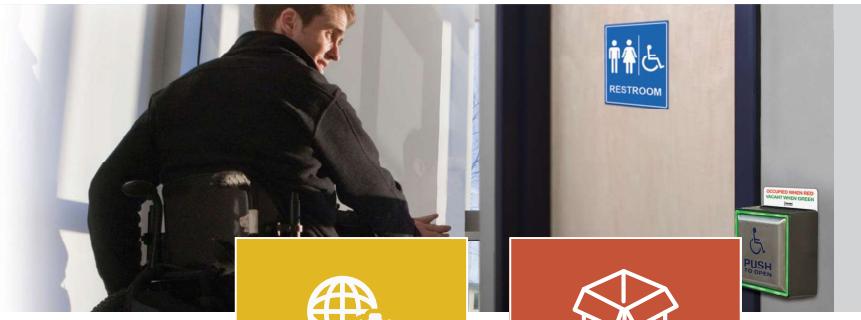
ADA Compliant



Camden Door Controls leads the industry with a range of packages designed specifically for the control of automatic doors in restroom applications.

CX-WC Series barrier free restroom control kits include everything needed for a complete installation, including control relays, activation switches, annunciation, electric strikes and power supplies.

Camden kits also feature exclusive products not available elsewhere, including single gang LED annunciators with white-out text, Aura™ illuminated push plate switch enclosures, the option for touchless switches and a pre-wired power supply cabinet.



ADVANCED TECHNOLOGY

EXCLUSIVE PRODUCTS

Features

- System kits updated to include all components; power supply, controller, activation switches, annunciation, door contact and electric strike.
- Exclusive products and features not available elsewhere.
- The widest range of design options for one or two door restrooms, including the option for touchless switch activation.
- Compatible with Camden 'CX-WEC' emergency call systems for universal restrooms.
- Specifically designed to meet the latest requirements of Ontario Reg. 368/13 Amendment to 2012 OBC for barrier free restrooms.
- 3 year warranty

Swing Door
ASSA ABLOY SW200i™

ASSA ABLOY

ASSA ABLOY Entrance Systems

The global leader in
door opening solutions



The simple solution to all swing door challenges

If you design or manage facilities with automatic swing doors, you know there are several issues to address. Closing against wind conditions, encountering interior stack pressure, meeting low energy manual push forces, functioning to pedestrian codes or overcoming latch hardware all represent challenging conditions where swing door operators must adapt and perform.







By creating a single operator with flexibility to perform well in varying environments and conditions, ASSA ABLOY Entrance Systems made the specification, design, and selection process significantly easier. And because the ASSA ABLOY SW200i delivers proven performance for a number of different configurations, it provides facilities with more solutions and even greater flexibility.



ENERGY EFFICIENT

Separate Time Delay
Power Surge Protection
Brown Out Performance

AIR PRESSURE MANAGEMENT

Stack Pressure Compensation
Intelligent Trajectory Control
Extended Closing Torque (ECT)

SECURE LATCH

Latch Retry
Electric Lock Management
Security Integration
Astragal Coordination

EASY OPEN

Manual Push Forces of 5–15 lbf
Power Assist

MAXIMUM STRENGTH

700 Pounds Max Door Weight

ASSA ABLOY as word and logo are trademarks owned by the ASSA ABLOY Group.

Proven performance in the most demanding environments

AIR PRESSURE MANAGEMENT

Stack Pressure Compensation

Allows for door to adjust to changes in variable pressures by utilizing the ASSA ABLOY SW200i exclusive Intelligent Trajectory Control and Extended Closing Torque (ECT).

Intelligent Trajectory Control

The ASSA ABLOY SW200i knows where the door should be at all times and adjusts torque accordingly through dynamic braking which helps cushion the door during the opening or closing cycles.

Extended Closing Torque (ECT)

The last 10 degrees of the closing cycle is the most challenging for a swing door operator, ASSA ABLOY's exclusive Extended Closing Torque (ECT) functionality provides extra torque, if needed, to close and latch the door. Speed remains constant so the door stays within ANSI standards.

EASY OPEN

Manual Push Forces of 5-15 lbf

Easy to push open manually, yet strong enough to close and latch despite wind or air pressure.

Power Assist

Makes a heavy door (or spring) feel light.

MAXIMUM STRENGTH

700 Pounds Max Door Weight

The ASSA ABLOY SW200i can handle door weights of up to 700 pounds per operator.

SECURE LATCH

Latch Retry

If the door does not latch when closing, the ASSA ABLOY SW200i will detect this condition and immediately open the door to 10 degrees and execute two attempts to latch the door.

Electric Lock Management

Features latch retry and electric lock management that momentarily reverses the closed door before opening to insure lock release. Monitors locks if equipped with that functionality.

Security Integration

The ASSA ABLOY SW200i operator knows when the door is closed and can provide a signal for security monitoring.

Astragal Coordination

On-board electronic coordinator controls that doors always close in right order and can therefore be properly locked. Coordinator allows door with astragal to open first, close last. If in hold open, door without astragal will not pass door with astragal.





Fits where you need it

FLEXIBILITY AND VALUE

On-Board Functionality

The ASSA ABLOY SW200i has on-board capabilities such as timing sequencing, transformer, astragal coordination and Extended Closing Torque (ECT).

Adaptable for Multiple Uses

One operator can handle all your facility needs – wind conditions, pedestrian usage, low energy, manual use, etc.

Battery Back-up

The optional battery back-up system allows for continued operation after power fails.

ENERGY EFFICIENT

Separate Time Delay

The ASSA ABLOY SW200i includes two time delays for separate devices (i.e., standard activation, key activation). If a device is located further than another, separate opening/closing times can be set to best maximize operation, enhance security and reduce air infiltration.

Power Surge Protection

The ASSA ABLOY SW200i operator can handle variances in power without damage to the unit or impact to performance.

Brown Out Performance

The operator can adjust to dips in power and continue to operate from 85V – 264V.

Low Energy Consumption

Four operators can run on one 20 amp line – saving you energy.

Directional Sensors

Units equipped with directional sensors reduce air infiltration by allowing less time with the door open.

SERVICE SAVINGS

Adapting to Changing Needs

Air flow can change in a building as configurations evolve (new doorways, rooms, HVAC systems, etc.). Other operators can change performance in these situations and require a service call for adjustment. The ASSA ABLOY SW200i adapts to changing environments, thereby saving you the cost of service calls for these necessary adjustments.

Non-volatile Memory

When the power goes out, other operators can go through a relearn mode. The ASSA ABLOY SW200i retains its memory even after a power loss, providing you with more consistent performance and consistent opening and closing.

Fuseless Technology

No fuses to replace allows for consistent performance and reduces service call requirements and costs.

A clear advantage over the competition

Attribute	ASSA ABLOY SW200i	Others
MAX WEIGHT OF DOOR	700 lbs	200-350 lbs
MANUAL PUSH FORCES OF 5 TO 15 LBF	•	
AUTOMATICALLY COMPENSATES FOR STACK PRESSURE	•	
ON-BOARD EXTENDED CLOSING TORQUE (ECT)	•	
ON-BOARD TRANSFORMER	•	
ON-BOARD TIMING SEQUENCER	•	
AUTOMATICALLY MEASURES INERTIA AND WEIGHT OF DOOR DURING SET-UP	•	

A full line of sensor solutions

Swing doors complying with pedestrian standards have varying needs and requirements. When complying with ANSI A156.10 standard for power operated pedestrian doors, the ASSA ABLOY SW200i is available with three ASSA ABLOY i-Adapt sensor packages. Choose the package that's right for you.

ASSA ABLOY SW200i i-Adapt Sensor Systems

Offering three levels of coverage to exceed ANSI A156.10*

i-Adapt Flex 101	i-Adapt Flex 102	i-Adapt Premium 202
		
Door mounted presence sensor (swing side) Overhead presence sensor	Door mounted presence sensor (swing & approach side) Overhead presence sensor	Door mounted presence sensor with adaptive field (swing & approach side)

*Activation devices available separately

Keeping your entrances up-to-date

To meet evolving safety standards and keep your equipment operating in top condition, there's no better partner than ASSA ABLOY Entrance Systems. Our swing door operators are backed by comprehensive service and expert technicians. With a carefully selected stock of service parts, our certified technicians can maintain, service and upgrade not only ASSA ABLOY equipment, but all brands. They can be counted on for expert advice and quick dispatch in the event of an emergency...24/7.







Flexible configurations for any application

The ASSA ABLOY SW200i is available in a variety of configurations, sizes and finishes to suit the requirements of any project. Consult with an ASSA ABLOY Entrance Systems automatic door specialist to determine the best equipment, configuration, and layout to help you achieve code compliance, maximize energy efficiency and optimize traffic flow.



Surface Mount

The ASSA ABLOY SW200i in surface mount configuration is ideal for new construction or retrofit applications...easily transforming your existing manual doors to automatic door convenience. Featuring advanced technology such as stack pressure compensation, compliance with both ANSI A156.10 and A156.19, secure latching and easy to use manual push forces, it's the only swing door operator you need.



Overhead Concealed

The ASSA ABLOY SW200i-OHC provides an aesthetically pleasing solution that is attractive and incomparably strong. The intelligent door operator features advanced technology that ensures smooth, gentle operation across a wide range of conditions.



Overhead Concealed with Door Package

The ASSA ABLOY SW200i-OHC with door package provides the convenience of an aluminum door package powered by the innovative features of the ASSA ABLOY SW200i operator. Aesthetics, strength and flexibility make this an ideal door package for many needs.



In Ground

The ASSA ABLOY SW200i-IG provides reliable in ground mounting provided as a complete system: the powerful ASSA ABLOY SW200i operator, moisture resistant enclosure and adaptability to multiple arm systems to provide you with the utmost in flexibility.



Pro-Active Care Service

Keep your doors at optimal performance levels with ASSA ABLOY Entrance Systems Pro-Active Care Service. We offer upgrades and modernization of existing swing equipment to ASSA ABLOY SW200i performance.



Application Expertise

Code compliance, sensor selection, access control integration...consult the experts at ASSA ABLOY Entrance Systems to help you design or configure your entrance or corridor to your specific needs.

ASSA ABLOY Entrance Systems is a leading supplier of entrance automation solutions for efficient flow of goods and people. Building on the long-term success of the Besam, Albany and Megadoor brands, we offer our solutions under the ASSA ABLOY brand. Our products and services are dedicated to satisfying end-user needs for safe, secure, convenient and sustainable operations. ASSA ABLOY Entrance Systems is a division within ASSA ABLOY.

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ASSA ABLOY Entrance Systems

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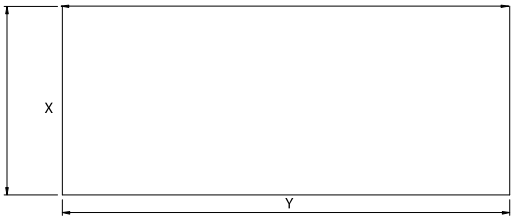
GSH 80 KICK PLATE



Gallery™ specialty hardware ltd.

GallerySpecialty.com
1.800.267.1236

- Base Metal: Brass, Bronze, Aluminum and stainless steel (Type 304).
- Screw Mounting with Beveled Standard Edges
- Finishes: All Standard
- Tape Mounting available
  GSH80 = 20ga
  GSH80A = 18ga
  GSH80B = .062ga
  GSH80C = .125ga



MADE TO ORDER P.O.A.

676 Petrolia Road, Toronto, ON, Canada M3J 2V2
Tel: 416.667.9593 Fax: 416.667.0806
Email: info@galleryspecialty.com

All product specifications are subject to change. For the most updated product features, contact our customer service department Toll Free at 1.800.267.1236

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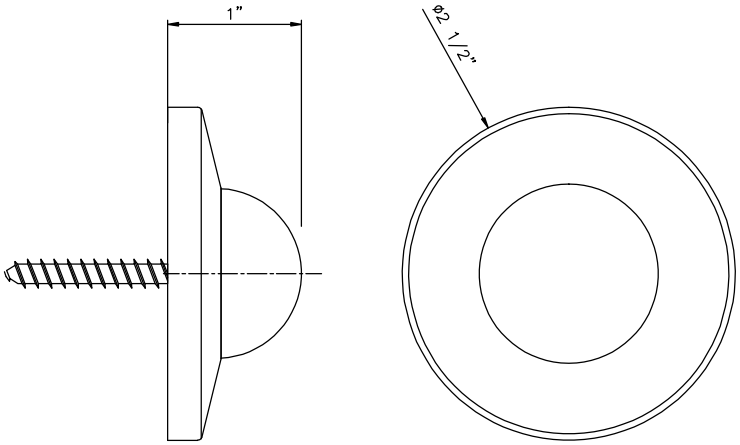
GSH 240 WALL STOP



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- Through the rubber mounting
- Fasteners Included
- C3, C4, C10, C10B, C26D, and C32D



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1500 Series® Electric Strike

Works with all brands of cylindrical and mortise locksets without a deadbolt

Also available in Complete One Box Solution



The most advanced, modular electric strikes that work with every brand of cylindrical or mortise locks designed to work with a 4-7/8" strike plate.

The HES 1500 Series® Electric Strikes set a new standard in the industry by offering dynamic integrated adjustability and field configurable options compatible with any cylindrical or mortise lock. The modular design of the platform makes stocking and installing easier with interchangeable faceplates and accessories. For the first time, the aesthetics of an electric strike are complimentary to other surrounding door hardware and blend in with the opening due to the fully finished design available in eight finishes.

Features

- Stainless steel construction
- Tamper resistant
- Static strength 1500 lbs
- Dynamic strength 70 ft-lbs
- Endurance 1,000,000 cycles
- Field selectable fail safe/fail secure
- Non-handed
- Interchangeable faceplates and accessories
- Field replaceable components
- Fully finished faceplate, keeper, case and trim
- Field adjustable integrated shim
- Strike body depth 1-3/8" [34.9mm]
- SecuriCare five-year, no-fault, no questions asked warranty (Addition of SMART Pac® III extends the warranty to 10 years)

Options

- LM – Lock monitor
- DLM – Dual lock monitors
- LMS – Lock monitor and strike monitor
- DLMS – Dual lock monitors and strike monitor

Accessories

- **157** Torx® screws
- **HESCUT-MTK** Metal Template Kit
- **OPT-1SRK** Spring Replacement kit
- **OPT-1LM** Single lock monitor
- **OPT-1DLM** Dual lock monitors
- **MOD-1SOL** Solenoid Replacement Module

Grade 1 · SecuriCare 5 Year Warranty · Mortise Locks without Deadbolt · Cylindrical Locksets · Field Selectable (Fail secure /Fail safe) · Dual Voltage 12/24 · PoE Friendly · Fire Rated · Windstorm Rated · Outdoor Rated · Burglary Rated

1500 Series® Electric Strike

Certifications

- ASTM E152 Fire Door Compliant
- ASTM E330 Certified
- ANSI/BHMA A156.31, Grade 1
- ANSI/SDI 250.13 Certified
- CAL FIRE, 3776-1654:0500
- Florida Building Code Approved FL# 22400
- NFPA-252 Fire Door Compliant
- RoHS Compliant
- UL 10C Fire Rated
- UL 294 Listed
- UL 1034 Burglary-Resistant Listed and Suitable for Outdoor Use

Specifications

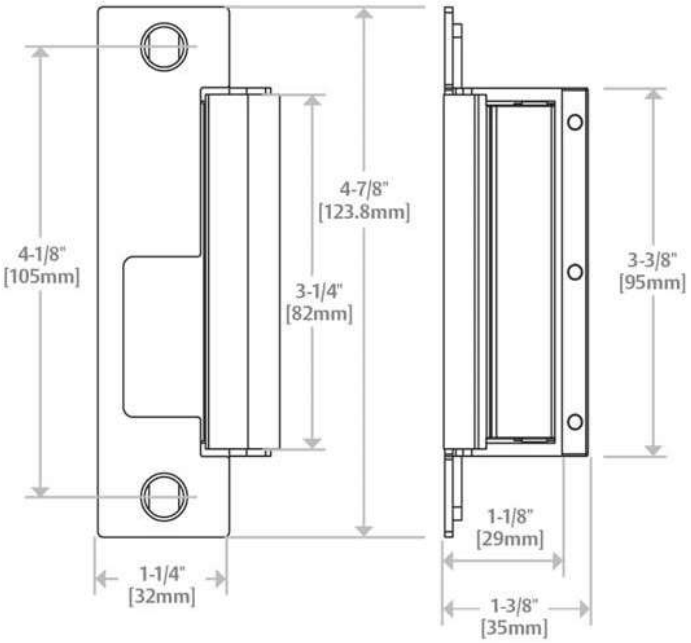
Frame Application

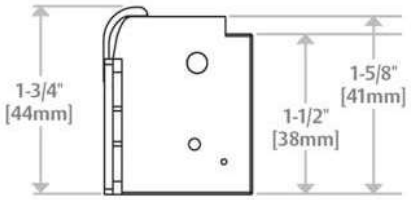
- Metal
- Wood

Electrical

- Dual voltage 12/24 VDC/VAC
- 240 mA at 12 VDC/VAC
- 120 mA at 24 VDC/VAC
- DC continuous duty/AC intermittent duty only
- PoE friendly

Dimensions





How to Order

SERIES	MODEL	FINISH*	OPTION (S)**
1500	–	– 630	– LM
1500 Universal Electric Strike; faceplate option kits ordered separately	**C*** Complete Electric Strike; includes 1LB faceplate kit for latchbolts	**605** Bright Brass	**(blank)** No Monitor
		606 Satin Brass	**LM** Lock Monitor
		612 Satin Bronze	**DLM** Dual Lock Monitor
		613E Dark Oxidized Satin Bronze Powder	**LMS** Lock Monitor and Strike Monitor
		629 Bright Stainless Steel	**DLMS** Dual Lock Monitors and Strike Monitor
		630 Satin Stainless Steel	
		BSP Black Suede Powder	

**Complete Pacs are only available in the 630 finish **LMS/DLMS factory installed only option.*

NOTE: Electric strike compatibility is determined at time of electric strike product release. ASSA ABLOY is not responsible for incompatibility of products that have changed in design or craftsmanship by their respective manufacturers. When compatibility is a concern, contact Customer Support for application assistance.

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CX-TRK, CX-TRN, CX-TRP AND CX-TRX

TRANSFORMERS/RECTIFIER

FEATURES

- AC AND DC MODELS
- STANDARD MOUNT AND PLUG-IN MODELS
- PLUG-IN MODELS ARE UL/CUL LISTED
- FUSED MODEL FOR ADDITIONAL CIRCUIT PROTECTION
- 3 YEAR WARRANTY

DESCRIPTION

Camden offers a range of 12VAC to 24VAC 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.

PANEL (NIPPLE) MOUNT		
	CX-TRN-2024	24 VAC, 20 VA nipple mount transformer
STANDARD MOUNT		
	CX-TRX-2012	12 VAC, 20 VA standard mount transformer
	CX-TRX-4024	24 VAC, 40 VA standard mount transformer
	CX-TRX-5024	24 VAC, 50 VA standard mount transformer
FUSED, STANDARD MOUNT		
	CX-TRX-2024	24 VAC, 20 VA, fused, standard mount transformer
	CX-TRK-2450	24 VAC, 40 VA, standard mount transformer and AC/DC rectifier
PLUG-IN		
	CX-TRP-4016	16 VAC, 40 VA plug-in transformer
RECTIFIERS		
	CX-5024	Rectifier, (AC-DC) 50 VA

SPECIFICATIONS

VOLTAGE:	120V AC 60HZ
DIMENSIONS:	**CX-TRN-2024:** 2"L x 2 3/8"W x 2 1/4"H (51mm x 60mm x 57mm)
	CX-TRX-2012: 3"L x 2"W x 2 1/8" H (76mm x 51mm x 54mm)
	CX-TRX-4024: 2"L x 2 3/8"W x 2 1/2" H (51mm x 60mm x 64mm)
	CX-TRX-5024: 2 1/8"L x 3 1/8"W x 2 5/16" H (54mm x 80mm x 60mm)
	CX-TRX-2024: 2"L x 2 3/8"W x 2 1/2" H (51mm x 60mm x 64mm)
	CX-TRP-4016: 3 1/2"L x 2 1/2"W x 2 1/8" H (89mm x 64mm x 54mm)
	CX-5024: 1"L x 3/4"W x 1/4" H (25mm x 19mm x 6mm)

CX-33 ADVANCED LOGIC RELAY



CX-33

FEATURES

- 15 DIFFERENT OPERATING MODES, WITH SUB-MODES AND ADJUSTABLE TIMERS ON EACH RELAY, PROVIDE NEAR LIMITLESS APPLICATIONS.
- 5 INPUTS, INCLUDING A 'WET' INPUT, FOR MORE FLEXIBILITY. YOU CAN EASILY SEQUENCE FROM MULTIPLE POINTS, AND MAINTAIN & HOLD DIFFERENT OUTPUTS.
- NEW V3.2 FEATURES INCLUDE:
  - LOCK DOWN MODE DELAYED RELAY
  - ACTIVATION
  - SELECTABLE N.O OR N.C. INPUTS
- LARGE 3 SEGMENT DISPLAY IS EASIER TO VIEW AND UNDERSTAND.
- 3 BUTTONS FOR MODE SELECTION, OFFER FASTER & EASIER PROGRAMMING.
- 'TRIED AND TRUE' POWER CIRCUITRY ENSURES OUTSTANDING FILTERING AND SURGE PROTECTION, COMBINED WITH SIMPLE 2 TERMINAL DESIGN.
- 3 HEAVY DUTY 3 AMP. FORM C OUTPUTS
- LED'S FOR VISUAL RELAY CONFIRMATION

3 YEAR WARRANTY

DESCRIPTION

Camden Door Controls CX-33 Advanced Logic Relay 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. CX-33 is pre-programmed for interconnection with access control, fire alarm and telephone entry systems. CX-33 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.

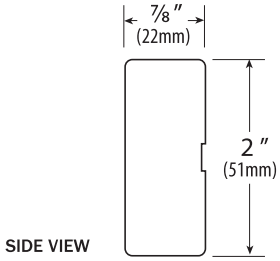
APPLICATION

The flexibility of the CX-33 lends itself to an incredible variety of locking and and/or automatic door applications, such as sequencing applications using 2 or 3 doors. Also included are modes required for safety sensor installations. What is unique in the CX-33 is being able to combine these functions simultaneously with a switching network (make/break relay).

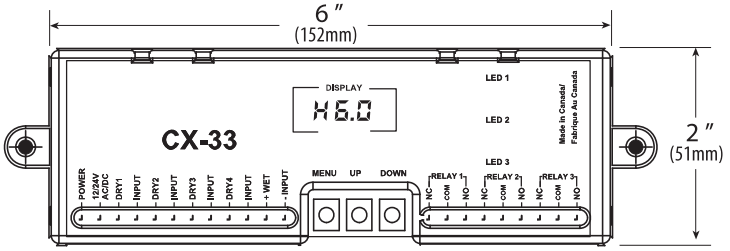
Another application for the CX-33 is single occupant restrooms equipped with low energy operators. Our 3 relay design now includes a dedicated output for illuminated signage.

Other uses include smoke evac (fire door), 2-door timed or latching airlocks, and certain access control situations where an extended trigger input results in the lock retracting while enabling an exterior wall switch.

For apartment entry applications, a direct connection to the phone entry panel simplifies wiring, and eliminates the need for an isolating relay. This input unlocks the door, and energizes a vestibule convenience switch (if one is provided).



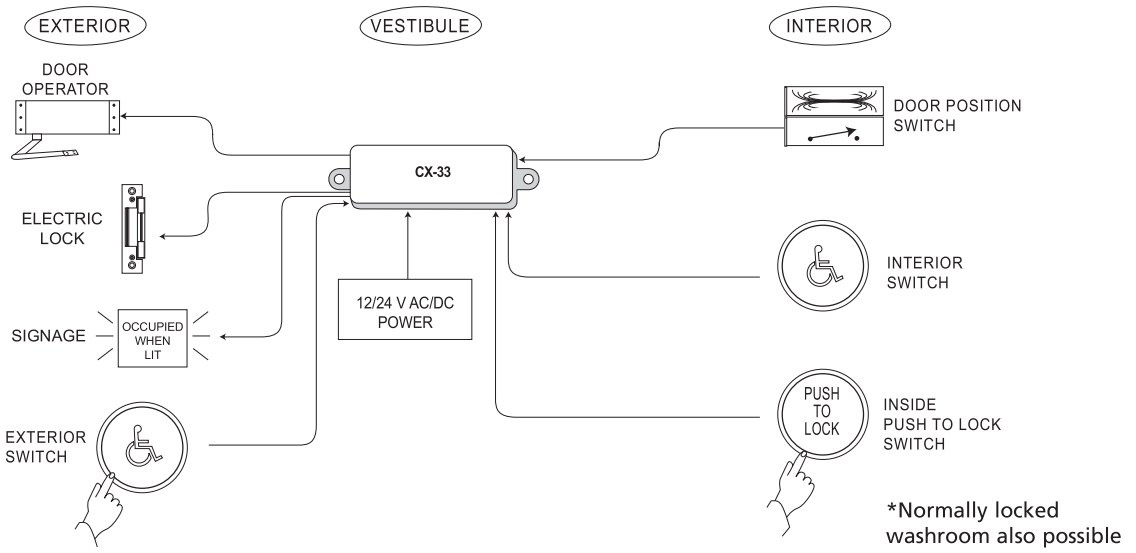
SIDE VIEW



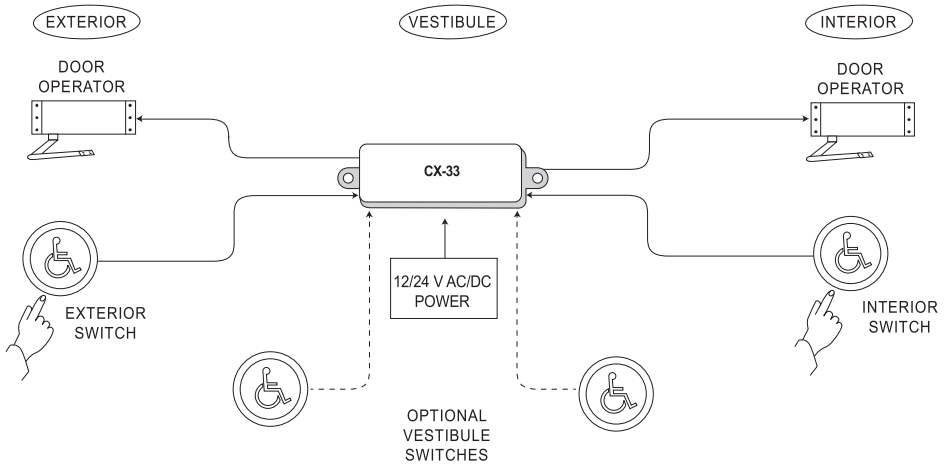
FRONT VIEW

TYPICAL APPLICATION

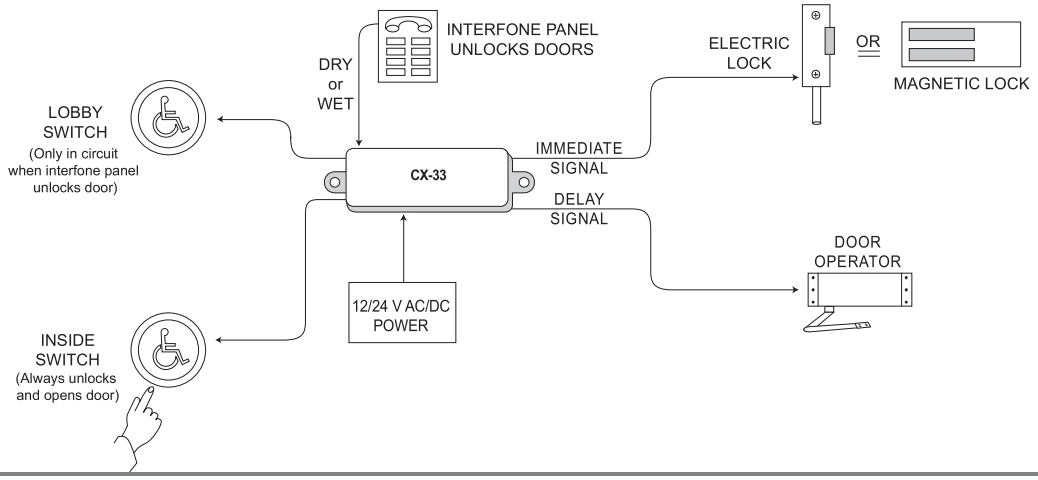
NORMALLY UNLOCKED* SINGLE USE RESTROOM



BI-DIRECTIONAL DOOR SEQUENCER



APARTMENT/CONDO APPLICATION



OPERATING MODES

Mixed-Mode Triggering: Any input sequences all 3 relays. One input (wet, or dry) is for momentary devices, another input maintains relay 1 if the input is held, another input maintains relay 3 if the input is held, and another input latches relay 3 until re-activated again. Suitable for smoke evacuation, stairwell doors, or latching applications.

2-Door Airlock: Utilizing door position switches, this mode ensures only one door will be open at a time. 3 outputs allow one door to have an electric lock and an auto door operator. Each output hold time is adjustable from 1 – 50 seconds.

Latching 2 Door Airlock: This mode utilizes door position switches to ensure only one door can be open at one time. One switch activation will latch open (unlock) the door, and the second activation will allow the door to close (lock). The CX-33 is unique in the industry because it also provides the ability to add in an adjustable "walk-away" time. If the door input has been activated but the door has not been opened the relay will reset (re-lock). Both doors have their own respective adjustable timers. (If the time is set to zero, the feature is disabled).

Bi-Directional Door Sequencer (with 4 inputs): Two of the inputs sequence in each direction, and the remaining two open their respective door only. The 3 outputs provided by the CX-33 allow one door to have an electric lock and an auto door operator.

Apartment / Condo Applications: The CX-33 provides both Wet or Dry (momentary) connection to Telephone Entry System. This allows a door lock to be released remotely, which then "enables" a vestibule "courtesy switch" for as long as the door is unlocked. When the door re-locks, the "courtesy switch" is removed from the circuit. An input for the inside switch always unlocks and opens the door. Finally, input #4 turns on relay #3 for an adjustable time.

Access Control Applications: Similar to above but designed for continuous wet or dry inputs, where the access system or time clock would send a maintained signal to unlock the door all day. While the lock is open, the outside switch is put into the circuit to allow the door to open automatically. At the end of the day when the door is re-locked, the outside switch is removed from the circuit. At any time, the inside switch will unlock and open the door.

Restroom Door (Normally Unlocked): For single occupant barrier free restrooms desiring a convenient method of locking/unlocking, opening, and control of the automatic door opener. The CX-33 also provides a relay dedicated to "Occupied" & "Door Locked" signage.

Restroom Door (Normally Locked): Similar to above mode except designed for a normally locked restroom door. Outside access can be from a keypad, prox card or other suitable credential. Our exclusive design allows for a dedicated output relay solely for signage.

Lock out Relay + Switching Network: This mode combines, for the first time, a lintel mount safety sensor lock-out relay with a switching network (aka; make/break relay). The voltage sensing circuit can be utilized with motors/controls up to 120 volts AC/DC. The adjustable hold timer is then matched to door closing time. In addition, three inputs and two relays are provided for the switching network function.

Low Energy Sensor Inhibitor: Utilizing a door position switch input, this mode enables or disables a door mounted presence sensor. The sensor is put into the circuit when a wall switch is pressed, and is taken out of the circuit when the door is fully closed. In addition, two inputs and two relays are provided for the switching network function.

Continued on back page...

Operating Modes Cont'd...

Magnetic Lock Applications: The CX-33 operates as a switching network specifically designed for doors with mag locks. A wall switch signals the relay, which unlocks, and opens the door for an adjustable time. Utilizing the door position switch, the relay will not re-apply power to the magnetic lock until the door is fully closed. The CX-33 also provides a normally open fire alarm input, which when activated, unlocks the door and disables the wall switch inputs. This mode is commonly used in hospital corridors.

Fire Alarm Input (Normally Closed): The CX-33 can also accept a normally closed fire alarm input, which when activated, unlocks the door and disables the wall switch inputs.

Special Purpose Sequencer: In this unique mode, Input #1 sequences relays #1 & #2 and input #2 sequences relays #1 & #3.

Delayed Relay Activation: In this unique mode, a Switch connected to Input 1 will cause Relay 1 to fire immediately, but not allow Relays 2 & 3 to fire until a pre-set elapsed time has expired. The user must push and hold the switch for this length of time.

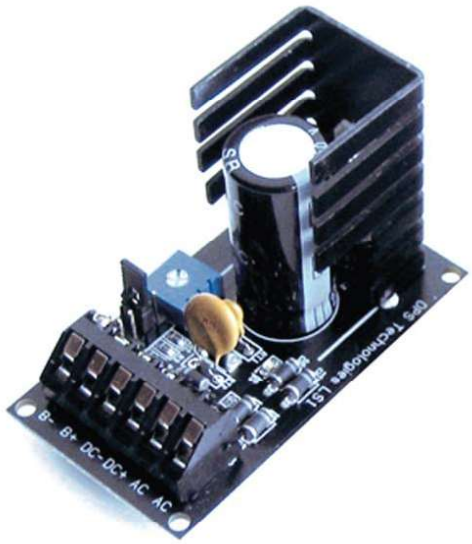
Lock Down: All-active switches connected to the CX-33 trigger the door operator. When a remote "Lock Down" switch is activated, the CX-33 locks the door and disables the connected all-active switches. Pressing the "Reset" button, resets the system and unlocks the door. This is suitable for schools.

Any of the above modes can be programmed with a 1 – 10 second delay-on-activate feature on any input. When turned on, an input has to be held on for the pre-selected time period before the relay(s) will fire. This is useful for photo-beam activated overhead doors where a nuisance delay is desired, or other delayed activation applications.

SPECIFICATIONS

MOUNTING:	(2) #6 SCREWS OR VELCRO
OPERATING VOLTAGE:	12 TO 24 VOLTS AC/DC
OPERATING TEMPERATURE:	-22°F TO +185°F (-30°C TO + 85°C)
CURRENT DRAW:	105 MA TYPICAL 320MA MAXIMUM
RESPONSE TIME:	.5 SECONDS
DISPLAY:	BLUE MULTI-SEGMENT LED
PROGRAMMING:	1 MENU, PLUS UP & DOWN BUTTONS
INPUTS:	4 X DRY 1 X WET: MIN 4.5V/AC/DC
RELAY OUTPUTS:	(3) FORM 'C' (SPDT)
CONTACT RATING:	3 AMPS @ 24VDC
TIME DELAYS:	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:	6"W x 2"H x 7/8"D (152mm x 51mm x 22mm)

Camden CX-PS13V3 is a cost effective variable output linear power supply. This unit provides 1 Amp of current with output voltages ranging from 2 – 24 VDC. 12" battery leads are provided for connection to a GELL CELL battery. The CX-PS13V3 will charge the battery and automatically switch over in case of an AC power failure. Easily mounted with the supplied adhesive tape the CX-PS13V3 is suitable for electric strikes and other electrified devices. For Mag Locks, where UL/ULC Listed power supply is required, we suggest our CX-PS10UL/30UL/60UL models.

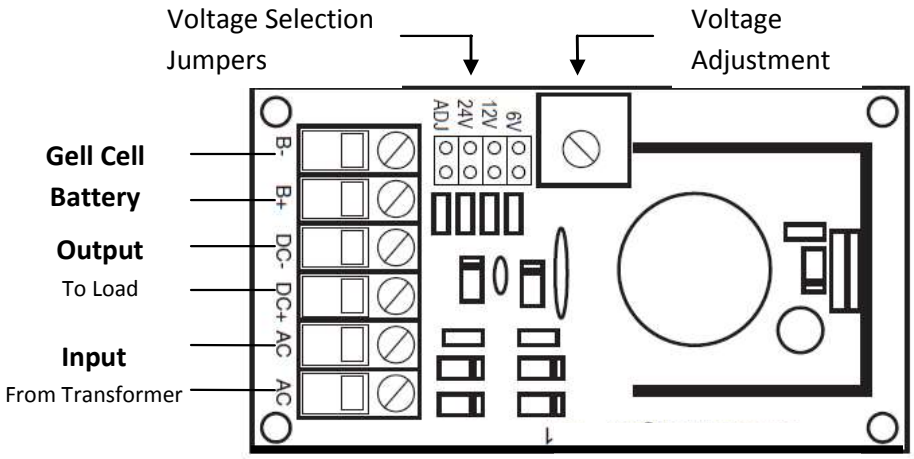


Specifications

Input Voltage**	6 – 24 VAC depending Output voltage selected
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	12VDC = 85%, 24VDC = 90%
Dimensions	2.70" (68.6mm) **L** x 1.50" (38.1mm) **W** x H 1.750" (45.5mm) **H**

**** See table on back of page.**

Wiring Diagram



Transformer Selection

Required Output Voltage	Transformer	
	Volts	VA
6 VDC	6 – 9 VAC	20
9 VDC	9 – 12 VAC	20
12 VDC	12 – 14 VAC	30
13.8 VDC	14 – 16 VAC	30
18 VDC	18 – 20 VAC	30
24 VDC	24 – 26 VAC	40

IMPORTANT

Input transformer required.

DO NOT connect circuit to the 120 VAC line.



PART 1 GENERAL

1.1 Section Includes

.1 This section shall include the supply of all labour, materials, tools and appliances required for the execution and completion of all the work of miscellaneous glass not specified elsewhere. In general, this will include the glazing of all wood or metal doors and screens.

1.2 Submittals

.1 Submit required submittals in accordance with Section 01 33 00 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

.2 Product data sheets: Submit manufacturer's Product data sheets for Products proposed for use in the work of this section, including additional data as may be required to demonstrate compliance with the Contract Documents.

.3 Test Results: Submit certified test results for each required fire resistance rated assembly for work of this section.

1.3 Warranty

.1 All work performed and materials supplied under this Section to be warranted from defects for a period of two (2) years from Substantial Completion.

1.4 Trade Qualifications

.1 Work of this Section shall be executed by a company able to deploy adequate equipment and skilled personnel to complete Work expediently in an efficient and orderly manner.

1.5 Handling And Storage

.1 Handle and store materials in accordance with manufacturer's and supplier's recommendations and so as to prevent damage. Deliver and store packaged materials in original, undamaged containers with manufacturer's labels and seals intact.

PART 2 PRODUCTS

2.1 Tempered Glass

.1 Thickness 6mm, single pane and shall be located in ALL sidelights and doors, and glass below required minimum guard height of 1070 mm unless otherwise noted.

.2 Conform to National Standards of Canada CAN2-12.2-MT6.

2.2 Glazing Tape

.1 Tremco Manufacturing Co. 440 tape.

2.3 Setting Blocks

.1 Neoprene of dimensions to suit the location.

PART 3 EXECUTION

3.1 General

.1 Cut glass to measurements taken at site. Provide for glass expansion. See drawings, door and finish schedule for location and type of glass required

.2 Perform glazing in accordance with material manufacturers' directions to ensure rattle free cushioning. Set glass properly centred with uniform bit and face and edge clearance, free from distortion likely to develop stress.

.3 Clean glazing rabbets, stops and glass edges free of foreign matter that is detrimental to adhesion of glazing materials, with approved cleaner.

.4 Remove stops and replace securely attached and accurately aligned after glazing. Prevent damage to stops and finish.

.5 Set glass with equal bearing full width of pane. Using setting blocks, and spacers of proper size to support and hold glass position independent of the glazing tape.

.6 Apply continuous length of glazing tape to interior leg of glazing recess, making joints only at corners.

3.2 Cleaning of Glass

.1 On completion of the job and before acceptance by the Consultant, remove all paint spots, plaster spots, stickers, etc. from all glass and mirror surfaces throughout the job. All cleaning shall be done with clean water and detergent, and dried with squeegees and chamois.

.2 All protection erected under this Section shall be removed, all damage to this work and joining surfaces made good, all surplus materials and debris and tools, plant and equipment removed from premises.

END OF SECTION

PART 1 GENERAL

1.1 Section Includes

.1 Gypsum board assemblies.

1.2 References

.1 The standards referenced in this section are to the following editions:

.1 ANSI H35.1-06 -American National Standard Alloy and Temper Designation Systems for Aluminum (US & Metric Units).
.2 ASTM A653/A653M-97 -Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Press.
.3 ASTM B117-03 -Standard Practice for Operating Salt Spray (Fog) Apparatus.
.4 ASTM C475-02- Standard Specification for Joint Compound and Joint Tape for Finishing of Gypsum Board.
.5 ASTM C840-06- Standard Specification for Application and Finishing of gypsum Board.
.6 ASTM C919-02- Standard Practice for Use of Sealants in Acoustical Applications.
.7 ASTM C954-04 -Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
.8 ASTM C1002-96a - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
.9 ASTM C1047-05- Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
.10 ASTM C1177-06 -Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
.11 ASTM C1280-04- Standard Specification for Application of Gypsum Sheathing.
.12 ASTM C1396/C1396M-06 -Standard Specification for Gypsum Board.
.13 CGSB-19-GP-14M-1976- Sealing Compound, One Component, Butyi-Polyisobutylene Polymer.
.14 CAN/CGSB-19.21-M87- Sealing and Bedding Compound Acoustical
.15 GA 214-96- Recommended Levels of Gypsum Board Finish.
.16 GA-216-040 Application and Finishing of Gypsum Panel Products.
.17 GA-253-99- Application of Gypsum Sheathing.
.18 GA-600-06 -Fire Resistance Design Manual
.19 CAN4-S114-M80 - Standard Method of Test for Determination of Non-Combustibility in Building Materials.
.20 CAN/ULC-S702-97- Standard for Thermal Insulation Mineral Fibre for Buildings.

.21 CGC Gypsum Construction Handbook.

1.3 Quality Assurance

.1 Work of this Section shall be executed by a company able to deploy adequate equipment and skilled personnel to complete Work expediently in an efficient and orderly manner.

.2 Fire resistance rating: Where gypsum board systems with fire resistance ratings are indicated or required, provide materials and installations that are identical with those of applicable assemblies tested by fire testing laboratories acceptable to authorities having jurisdiction.

1.4 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

.2 Product data sheets:

.1 Submit manufacturer's Product data sheets for Products proposed for use in the work of this section.

1.5 Environment Requirements

.1 Environmental requirements, general: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during and after application of gypsum boards.

.2 Cold Weather Protection: When ambient outdoor temperatures are below 12 oc (55 °F) maintain continuous, uniform comfortable building working temperatures of not less than 12oc (55oF) for a minimum period of 48 hours before, during and following application of gypsum board and joint treatment materials or bonding of adhesives.

.3 Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.

.4 Protection: Provide adequate protection of materials and work of this section from damage by weather and other causes. Protect work of other trades from damage resulting from work of this section. Make good such damage at no additional cost to the Owner.

1.6 Delivery, Storage and Handling

.1 Store materials in protected dry areas. Store gypsum board flat in piles with edges protected.

.2 Ensure that finish metal members are not bent, dented, or otherwise deformed.

.3 Deliver Products supplied under the work of this section only to those who are responsible for installation, to the place they direct, and to meet installation schedules.

.4 Package fire rated materials with labels attached.

PART 2 Products

2.1 Materials – Framing

.1 Metal Studs and Tracks - Standard Duty: To ASTM C645; 0.455 mm thick sheet steel; galvanized or galvalumed finish; C-Shape with 32 mm wide flange, complete with serrated faces and knock-outs for electrical fitments; depths as indicated on Drawings.

.2 Metal Studs and Tracks - Heavy Duty: To ASTM C645; 0.836 mm thick sheet steel; galvanized or galvalumed finish; C-Shape with 32 mm wide flange, complete with serrated faces and knock-outs for electrical fitments; depths as indicated on Drawings.

.3 Metal Shaft Wall Studs: To ASTM C645; 0.836 mm thick sheet steel; galvanized or

galvalumed finish; CH- and E-Shapes, complete with serrated faces and knock-outs for electrical fitments; depths as indicated on Drawings.

.4 Metal Deflection Track: To ASTM C645; 0.455 mm thick sheet steel; galvanized or galvalumed finish; U-Shape with long legs, designed to accommodate structural deflections; depths as indicated on Drawings.

.5 Furring Members: To ASTM C645; 0.455 mm thick sheet steel; galvanized or galvalumed finish; and as described below:

.6 C-Shaped Furring Channels: 13 mm wide flange, 19 mm deep unless noted otherwise on Drawings.

.7 Hat-Shaped Furring Channels: 13 mm wide flange, 22 mm deep unless noted otherwise on Drawings.

.8 Z-Shaped Furring: With slotted or non-slotted web, 32 mm face flange, 22 mm wall attachment flange; depth as indicated on Drawings.

.9 Resilient Furring Channels: Designed to reduce sound transmission; 13 mm deep unless noted otherwise on Drawings.

.10 Carrying Channels: To ASTM C754; 1.37 mm thick cold-formed steel with galvanized or galvalumed finish; having minimum yield strength of 228 MPa; C-Shape with 13 mm flange width, 38 mm deep unless noted otherwise on Drawings.

.11 Furring Brackets: 0.79 mm thick sheet steel; galvanized or galvalumed finish; adjustable, with corrugated-edge.

.12 Flat Strap and Backing Plates: 0.455 mm thick sheet steel; galvanized or galvalumed finish; lengths and widths as indicated on Drawings.

.13 Channel Bridging: 0.455 mm thick sheet steel; galvanized or galvalumed finish; 13 mm wide flange, 19 mm deep unless noted otherwise on Drawings.

.14 Hanger Wire: To ASTM A641/A641M; zinc-coated, soft-annealed, 3.77 mm OD steel wire.

.15 Tie Wire: To ASTM A641/A641M; zinc-coated, soft-annealed, 1.21 mm OD steel wire.

2.2 Materials - Board

.1 All walls to be Abuse-Resistant Gypsum Board: ASTM C 1629/C 1629M Basis-of-Design Product: Georgia-Pacific Gypsum; "DensArmor Plus Abuse-Resistant Panel”

.1 16mm (5/8") thick, tapered edges.

.2 Skim coat finish prior to painting.

.2 Interior ceiling grade gypsum board: to ASTM C1396/C1396M, non-sag type for ceiling applications. Interior Gypsum Ceiling Board by CGC or approved alternate.

2.3 Fasteners

.1 Screws; for gypsum board: bugle head, fine thread, self-tapping, Type W or S or S-12 point to suit framing type and metal gauge, with corrosion resistant finish to ASTM

C1002/C954. Screw sizing:

.1 #6 x 25 mm (1") for single thickness board fastening.

.2 #6 x 32 mm (1-1/4") for single thickness 15.9 mm (5/8") board fastening.

.3 #7 x 41 mm (1 5/8") for double thickness board fastening.

.2 Screws; for cement board: Wafer head, Type S-12 point or 'Hi-Lo', self-tapping, with corrosion resistant polymer finish.

.3 Tie wire: 1.6mm (0.063”) diameter galvanized soft annealed steel wire.

2.4 Accessories

.1 Accessories: to ASTM C1047 unless otherwise indicated, maximum length pieces per location. Flanges shall be free from dirt, grease, or other material that adversely affects the bond of joint treatment or decoration.

.2 Casing trim; "L" or "LC" beads: Bailey, Nicholson Rollforming, Dietrich; fillable edge trim, 0.55mm (0.022”) base thickness commercial grade sheet steel with zinc wiped coating to ASTM A653/A653M; perforated flanges.

.3 Casing trim adjacent to exterior window frames:

.1 "L" or "LC" beads: tillable, PVC, Dietrich, Trim-Tex Drywall Products.

.4 Corner bead: Fillable edge trim, 0.55 mm (0.022") base thickness commercial grade sheet steel with zinc wiped coating to ASTM A653/A653M; paper backed flanges; CGC type.

.5 Painted reveal mould: painted PVC trim, to later selection by Consultant.

.6 Reveal trim: Bailey D300, 0.55 mm (0.022") base thickness commercial grade sheet steel with zinc wiped coating to ASTM A653/A653M.

.1 Or similar style PVC type by Dietrich, Trim-Tex Drywall Products.

.7 Control joints:

.1 Dietrich 093.

.8 Aluminum gypsum board trim:

.1 Extruded alloy 6063-T5 to ANSI H35.1 consisting of fin, tapered, grooved, and prepunched for screw attachment and bonding agent, as manufactured by Gordon, Inc., or Softforms or Fry Reglet.

.2 "T" Moulding: Fry Reglet TDM-652-50.

.3 "F" Reveal Moulding: Fry Reglet DRMF-652-50.

.4 "Z" Reveal Moulding: Fry Reglet DRMZ-652-50.

2.5 Joint and Adhesive Materials

.1 Joint compound:

.1 Gypsum board work: asbestos-free. Latex resin base, possessing good adhesion, mixed with fresh, unadulterated water having no detrimental effect on compounds, to ASTM C475; type recommended by manufacturer for application indicated.

.2 Gypsum board to receive tile finish: setting-type powder based joint finishing compound. 'Durabond' by CGC or approved alternate.

.3 Cement board work: setting-type powder based joint finishing compound. ‘Duracrete Exterior Basecoat’ by CGC or approved alternate.

.2 Joint reinforcing tape:

.1 Gypsum board: 50 mm x 0.3 mm (2" x 0.01") thick, perforated paper, with chamfered edges.

.2 Interior cement and tile backer board: 50 mm (2") minimum width, open weave polymer coated, alkali resistant fibreglass tape. Acceptable product: Duracrete Interior Tape by CGC or approved alternate. Use self adhering type at cement and tile backer board locations to receive tiles.

.3 Laminating adhesive; for gypsum panels only: in accordance with gypsum board manufacturer's printed installation instructions, to suit application.

.1 Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

.3 Primer-Surfacer: Tuff-Hide Primer-Surfacer, as manufactured by CGC, for use where Level 5 finish is indicated or scheduled.

2.6 Acoustic Wall Assembly and Noise Barrier Ceiling Materials

.1 Acoustic compound: premixed perlite plaster.

.2 Acoustic (sound attenuation) insulation:

.1 See 07 21 16.

2.7 Access Doors

.1 Access doors: see Mechanical Drawings.

PART 3 Execution

3.1 Installation

.1 General: Comply with ASTM C840, GA-216, GA-600, and manufacturer's instructions, except as otherwise indicated. Do not bridge building expansion joints with support system. Frame both sides of joints with furring and other supports as indicated.

.2 Follow all CGC Handbook Installation details.

3.2 Framing

.1 Install metal wall framing to ASTM C754 and CGC Gypsum Construction Handbook.

.2 Where metal framing is installed directly against exterior masonry walls or dissimilar metals at exterior walls, Provide foam gasket between metal framing and exterior wall.

.3 Install studs with flanges pointing in same direction.

.4 Space metal stud framing in straight walls and partitions at maximum 400 mm OC.

.5 Install track floors and overhead supports.

.6 Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings.

.7 Continue framing around ducts penetrating partitions of structure.

.8 Where framing extends to overhead structural supports, Provide deflection track to create a slip-type head joints to produce joints at tops of framing system that prevent axial loading of finished assemblies due to deflection of structure.

.9 Screw vertical studs at door opening jambs to jamb anchor clips at door frames. Install track section for cripple studs at head and secure to jamb studs.
- .1 Provide two studs at each jamb.
- .2 Provide cripple studs at head adjacent to each jamb stud, with minimum 13 mm clearance from jamb stud to allow for installation of control joint in finished assembly.

.10 Provide framing below sills of openings to match framing required above opening heads.

.11 Fire-Resistance-Rated Partitions:
- .1 Install framing to comply with fire-resistance-rated assembly indicated.
- .2 Support closures and make partitions continuous from floor to underside of solid structure.

.12 Sound-Rated Partitions:
- .1 Install framing to comply with sound-rated assembly indicated.

.13 Curved Walls and Partitions: Conform to GA-226, and as follows:
- .1 Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
- .2 Begin and end each arc with a stud, and space intermediate studs equally along arcs at maximum 150 mm OC.
- .3 On straight lengths of not less than two studs at ends of arcs, place studs at maximum 150 mm OC.

.14 Direct Furring:
- .1 Attach furring to concrete or masonry with stub nails, screws designed for masonry attachment, or power-driven fasteners spaced at 610 mm OC.

.15 Z-Furring Members:
- .1 Erect insulation vertically and hold in place with Z-furring members spaced at 610 mm OC.
- .2 Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or power-driven fasteners spaced at 610 mm OC.
- .3 At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel.
- .4 At interior corners, space second member no more than 305 mm from corner and butt

insulation to fit.

.16 Unless indicated otherwise, Provide supplementary framing and furring to conceal pipes, conduit and ducts.

.17 Provide supplementary framing and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings and similar construction.

.18 Install bracing at terminations in assemblies.

.19 Do not bridge building control joints and expansion joints with non-load bearing steel framing members. Frame both sides of joints independently.

.20 Installation Tolerances: Install framing members so fastening surfaces vary not more than 3 mm from plane formed by faces of adjacent framing members.

3.3 Suspended Ceiling Framing

.1 Install ceiling framing to ASTM C754 and CISCA installation standards.

.2 Isolate suspension system from building structure. Prevent transfer of loading imposed by structural movement.

.3 Install hangers plumb and free from contact with insulation or other objects within ceiling plenum.

.4 Size supplemental suspension members and hangers to support ceiling loads within established performance limits.

.5 Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or similar devices.

.6 Secure wire hangers by looping and wire tying, either directly to structure or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate; and in a manner that will not cause hangers to fail or deteriorate.

.7 Do not attach hangers to steel roof decking, or to rolled-in hanger tabs of composite steel floor decking.

.8 Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.

.9 Do not connect or suspend steel framing from ducts, pipes or conduit.

.10 For fire-resistance-rated assemblies, wire tie furring channels to supports.

.11 Installation Tolerances: Level to within 3 mm in 3 600 mm, measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.4 Gypsum Board

.3 Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1.6 mm (1/16") open space between boards. Do not force into place.

.4 Cover both faces of stud partition framing with gypsum board in concealed spaces (above ceiling, and the like) unless otherwise indicated, except in chase walls which are properly braced internally.

.5 Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cut-outs.

.6 Securely attach trim, casings, framing, and accessories.

.7 Apply components of fire-rated assemblies in conformance with indicated designs.

.8 Erect materials to dimensions indicated, plumb, level, straight, and square to adjoining elements.

.9 Do not apply gypsum board in close proximity to hot pipes or heating ducts.

.10 Install materials with the minimum number of joints. Tightly butt joints, without force, and neatly align them.

.11 Frame openings on every side. Provide clearances with services.

.12 Work shall include bulkheads over doors, frames, screens, and changes in ceiling levels, pipe space and as indicated.

.13 Provide clearances between work of this section and structural elements to prevent transference of structural loads in accordance with Section 09100.

.14 Tolerances:

.1 Do not exceed 3 mm (1/8") in 3m (10') variation from plumb, level, and plane in exposed surfaces, except at joint between gypsum board panels.

.2 Do not exceed 10 mm (3/8") from drawings locations.

.3 Do not exceed 1.5 mm (1/16") variation between planes of abutting edges or ends.

.15 Before application of gypsum board commences, ensure that internal services have been installed, tested, and approved; that conduits, pipes, cables, and outlets are plugged, capped, or covered; and that fastenings and supports installed by others are in place.

.16 Extend board into door, window, and other openings, reveals, behind fitments, and other applied items and on metal stud partitions to structure above unless indicated otherwise.

.17 Apply board with long dimension perpendicular to supports, typically.

.18 Locate joints on opposite sides of partitions on different studs, and at least 305mm (12”) from opening jambs.

.19 Install board to minimize joints, and align end joints to be the least objectionable (where they are unavoidable), according to the indicated lighting design. Locate joints in

ceilings where least prominently discerned, and never line them up with opening edges.

.20 Form smooth joints at ends and at field cut edges of board panels.

.21 Fasten board to metal support members by metal gypsum board screws, 9.5 mm (0.374”) minimum to and 12.7mm (1/2”) maximum from, centre of joints. Space screws:

.1 At fire rated board as per fire-rated assembly.

.2 At typical board walls at 400 mm (16") on centre at edges and field unless otherwise required.

.3 At typical board ceilings at 305 mm (12") on centre at edges and field unless otherwise required.

.22 At laminated plain gypsum board locations: Apply adhesive with notched spreader to leave ribbons 10 mm x 13 mm (3/8" x 1/2") at 38 mm (1-1/2") apart over entire back side of face layer. Erect board immediately after spreading adhesive. Temporarily secure face boards with screws or bracing to ensure adequate bond until adhesive sets. Temporary face screws may also be used. Substrate shall be fully cured and sufficiently dry to allow adhesive to fully cure and notre-emulsify.

.23 Offset gypsum board joints 150 mm minimum from corners of openings.

.24 Gypsum panel product joints shall be located so that no joint will align with the edge of an opening unless control joints are to be installed at these locations.

.25 Gypsum Panel Erection:

.1 Apply gypsum panels horizontally with the wrapped edges perpendicular to studs. On the convex side of the partition, begin installation at one end of the curved surface and fasten panel to studs as it is wrapped around the curve. On the concave side, start fastening panel to the stud at the centre of the curve and work outward to the panel ends. Fasten single-layer panels with 25 mm (1") Type S screws spaced 300 mm (12") on centre.

.2 For double-layer application, apply base layer horizontally and fasten to stud with 25 mm (1") Type S screws spaced 400 mm (16") on centre. Centre face layer panels over joints in the base layer and secure to studs with 41 mm (1-5/8") Type S screws spaced 300 mm (12") on centre. Allow panels to dry completely before applying joint treatment.

3.5 Accessories

.1 At external corners install corner trim secured to framing at 230 mm (9 1/16") on centre on both flanges with screw fasteners or clinch tool.

.2 Secure casing trim at board edges where exposed to view, where board butts against other materials with no trim to conceal junction, at perimeter of ceiling surfaces at tops of partitions where they stop against continuous ceiling surfaces, and where indicated.

.3 Erect accessories straight, plumb or level, rigid and at proper plane.

.4 Use full length pieces.

.5 Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners, free from rough edges. Secure in accordance with manufacturer's specifications unless otherwise required.

.6 Installation tolerances:

.1 Alignment with board panels shall not exceed tolerances specified above.

.2 End joints shall be flush aligned to maximum offset of 0.5 mm (0.020 inch).

3.6 Acoustic Wall Assemblies

.1 Acoustical sealant and plaster:

.1 Apply acoustical sealant in accordance with applicable requirements of ASTM C919.

.2 Apply bead of acoustic sealant to seal both sides of partition assembly between gypsum board and adjacent floor, wall, and ceiling assembly of partitions which contain sound attenuation insulation, and where noted.

.3 Apply bead of acoustic sealant to seal both sides of partition assembly at top and bottom of control joints.

.4 Apply bead of acoustic sealant to seal intersections with sound-isolating partitions that are extended to reduce sound flanking paths.

.5 Apply bead of acoustic sealant to seal joint between penetrations and gypsum board.

.6 Completely seal objects at wall and gypsum board penetrations (such as electrical boxes) with heavy coating of premixed perlite plaster.

.7 Apply sealant to clean, dry surfaces.

.2 Sound attenuation insulation:

.1 Install sound attenuation insulation wherever insulation in partitions is indicated.

.2 Install sound attenuation insulation in partitions so indicated by filling voids with batts of specified thickness.

.3 Maintain air space between backs of sound attenuation insulation and back of opposite face layer, as applicable.

.4 Pack sound attenuation insulation against ducts, conduits and services passing through acoustic wall assemblies.

.5 Extend acoustic wall assemblies to underside of structure. Incorporate approved provision to prevent transmittance of structural deflection to partition assembly.

.6 Staple sound attenuation insulation where required by manufacturer's data.

.7 Where studs are not faced with gypsum board on both sides, mechanically fasten wire mesh to non-faced side of stud to retain insulation.

.8 Mechanically attach sound attenuation insulation in wall assemblies where cavity of wall assembly is greater than 150 mm.

.9 Secure insulation in such a manner that it will not sag.

3.7 Sound Flanking Paths:

.1 Where sound rated partition walls intersect non rated gypsum board partition walls, extend sound rated construction to completely close sound flanking paths through non rated construction.

.2 Seal joints between face layers at vertical interior angles of intersecting partitions.

3.8 Finishing

.1 Provide levels of gypsum board finish for locations as follows, in accordance with GA-214 and as follows:

.1 Level 1: Ceiling plenum areas and concealed areas, except provide higher level of finish as required to comply with fire resistance ratings and acoustical ratings.

.2 Level 2: Gypsum board substrate at applied hard surfaces, except remove tool marks and ridges.

.3 Level 4: Exposed gypsum board surfaces, except where another finish level is indicated.

.4 Level 5: Where indicated.

.2 Interior Gypsum Board:

.1 Prefill:

.1 Use setting-type joint compound. Mix joint compound according to manufacturer's directions.

.2 Fill joints between boards flush to top of eased or beveled edge.

.3 Fill joints of gypsum board above suspended ceilings in fire rated partitions.

.4 Wipe off excess compound and allow compound to harden.

.2 Taping (Level 1):

.1 Butter taping compound into inside corners and joints.

.2 Center tape over joints and press down into fresh compound.

.3 Remove excess compound.

.4 Tape joints of gypsum board above suspended ceilings.

.3 First coat (Level 2):

.1 Use taping or all-purpose drying-type compound.

.2 Immediately after bedding tape, apply skim coat of compound and allow to dry completely in accordance with manufacturer's instructions.

.3 Apply first coat of compound over flanges of trim and accessories, and over exposed fastener heads and finish level with board surface.

.4 Second coat (Level 3): After first coat treatment is dried, apply second coat of compound over tape and trim, feathering compound 2 inches beyond edge of first coat.

.5 Third coat (Level 4):

.1 After second coat has dried, sand surface lightly and apply thin finish coat to joints, fasteners and trim, feathering compound 50 mm (2 inches) beyond edge of second coat.

.2 Allow third coat to dry. Apply additional compound, and touch-up and sand, to provide surface free of visual defects, tool marks, and ridges, and ready for application of finish.

.3 Finished joints will be accepted with a camber not greater than 1 mm (1/32") and shall be seamless, plumb, true and flush and with square neat corners.

.6 Skim coat (Level 5):

.1 Apply skim coat of topping or all-purpose drying-type compound over exposed surfaces of gypsum board.

.2 After skim coat has dried, touch-up and sand to provide surface free of visual defects, tool marks, and ridges, and ready for application of finish.

.7 At board fasteners: fill holes and depressions with a 2 coat application of joint filler.

.3 Joint Compound:

.1 After skim coat sets, apply finish coat of compound feathering 75 mm (3") to 100mm (4”) beyond tape joints.

.2 Feather coats onto adjoining surfaces so that camber is maximum 0.75mm (1/32”).

.3 Allow joint compound to completely set before applying veneer plaster finish.

.4 Trim:

.1 Use same fasteners to anchor trim accessory flanges as required to fasten gypsum board to supports, unless otherwise recommended by trim manufacturer.

.2 Install metal corner beads at external corners.

.3 Install metal casing bead trim whenever edge of gypsum base would otherwise be exposed or semi exposed, and where gypsum base terminates against dissimilar material.

.4 Erect beads plumb or level, with minimum joints.

.5 Control Joints:

.1 Provide control joints set in board facing. Support control joints with studs or furring channels on both sides of joint.

.2 Provide control joints in required locations. Review control joint locations with Consultant prior to installation.

.3 Full height door frames shall be considered equivalent to a control joint.

.4 Install control joints where a partition, wall, or ceiling traverses a construction joint (expansion, seismic or building control element) in the building structure.

.5 Install control joints where a wall or partition runs in an uninterrupted straight plane exceeding 9100mm (30 linear feet).

.6 Install control joints in interior ceilings:

.1 With perimeter relief:

.1 Linear dimensions between control joints shall not exceed 15000 mm (50 ft) and total area between control joints shall not exceed 230m^2 (2500 ft^2).

.2 Without perimeter relief:

.1 Linear dimensions between control joints shall not exceed 9100 mm (30 ft) and total area between control joints shall not exceed 84m2 (900ft2).

.7 Install control joints where ceiling framing members change direction.

.8 Where a control joint occurs in an acoustical or fire-rated system, blocking shall be provided behind the control joint by using a backing material such as 16 mm (5/8") type X gypsum panel products, mineral fibre, or other tested equivalent. Construct through-wall control joints at fire-rated assemblies in accordance with assembly listing requirements.

.9 Line up control joints with joints in other construction or with centre lines of mullions, columns, piers, or similar building elements, where accepted by

Consultant.

.10 Install control joints straight and true.

.11 Ceiling height door frames may be used as control joints. Less than ceiling height frames shall have control joints extending to the ceiling from both corners. If control joints are not used, additional reinforcement is required at corners to distribute concentrated stresses.

.12 Board joints shall be located so that no joint will align with the edge of an opening

3.9 Primer-Surfacer Application

.1 Apply primer-surfacer in accordance with manufacturer's written recommendations.

.2 Substrate must be sound, dry, clean, and free of oil, grease, mildew, and efflorescence, and in accordance with manufacturer's written recommendations.

.3 Maintain product, surface, and air temperature of 13 oc (55 °F), minimum, before, during, and after application until surface is dry.

.4 Use airless spray application only, using manufacturer's approved equipment.

.5 Hold spray gun 300 mm to 450 mm (12" to 18") from surface, moving parallel to surface at steady rate. Lap each stroke 50%.

.6 Spray from left to right to scratch-in the initial coat at approximately 1/2 desired thickness, then crosshatch spray up and down as the double-up coat to required thickness.

.7 When applying to corners, aim the gun toward the centre of the corner to ensure both sides are sprayed evenly.

.8 When used in lieu of a skim coat of joint compound and paint primer coat in a Level 5 gypsum board finish in accordance with Gypsum Association publication GA-214/ASTM C840, apply to a minimum wet film thickness (WFT) of 0.38 mm to 0.51 mm (15-20 mils). In all applications, do not exceed a WFT of 0.51 mm (20 mils).

3.10 Access Doors

.1 Install access doors to mechanical and electrical fixtures specified in Mechanical and electrical drawings & specifications.

.2 Access doors shall be as supplied by Mechanical and Electrical divisions. Locations to be reviewed and confirmed by Consultant.

.3 Install access panels in locations to be determined by coordination with trades installing mechanical, electrical and other building services and consultation with Consultant.

.4 Rigidly secure frames to furring or framing systems.

3.11 Special Cleaning

.1 Clean up and remove surplus materials and rubbish resulting from the work of this section on completion and when directed and from cavities before enclosing.

.2 Clean off beads, casings, joint compound droppings and the like, leave the work of this section ready for painting trades.

END OF SECTION

PART 1 GENERAL

1.1 Section Includes

.1 Hard surface tiling (CT).

.2 Mortar bed for tiling.

.3 Thin-set adhesives for tiling.

.4 Waterproofing under indicated tile assemblies.

.5 Trim accessories.

.6 Skim coats and Levellers for flush transitions, and to allow for floor level tolerances.

1.2 Reference Standards

.1 ANSI – American Standard Specification for the Installation of Ceramic Tile.

.2 TTMAC – Terrazzo, Tile & Marble Association of Canada.

.3 ICRI – International Concrete Repair Institute.

1.3 Quality Assurance

.1 Work of this Section shall be executed by a company able to deploy adequate equipment and skilled personnel to complete Work expediently in an efficient and orderly manner. Skilled workers trained and experienced in tiling, and members of TTMAC.

.2 Conduct a pre-installation meeting.

.3 Tile products shall be from same production run, dye lot, calibre, and batch number. If shading variation is evident, notify Consultant prior to installation.

1.4 Submittals

.1 Submit required submittals in accordance with Section 01 33 00.

.2 Samples

.1 Submit three (3) full size samples of each type of tile specified.

.2 Submit three (3) 305mm long samples trim accessory.

.3 Provide samples of control joint sealant.

.4 Submit full size samples of each unglazed tile, fully grouted (4 tiles) with selected grout colour and matching control joint sealant.

.3 Product Data sheets

.1 Submit manufacturer's Product data sheets for Products proposed for use in the work of this section.

.2 Submit manufacturer's installation instructions for Products proposed for use in the work of this section.

.4 Shop drawings

.1 Indicate location of expansion and control joints within overall wall and floor tile layouts.

.5 Closeout submittals

.1 Submit closeout submittals in accordance with Section 01 78 00

.2 Maintenance materials:

.1 Provide minimum 5% of each type and colour of tile required for the Work for maintenance use.

.2 Maintenance material to be of same production run as installed material.

.3 Maintenance data:

.1 Submit maintenance instruction for inclusion in the maintenance manuals.

1.5 Environmental Requirements

.1 Execute work of this section while temperature is maintained within safe working temperatures in accordance with manufacturer's installation instructions for a period of 72 hours before, during and following installation. Avoid concentrate or irregular heating during curing period.

.2 Protect work of this section against damage by work of other sections for a minimum of 72 hours after application of grouting by prohibition passage of traffic over tile. Do not immerse in water and protect tile work from freezing for at least 28 days after installation.

1.6 Sequencing and Scheduling

.1 Coordinate installation of tile work with related work.

.2 Proceed with tile work only after curbs, vents, drains, piping, and other projections through substrate have been installed and when substrate construction and framing of opening have been completed.

1.7 Warranty

.1 All work performed and materials supplied under this Section to be warranted from defects for a period of two (2) years from Substantial Completion.

PART 2 PRODUCTS

2.1 Tile Products

.1 Floor Tile: Daltile, Keystones; Biscuit; 50mm x 50mm format.
  .1 Cove Base detail – Follow Built up Base detail with Shape number MB5A.

.2 Floor Tile: (for areas of Make Good existing tiling)

  .1 Daltile – Colour Body Porcelain Plaza Nova, 12” x 24”, Gray Fog PN 98; Assume (8) tiles needed.
  .2 Daltile – Colour Body Porcelain – Plaza Nova, 6” x 24”, Gray Fog PN 98; Assume (8) tiles needed.

.3 Wall Tile – Washroom
  .1 Daltile American Olean – Colour Story; Blue Peacock 50mm x 200mm.
  .2 Daltile American Olean – Colour Story; Ice White 50mm x 200mm.
  .3 Layout and pattern as per drawings.

.4 Wall Tile – Kitchen backsplash
  .1 Daltile American Olean – Colour Story; Blue Peacock 50mm x 200mm.
  .2 Daltile American Olean – Colour Story; Green Apple 50mm x 200mm.
  .3 Daltile American Olean – Colour Story; Dependable 50mm x 200mm.
  .4 Daltile American Olean – Colour Story; Lemon Zest 50mm x 200mm.
  .5 Layout and pattern as per drawings.

2.2 Mortar and Grout Materials

.1 Portland Cement: To CSA A3001, Type GU.
.2 Hydrated Lime: To ASTM C207, Type N-Normal.
.3 Sand: To ASTM C144, passing 16 mesh.
.4 Dry-Set Portland Cement Mortar: To ANSI A118.1.
.5 Latex-Portland Cement Mortar: To ANSI A118.4.
.6 Cementitious Grout: To ANSI A118.7; rapid setting type, polymer-modified sanded Grout; eg. Ultracolour Plus FA by Mapei, colours as selected by Consultant.

2.3 Accessories and Related Materials

.1 Trim accessories: Rondec RO100AE, anodized aluminium trim for wall tile base.

.2 Wall tile edges: Scheine by Schluter, stainless steel.

.3 Flooring Transition Strips – See 09 65 13, and drawings.

.4 Joint sealants: mildew resistant sealant in accordance with Section 07 92 00.

.5 Crack Isolation Membrane: To ANSI A118.12, High Performance Rating; loadbearing membrane.

.6 Reinforcing Mesh: 50 x 50 MM size; 1.6mm thick steel wire mesh; welded fabric, glavanized.

.7 Metal Lath: To ASTM C847; 1.4 kg/m2 galvanized steel lath.

.8 Tape: 50MM fibre mesh tape, as recommended by backer board manufacturer.

.9 Organic Adhesive: To ANSI A136.1; Type 1 for wet areas and Type 2 for dry areas.

.10 Latex Adhesive: Formulated for use in Portland cement mortars and grout.

.11 Water: Clean, cold and potable.

.12 Tile Sealer: To CAN/CGSB-25.20 Type 1 – Penetrating.

.13 Grout pigment – colour as per Consultant. One Colour for washroom walls, one for kitchen backsplash and third for floor tiles.

2.4 Mixes

.1 Scratch Coat (by volume): One part Portland cement, 4 parts sand, and latex additive where required by TTMAC Detail. Premixed mortar may be used per manufacturer's instructions. Adjust water volume depending on moisture content of sand to obtain consistency and workability.

.2 Slurry Bond Coat: Mix Portland cement and water to a creamy paste consistency. Include latex additive where required by TTMAC Detail.

.3 Levelling Coat (by volume): One part Portland cement, 4 parts sand, and latex additive where required by TTMAC Detail. Premixed mortar may be used per manufacturer's instructions.

PART 3 EXECUTION

3.1 Examination

.1 Ensure compatibility of Products supplied under this section, and which bear contact with substrate.

.2 Before work of this section commences, examine the areas TO be covered and report any flaw or adverse conditions in writing to the Contractor and the Consultant. Do not proceed with work until surfaces and conditions comply with the requirements indicated in the manufacturer's instructions and in ANSI A108.5-2011 specification.

.3 Miscalibrated tiles, tiles with chipped corners, tiles with holes, will not be accepted for installation.

.4 Inspect tiles for colour variation. Tiles presenting noticeable variations whall be carefully selected, set aside and used in areas where they fit in the pattern homogeneously. Provide for appropriate lighting equipment in addition to existing lighting in the immediate area where the installation is being performed so that any shade difference which are normally very slight can be identified easily.

3.2 Preparation

.1 Wall surfaces:

.1 Roughen surfaces with previously painted glossy finishes by sandpaper or other abrasive medium, and completely remove finishes which are not compatible with products specified under this section.

.2 Completely remove contaminants and deleterious substances and debris which may prevent, reduce, and affect adhesion or performance or may act as bond breaker.

.3 Prime gypsum, wood or porous concrete with primer, brush or roller applied at full strength in accordance with adhesive manufacturer's recommendations.

.2 Floor surfaces:

.1 Prepare concrete to receive waterproofing membrane in accordance with International Concrete Repair Institute (ICRI) designation CSP-2.

.3 Completely remove contaminants and deleterious substances and debris which may prevent, reduce, and effect adhesion or performance or may act a bond breaker.

.1 At door opening locations where finished flooring is adjacent to weather-stripping or automatic door bottoms provide trowel-applied levelling compound to provide full contact between finished flooring and weather-stripping or automatic door bottoms. Taper trowel-applied levelling compound to transition with adjacent flooring substrate to be provide smooth and seamless transition at maximum slope of 3:100 (height to distance) ratio.

3.3 Mixing

.1 Mix mortars, additives and grouts in accordance with manufacturer's requirements.

.2 Rotating blade mechanical mixer: Pour latex additive, start mixer and add sand first, followed by Portland cement. Mix no mortar in same mixer as a dissimilar type of mortar unless the mixer is first thoroughly washed clean.

.3 Pail batch mixing with low revolution drill mixer as follows:

.1 Premix separately prior to adding to the late additive.

.2 Pour latex additive into clean mixing vessel and add dry materials slowly while mixing into a homogeneous and smooth consistency.

3.4 Installation - General

.1 Install products in accordance with manufacturer's specifications and a indicated herein.

.2 Install in accordance with TTMAC Specification Guide 09 30 00 Tile Installation Manual TTMAC 2012- 2014 Specification Guide 09 30 00, Tile Installation Manual, except where specified otherwise.

.3 Install in accordance with ANSI A108.5-2011 and ANSI A108.10-2011.

.4 Make joints even, straight, plumb and of uniform width.

.5 Provide mortar beds and levelling coats in accordance with TTMAC details.

.6 Provide uniform positive slope to floor drains, to minimum allowable slope of 20 mm/m.

.7 At floor drains in mortar bed: Provide minimum setting bed of 10 mm, sloped to drain at 20 mm/m.

.8 Proved edge protection at tile edges and corners, unless otherwise indicated, using maximum length pieces.

.9 Provide edge protection and transition strips at tile transitions, unless otherwise indicated, using maximum length pieces.

.10 Review locations of tile accessories with Consultant prior to setting tile and comply with direction of consultant.

.11 Provide inside and outside vertical corners radioed and mosaic tile. Horizontal junctions between floor and wall with sealant.

.12 Caulk around pipes and opening s made in tile with sealant.

.13 Apply sealant at interface with frames at openings. Apply sealant in accordance with Section 07 92 00 and manufacturer's instructions. Sealant colour to later selection by Consultant.

.14 Install flooring to entire area indicated or scheduled. Unless otherwise indicated, include cover plates occurring within finished floor areas. Maintain overall uniform continuity of colour and pattern with pieces of flooring installed on cover plates. Tightly butt edges to perimeter of floor around cover plates and to cover plates. Do not install flooring to floor drains occurring within finished floor areas.

3.5 Tile Setting

.1 Layout tile work as indicated on drawings, and where lay-out is not indicated, lay-out tiles so tiles less than ½ the least dimension do not occur and with minimum amount of cutting.

.2 Using a damp towel, wipe off the back side of tile to remove any dust or other residue that may be left over from the manufacturing process.

.3 Place as much tile as possible in one operation before setting bed reaches initial set. Clean back and remove bed when it has set before tile is laid.

.4 Prime materials and by methods specified by manufacturer of bond coat.

.5 Except where tiles have setting tabs, and except for expansion, control and isolation joints, maintain joint widths as selected cy Consultant.

.6 Back up tile coves, curbs and other shaped pieces solid with mortar. Rigidly set reinforce or otherwise make firm and secure such pieces.

.7 Beat tiles in thoroughly and sufficiently to cause mortar ribs or notches to come together into a continuous void free bed and allow the mortar to flow up partially into the joint space to maximum of ½ the thickness of the tile. Sound floor tiles by tapping

and reset all tiles with voids in setting bed.

.8 Tile shall contact setting materials for minimum 95% coverage unless otherwise indicated.

.9 Obtain 100% mortar coverage with applicable requirements for back buttering of tile in referenced TTMAC and ANNSI A108-2011 series of tile installation standards for the following:

.1 Glass Tile.

.2 Tile in wet areas:

.1 Water Closets

.3 Tile installed with chemical resistant mortars and grouts.

.4 Tile having tiles 300mm or larger in any direction.

.5 Tile having tiles with raised or texture backs.

.6 Tile having tile installations rate for Heavy or Extra Heavy Duty.

.7 Porcelain tiles with more than 20% of the tile backs covered with firing release dust back buttered so that 100% of the back is covered with adhesive mortar rated for C627, Extra Heavy Duty rating.

.10 Removed any excess setting material from the joint area so that 2/3 of the depth of the tile is available for grouting.

.11 Remove smudges or smears of setting material from the tile surface with a damp sponge or cloth immediately after final adjustment and beat-in while the mortar is fresh.

.12 Do necessary cutting and drilling of fixtures, fittings, and built-in or penetrating units without marring the tile. Replace all cracked or damaged tile.

.13 Form external angles with round edge tile extending over edge of square edge adjacent tile. Internal angles shall be formed square, carrying 1 flat tile past edge of other.

.14 Extend tile into recesses at windows, doors, or other openings.

.15 Extend tiles 100 mm behind mirrors, and fully behind cabinets, cupboards and other fixed objects at walls.

.16 Cut tiles to conform to irregularities in wall lines and vertical planes along outer edges. Smooth cut edges with carborundum lock or by other means to provide clan straight edge.

.17 Install tiles to provide even distribution of shading, colour, and characteristics.

3.6 Mortar-Bed Tiling

.1 Apply lates-Portland cement thin bed mortar with flat trowel a a slurry bond coat

approximately 1.5 mm thick over clean concrete slab.

.2 Place latex-Portland cement thick bed mortar over slurry bond coat while bond coat is wet and tacky. Omit reinforcing wire fabric and fully compact bed by tamping.

.3 Spread late-Portland cement thin bed mortar with flat trowel over surface of "green"/fresh mortar bed as a slurry bond coat approximately 1.5 mm thick.

.4 Apply latex-Portland cement thin bed mortar slurry bond coat to back of tile or threshold and place each piece/sheet while slurry bond coats are wet and tacky. Beat with a hardwood block or rubber mallet to level/imbed pieces before mortar bed takes initial set.

.5 Clean excess mortar from finished surfaces.

.6 for installation of tile over cured (pre-floated) latex-Portland cement thick bed mortar follow thin-Set Method.

3.7 Trim Accessories Installation.

.1 Coordinate transitions with work of other sections.

.2 Install trims in accordance with manufacturer's installation instructions.

.3 Install in continuous lengths.

.4 Scribe and fit to obstructions.

.5 Cope mitre corners.

3.8 Grouting or Pointing

.1 Apply grout in accordance with manufacturer's printed instructions.

.2 Chemical resistant, water cleanable tile-grouting epoxy (ANSI A118.2-2011):

.1 Allow tile installation to cure a minimum of 24 hours at ambient temperature of 21 degrees C prior to grouting.

.2 Install chemical epoxy resistant grout in compliance with current revisions of ANSI A108.1-2011 and ANSI A108.10-2011.

.3 Verify grout joints are free of dirt, debris, water or tile spacers and face of tiles are clean.

.4 Apply grout release to face of absorptive, abrasive, non-slip or rough textured tile units that are not hot paraffin coated to facilitate cleaning.

.5 Spread using a sharp edged, hard rubber float and work grout into joints using diagonal strokes (45 degree angle).

.6 Pack joints full and free of voids/pits. Stroke diagonally to remove excess grout and to avoid pulling grout out of gilled joints.

.7 Once excess grout is removed, begin cleaning grout haze approximately 20-30 minutes after grouting depending on temperature. Using a circular motion, lightly scrub grouted surfaces with the damp sponge to dissolve grout film/haze. Then drag sponge diagonally over the scrubbed surfaces to remove froth. Rinse sponge frequently and change cleaning solution at least every 4.7 m2. Discard sponges as they become “gummy” with residue.

.8 within 1 hour of finishing first cleaning, clean the same are again following the same procedure but utilizing a clean white scrub pad and fresh cleaning solution. Rinse scrub pad frequently, Drag clean sponge diagonally over the scrubbed surface to remove froth. Use each side of sponge only once before rinsing and change cleaning solution at least every 4.7 m2. Allow cleaned areas to dry a and inspect tile surface. Rinse with clean water and allow surface to dry. Inspect grout joint for pinholes/voids and repair the with freshly mixed grout.

.3 Chemical resistant, water cleanable or polyurethane grout:

.4 Latex-Portland cement grout or Portland cement grout:

.1 Allow tile installation to cure a minimum of 24 hours at ambient temperature of 21 degrees C prior to grouting.

.2 Verify grout joints are free of dirt, debris, water or tile spacers and face of tiles are clean.

.3 Apply grout release to face of absorptive, abrasive, non-slip or rough textured tile units that are not hot paraffin coated to facilitate cleaning.

.4 Install chemical epos=xy resistant grout in compliance with current revisions of ANSI A108.1-2011 and ANSI A108.10-2011.

.5 Spread using a sharp edged, hard rubber float and work grout into joints using diagonal strokes (45 degree angle).

.6 Pack joints full and free of voids/pits. Stroke diagonally to remove excess grout and to avoid pulling grout out of gilled joints.

.7 Initial cleaning can begin as soon as grout has become firm. Drag a clan towel dampened with water, or wipe with a clean, dampened sponge, diagonally over the veneer face to remove any grout haze left after “squeegeeing”.

.8 Once excess grout is removed, begin cleaning grout haze before grout is fully cured. Using a circular motion, lightly scrub grouted surfaces with a damp sponge to dissolve grout film/haze. Then drag sponge diagonally over the scrubbed surface to remove froth. Rinse towel/sponge frequently and change rinse water as least every 2 m2. Repeat this cleaning sequence again if grout haze is still present.

.9 Allow grout joints to become firm. Buff surface of grout with clean coarse cloth. Inspect joint for pinholes/voids and repair them with freshly mixed grout. Within 24 hours, check for remaining haze and remove it with warm soapy water and nylon scrubbing pad, using a circular motion, to lightly scrub surfaces and dissolve haze/film.

.5 Grout joint width to be 3.2 mm unless otherwise indicated.

.6 Use caution when using sanded grouts to prevent scratching of tile or other material surfaces.

.7 Do not cover, bridge or fill any expansion joints in tile with grout.

3.9 Tile Installation Tolerances

.1 Maximum allowable lippage:

.2 Tile up to 152 mm x 152 mm in size: 1 mm.

.3 Tile greater than 152 mm x 152 mm in size: 2 mm.

.4 Finish planes shall be straight and plumb to within 6 mm in 3 m.

3.10 Cleaning and Protection

.1 clean installed tile surface after grouting has cured.
.2 Re-point joints after cleaning to eliminate imperfections. Avoid scratching tile surfaces.

.3 Prohibit traffic during installation and for a minimum 48 hours after installation.

.4 Protect floors from impact and vibration for a minimum of 48 hours after installation.

.5 Install floor protection in areas where other work, repairs and installation of equipment and foot traffic will occur.

END OF SECTION

PART 1 GENERAL

1.1 Section Includes

.1 Suspended metal grid ceiling system.

.2 Hangers and Grids.

.3 Acoustic lay-in tiles.

.4 Acoustic Baffles and Trims.

1.2 Quality Assurance

.1 Comply with applicable requirements of ASTM C636.

.2 Design suspension system to support lighting fixtures according to Ontario Hydro regulation and submit certification in accordance with Rule 30-302(1).

1.3 Submittals

.1 Samples: submit two samples of each type of acoustical panel specified; size: 300mm x 300mm. Upon consultant's request submit samples of suspension system components.

.2 Maintenance materials: provide minimum 50 panels of each type panel used. Obtain receipt and submit copy to Consultant.

1.4 Product Storage

.1 Store material in dry place, keep free of dampness.

1.5 Job Conditions

.1 Install ceiling systems after building has been completely enclosed and not before cementitious building elements are complete and cured and humidity levels are acceptable in the opinion of the Consultant.

.2 Ensure that work to be concealed by ceiling systems has been installed, tested, inspected and approved before starting work.

.3 Co-ordinate with Divisions 20 and 23 for work to be built into work of this Section.

1.6 Warranty

.1 All work performed and materials supplied under this Section to be warranted from defects for a period of two (2) years from Substantial Completion.

.2 30-yr Material Warranty for Ceiling Tiles.

PART 2 PRODUCTS

2.1 Materials

.1 Materials used in the work of this Section shall be manufactured by Armstrong Industries.

.2 Materials shall be delivered to the job in the manufacturer's original packages with seals unbroken and with the manufacturer's original name and contents shown legibly marked there on.

.3 All materials shall be of the latest type made by the manufacturer as specified.

2.2 Suspension

.1 Suspended Ceiling System for lay in Acoustic Panels shall be 15/16” Prelude by Armstrong. Components shall be formed from commercial quality cold-rolled steel, electro-galvanized. Exposed finish shall be low sheen satin white (or etched and anodized aluminum). The suspension system shall support the ceiling assembly shown on the drawings, or specified herein, with a maximum deflection of 1/360 of the span. Where noted on the drawings or Schedule of Finishes that the suspended ceiling shall be fire rated, the Suspended Ceiling System shall be 15/16” Prelude XL Fire Guard with the Acoustic Tile restrained with hold down clips.

.2 The ceiling pattern shall be as shown on the drawings using the following components: (1) Main Tee with double web design and with a rectangular bulb; with 24mm (15/16") exposed flange with a rolled cap, with cross tee holes at 150 mm (6") o.c., with hanger wire holes at 50mm (2") o.c.; with integral reversible splice. (2) Cross Tee with double web design and with a rectangular bulb; with web extending to form a positive interlock with main tee; with the lower flange extended and offset. (3) Wall Moulding with a channel or angle shape and with a 25mm (1") exposed face. (4) Hold Down Clips, where required, Suspension shall be with 2.6mm steel wire.

.3 The ceiling grid system shall be hung from structural elements, not the steel decking. Where joists or beams are not in a suitable location for the hangers, supply and install steel angles to safely span between structures and secure.

.4 Where required the support channels between roof joists shall be 38mm (1 1/2”) x 12.7mm (1/2”) and shall be 16 gauge.

.5 The above furring and suspension system shall be manufactured by Donn Canada Ltd., or Bailey Metal Products Ltd., Concord and installation shall comply in all respects with the manufacturer's recommendations.

.6 Accessories: splicers and fasteners, as required to provide complete and finished work; manufacturer’s standard types.

.7 Heavy duty T-section for sufficient edge support for ceiling radiant panels.

2.3 Acoustical Tiles

.1 Lay-in acoustical tiles

.1 Classification: Type XII, Form 2, Pattern E in accordance with ASTM E1264.

.2 Size: 610 mm x 1220 mm x 16 mm (24” x 48” x 5/8”).

.1 Acceptable Products:

.2 Armstrong Dune / Cortega 823A Ceiling Tiles, regular lay-in.

.3 Grid: 15/16” Prelude grid by Armstrong

2.4 Ceiling Accessories

.1 Edge Trim

.1 Acceptable Products:

.1 Armstrong Axiom Classic

2.5 Maintenance Materials:

.1 Deliver to site a minimum of two (2) full boxes of additional spare tiles.

PART 3 EXECUTION

3.1 Ceiling Layouts

.1 Lay out ceilings to in accordance with reflected ceiling plans and symmetrical within each area to obtain uniform borders. Where layout is not shown install ceilings as directed by Consultant.

.2 Finished Work shall be plumb, level and square with adjoining work.

3.2 Suspension System

.1 Suspend ceilings directly from structural members of from carrying channels supported from structural members. Do not fasten hangers to ducts, pipes, conduits.

.2 Erect suspension systems level with a maximum tolerance of 3mm over 3m length.

.3 Install main tees in accord with module size. Suspend at maximum 610mm o.c.

.4 Install cross tees perpendicular to main tees in accord with module size. Interlock with main tees.

.5 Hangers for suspended ceilings shall support grillage independently of walls, columns, pipes and ducts. Space hangers at maximum 1220mm o.c. along supporting grillage and not more than 150mm from ends. Do not place hangers in front of access panels.

.6 Make provisions for carrying fixtures occurring on and in suspended ceilings. Install additional hangers and reinforcing to ensure that loads being carried do not compromise integrity of system. Frame around fixtures and openings as required.

.7 At light fixtures occurring on and in suspended ceilings, provide suspension hanger at each corner of fixture and at maximum 610mm o.c. around perimeter of fixture.

.8 Where ductwork, piping and other elements within ceiling spaces interfere with direct suspension of ceiling from structure, install additional framing securely fastened to main structure to accommodate proper hanging of ceiling.

.9 Exposed members shall be as long in length as practical to minimize joints. Distribute joints to prevent clustering in one area. Joints shall be made square tight and flush so that exposed faces of intersecting members are on same plane.

.10 Joints in suspension system members shall be reinforced with splines or other suitable methods.

.11 Install perimeter moulding at abutting vertical surfaces.

.12 Where work of other Sections is fastened to acoustical ceilings, reinforce suspension system and/or acoustical panels in manner acceptable to Consultant.

3.3 Installation

.1 This Contractor shall consult and cooperate with other trades whose work precedes and follows this installation, to permit the orderly and expeditious progress of the work of this Division.

.2 Installation shall not start until abutting work to receive the installation has been completed and inspected and the Architect's approval has been obtained to proceed. The contractor shall give the Architect adequate advance notice of such inspection.

.3 Replace any damaged grid or tile immediately before occupation of building by Owner.

3.4 Quality of Work

.1 All surfaces to which the installation is to be attached shall be first cleaned of all matter of substance that interferes with or may impair true alignments of the grid.

.2 Where wall conditions prevent a neat and tight attachment of the wall moulding to the wall, this trade shall advise the General Contractor of same and agree on what and who shall remedy this situation. If apparent gaps cannot be corrected, the void shall be caulked in a matching wall colour.

.3 All ceiling boards shall be set in a level flush plane with snug straight and square joints.

3.5 Cleaning

.1 On completion all work shall be cleaned in a manner with materials as directed by the manufacturer of the product.

.2 Remove all waste materials off the site.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to provide resilient base and accessories.

1.2 REFERENCE STANDARDS

.1 ASTM F1861; Specification for Resilient Wall Base.

1.3 QUALITY ASSURANCE

.1 Applicator

.1 Applicator shall have a minimum of two (2) years documented experience in the installation of resilient base and accessories, and shall be approved as such by the manufacturer. Documentation shall be submitted to the Consultant prior to commencement of work.

1.4 SUBMITTALS

.1 Samples: Submit duplicate 300mm long sample pieces of base, transition strips, and reducer strips in accordance with Section 01 33 00.

1.5 PREINSTALLATION MEETING

.1 Prior to commencement, hold a Preinstallation meeting with the Contractor, Installer, and Consultant.

1.6 CLOSEOUT SUBMITTALS

.1 Maintenance Materials: Deliver the following material required for maintenance use, in accordance with Section 01 78 00;

.1 one carton of each colour and type resilient base,

.2 Maintenance Data: Provide maintenance data (cleaning requirements) for resilient base and accessories for incorporation into Operations and Maintenance manual.

1.7 SEQUENCING AND SCHEDULING

.1 Installation of resilient base and accessories shall not commence until all overhead mechanical, electrical, and dust-generating work is completed.

.2 Schedule resilient base installation for completion after installation of millwork.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 Maintain air and substrate temperature in area of installation above 20°C for 48 hours before, during, and 48 hours after installation.

2 PRODUCTS

2.1 RESILIENT WALL BASE

.1 Rubber wall base, to ASTM F1861 Type TP (Thermoplastic), Group 1 (solid), 102mm (4") high, coved topset wall base, in continuous lengths of minimum 36m; Provide pre-moulded external corners.
- .1 Product: Johnsonite Traditional Wall Base by Tarkett.
- .2 Colour: Colonial Grey, and Black as per Room Finish Schedules

2.2 ACCESSORIES

.1 Transition Strips
- .1 Schiene by Shluter Systems Canada; Stainless Steel.
- .2 VINPRO-S edge Trim by Schluter Systems Canada; Stainless Steel
- .3 Johnsonite Vinyl Transitions Wheeled Traffic or Slim line Transitions. Colour: Colonial Grey.
- .4 Exterior Door Thresholds; supplied by 08 71 00 Door Hardware.

2.3 ADHESIVES AND CLEANERS

.1 Primer: latex floor primer for concrete and wood substrates; equivalent to Henry #336 Floor Primer.

.2 Adhesives
- .1 Rubber Wall Base:
  - .1 Follow all manufacturers instructions
  - .2 Porous Surfaces: #960 Cove Base Adhesive.
  - .3 Non-Porous Surfaces: #946 Premium Contact Adhesive.

.3 Surface Cleaner: neutral detergent solution.

3 EXECUTION

3.1 BASE APPLICATION

.1 Supply and install wall base to minimize joints. Use minimum length materials specified, cut to wall lengths. Double cut all joints to ensure tight fit.

.2 Adhesive must cover 90% of back of base, leaving 6mm at top for excess adhesive during rolling process. Set base in adhesive tightly by using a 3kg hand roller, against wall and floor surfaces.

.3 Install base straight and level to variation of 1:1000.

.4 Scribe and fit obstructions. Base shall be cut and discontinued at millwork. Base shall be shear cut at door frame reveals.

.5 Cut and cope all inside corners. Cope back of base material using purpose-made coping tool and fold base around corner for all right angle outside corners. Use formed straight base material for outside corners of other angles.

3.2 ACCESSORIES APPLICATIONS

.1 Install transition strips between flooring materials centered under doors where not indicated.

.2 Install reducer strips at unprotected edges of all carpet and resilient flooring materials.

3.3 CLEANING AND PROTECTION OF FINISHED WORK

.1 Remove excess adhesive from floor, base and wall surfaces without damage to such surfaces.

.2 Clean all surfaces installed under this section with neutral detergent solution specified (85 to 113g/4.5L), to manufacturer's instructions.

.3 Protect new base and accessories from time of installation until final waxing. Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

GENERAL

1.1 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to provide resilient sheet flooring, including;
- .1 floor preparation, including new skim coat and leveller.
- .2 primers and sealers.
- .3 sheet flooring Products.
- .4 adhesives.

1.2 REFERENCE STANDARDS

.1 ASTM D2047; Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
.2 ASTM E648; Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
.3 ASTM E662; Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
.4 ASTM F970; Test Method for Static Load Limit.
.5 ASTM F1859; Specification for Rubber Sheet Floor Covering without Backing

1.3 QUALITY ASSURANCE

.1 Manufacturer/Fabricator
- .1 Manufacturers or fabricators providing Products under this Section shall have sufficient plant, equipment and competent personnel to provide the Products, in accordance with the Contract Documents. Firm(s) shall have past experience in the manufacture or fabrication of the Products specified herein, and shall have successfully completed Projects of similar scope and type.

.2 Installation/Application
- .1 Installers or applicators of the Products specified herein, shall be competent in the skills required to perform such tasks. Installation/ shall be performed in accordance with industry standards specified herein, warranty requirements, and in accordance with generally accepted, industry best practices.

.3 Documentation
- .1 If requested by the Consultant, submit documentation to support the competency of firms and personnel.

.4 Pre-application Meeting
- .1 Convene a pre-application meeting for the Products specified in this section. Attendees must include, as a minimum, representatives of the following:
  - .1 Contractor (Site Superintendent & Project Manager)
  - .2 Application Subcontractor (Site Foreman & Project Manager)
  - .3 Product Manufacturer and/or Distributor (Technical Representatives)
  - .4 Related Subcontractors whose work is affected by that of this Section.

1.4 SUBMITTALS

.2 Shop Drawings

.1 Submit shop drawings in accordance with Section 01 33 00.

.2 Indicate on shop drawings a complete seaming layout for all resilient sheet products, colour and pattern directional layouts, types of adhesives and/or heat welding materials.

.3 Samples

.1 Submit duplicate 200mm x 250mm samples of all resilient sheet flooring materials, in specified colours and patterns, in accordance with Section 01 33 00.

1.5 CLOSEOUT SUBMITTALS

.1 Maintenance Materials

.1 Deliver 2% of total area in one single piece, of each colour, pattern, and type flooring material required for project for maintenance use, in accordance with Section 01 78 00. Minimum maintenance materials shall be 9.3m^2 of any one colour and/or floor type.

.2 Maintenance Data

.1 Provide care and maintenance data for resilient flooring for incorporation into Operations and Maintenance manual.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver sheet flooring products in rolls, wrapped in polyethylene. Store according to the manufacturer's recommendations.

.2 Store materials flat on clean, dry floor area, away from construction activities so as to prevent damage.

.3 Remove packaging prior to installation and allow materials to acclimatize according to the manufacturer's recommendations.

1.7 SEQUENCING AND SCHEDULING

.1 Installation of resilient sheet flooring shall not commence until all overhead mechanical, electrical, and dust generating work is completed.

.2 Schedule resilient sheet flooring installation for completion prior to installation of millwork.

1.8 SITE CONDITIONS

.1 Maintain air temperature and structural base temperature at flooring installation area above 20°C for 72 hours before, during and 72 hours after installation. Temporary heat is not acceptable.

1.9 GUARANTEE

.1 Guarantee in writing, the installation of the Products specified herein to be free from defects in workmanship for a period of two (2) years from Date of Substantial Performance.

.2 This Guarantee shall cover instances of rippling, bubbling, seam failure, adhesive failure, and other installation defects which become apparent during the guarantee period, and are found to be due to faulty installation. The guarantee shall provide for repair of identified defects, including removal and replacement of any affected Products.

1.10 EXTENDED WARRANTY

.1 Provide a Product warranty certificate in the name of the Owner, warranting that the Sheet Flooring Products specified herein shall be free from defects in material and manufacture for a period of five (5) years from Date of Substantial Performance.

.2 This warranty shall provide for replacement of any defective Products at no cost to the Owner, including the cost of removal and disposal of defective materials, and installation of new Products to match the original installation.

PRODUCTS

2.1 MATERIALS

.1 Resilient Sheet Vinyl Flooring: Palettone PUR hospital grade vinyl flooring with welded seams or approved equivalent. Colour: Frosted Glass.

2.2 ADHESIVES AND ACCESSORIES

.1 Substrate filler and leveller: Portland cement-based latex filler requiring water only to produce cementitious paste, as recommended by flooring manufacturer for use with their product; equivalent to Henry #445 Fast-Setting Flooring Underlayment.

.2 Primer: latex floor primer for concrete and wood substrates; equivalent to Henry #336 Floor Primer.

.3 Adhesives
.1 Two-part, solvent-free, polyurethane adhesive, equivalent to Forbo-660.

.4 Welding Rods: colour and pattern matched welding rods, compatible with sheet flooring material, as supplied by individual flooring manufacturers.

.5 Surface Cleaner: neutral detergent solution.

.6 Surface Sealer (Vinyl): stain-resistant; equivalent to S-495 by Armstrong World Industries.

.7 Surface Polish (Vinyl): matte finish commercial floor polish; equivalent to S-480 by Armstrong World Industries.

.8 Transition Strips: See Section 09 65 13 and drawings.

EXECUTION

3.1 INSPECTION

.1 Ensure concrete floors are dry by using test methods recommended by flooring manufacturer, and exhibit negative alkalinity, carbonization or dusting.

.2 Moisture test results should meet the flooring manufacturer's recommendations but shall not exceed 0.5kg/100m^2/24 hours. Alkali readings shall be 5 to 9.

3.2 SUBFLOOR TREATMENT

.1 Grind off any existing glues, skim coat and grind off polished concrete surface.

.2 Remove subfloor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with subfloor filler.

.3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.

.4 Prime entire substrate to receive tile flooring with specified primer, to primer manufacturer's recommendations.

.5 Feather up any adjacent concrete surfaces to create smooth transition between floor finishes.

3.3 FLOORING APPLICATION

.1 Refer to Finishes Schedule and Floor Finishes Plans for locations of resilient sheet flooring types, and floor pattern requirements.

.2 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.3 Lay flooring with seams parallel to building lines and parallel to each other, to produce a minimum number of seams. "Piecing-in" with scrap or leftover material will not be accepted.

.4 Double cut sheet joints and continuously heat weld according to manufacturer's printed instructions. Seams shall be in accordance with reviewed seaming layout. In the absence of a seaming layout, seam locations shall be as approved by Consultant on site prior to commencement of installation.

.5 Run patterned sheets parallel to corridor traffic, and parallel to long dimension of rooms. Border widths minimum 1/3 width of full material width.

.6 As installation progresses, and after installation, roll flooring with 45kg roller to ensure full adhesion.

.7 Cut flooring neatly around fixed objects flooring shall run continuously under all millwork without interrupting floor pattern.

.8 Install flooring in pan type floor access covers. Maintain floor pattern and direction.

.9 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.

3.4 CLEANING AND POLISHING

.1 Once cleaning and polishing operations commence, prohibit all traffic on floor surface during, and for a minimum 8 hours after cleaning and application of sealer and polish.

.2 Cleaning

.1 Remove excess adhesive from floor, base and wall surfaces without damage to such surfaces. Remove all dust, dirt, and debris.

.2 Clean floors with neutral detergent solution specified (85 to 113g/4.5L), to flooring manufacturer's instructions.

.3 Initial Surface Protection

.1 Apply initial surface protection within 48 hours after completion of installation/final set of adhesive, and immediately after cleaning specified above.

.2 Apply one coat of commercial floor sealer specified.

.3 Apply minimum two coats of commercial floor polish specified.

.4 Final Surface Protection

.1 Apply final surface protection immediately prior to final inspection by the Consultant.

.2 Clean floors with neutral detergent solution specified (113 to 170g/4.5L), to flooring manufacturer's instructions.

.3 Apply three coats of commercial floor polish specified.

3.5 PROTECTION OF FINISHED WORK

.1 Protect new floors from scratches, gouges, scuff marks and other damage from time initial surface protection application, until final inspection.

.2 Prohibit all traffic on tile floor surfaces after application of final surface protection.

END OF SECTION

GENERAL

1.1 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to provide resilient tile flooring, adhesives, primers, and installation.

1.2 REFERENCES

.1 ASTM E648; Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
.2 ASTM E662; Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
.3 ASTM F970; Test Method for Static Load Limit.
.4 ASTM F1066; Specification for Vinyl Composition Floor Tile.
.5 ASTM F1344; Standard Specification for Rubber Floor Tile.

1.3 QUALITY ASSURANCE

.1 Manufacturer/Fabricator
  .1 Manufacturers or fabricators providing Products under this Section shall have sufficient plant, equipment and competent personnel to provide the Products, in accordance with the Contract Documents. Firm(s) shall have past experience in the manufacture or fabrication of the Products specified herein, and shall have successfully completed Projects of similar scope and type.

.2 Installation/Application
  .1 Installers or applicators of the Products specified herein, shall be competent in the skills required to perform such tasks. Installation/ shall be performed in accordance with industry standards specified herein, warranty requirements, and in accordance with generally accepted, industry best practices.

.3 Documentation
  .1 If requested by the Consultant, submit documentation to support the competency of firms and personnel.

1.4 SAMPLES

.1 Submit duplicate full sized tile samples of each type and colour of resilient tile specified in accordance with Section 01 30 00.

1.5 DELIVERY, HANDLING AND STORAGE

.1 Deliver products to the site in original, unopened containers with manufacturer's labels intact. Labels shall indicate product designation, lot numbers and colour.

.2 Store products in cool, dry, well-ventilated area at 10 to 27°C, and away from any open flame, spark or other heat source.

1.6 ENVIRONMENTAL REQUIREMENTS

.1 Ambient air and surface temperature shall be 4 to 50°C at installation area for 24 hours prior to and 24 hours after application.

.2 Substrate temperature must be minimum 3°C above dew point to prevent condensation.

1.7 SEQUENCING AND SCHEDULING

.1 Installation of resilient tile shall not commence until all overhead mechanical, electrical, and dust-generating work is completed.

.2 Schedule resilient tile installation for completion prior to installation of millwork.

1.8 CLOSEOUT SUBMITTALS

.1 Maintenance Data
  .1 Provide data for maintenance of resilient flooring for incorporation into Operations and Maintenance Manual.

.2 Maintenance Materials
  .1 Deliver 2% of total area of each colour, pattern and type flooring material required for this project for maintenance use, in accordance with Section 01 78 00. Minimum maintenance materials shall be 9.3m^2 of any one colour and/or floor type.

1.9 EXTENDED WARRANTY

.1 Provide Manufacturer's warranty certificate in the name of the Owner, warranting the Products and installation specified herein against defects in material or workmanship for a period of five (5) years from Date of Substantial Performance.

2 PRODUCTS

2.1 TILE MATERIALS

.1 Vinyl Composite Tile **(VCT)**: Match existing 12” x 12” Tarkett tile for patch and repair areas as indicated on the architectural drawings. Colours to match existing. Assume 1 box of each is needed:
  .1 Armstrong Standard Excelon Imperial, Texture Rave, 305mmx305mm, colour 57512 Bikini Blue.
  .2 Armstrong Migration Biobased Tile, 305mmx305mm, colour T3522 Lemon Squeeze.
  .3 Armstrong Migration Biobased Tile, 305mmx305mm, colour T3527 Grass Green.
  .4 Armstrong Migration Biobased Tile, 305mmx305mm, colour T3502 Pumice Gray.
  .5

2.2 ADHESIVES AND ACCESSORIES

.1 Substrate filler and leveler: Portland cement based latex filler requiring water only to produce cementitious paste, as recommended by flooring manufacturer for use with their product; equivalent to Henry #445 Fast-Setting Flooring Underlayment.

.2 Primer: latex floor primer for concrete and wood substrates; equivalent to Henry #336 Floor Primer.

.3 Adhesives
.1 Vinyl Composite Tile:
.1 Manufacturer approved adhesive.

.4 Surface Cleaner: pH neutral detergent solution.

.5 Surface Sealer: stain-resistant; equivalent to S-495 by Armstrong World Industries.

.6 Surface Polish: matte finish commercial floor finish;
.1 VCT: As per manufacturer's instructions.

EXECUTION

3.1 INSPECTION

.1 Ensure concrete floors are dry, by using test methods recommended by tile manufacturer, and exhibit negative alkalinity, carbonization or dusting.

.2 Moisture test results should meet the flooring manufacturer's recommendations but shall not exceed 0.5kg/100m^2/24 hours. Alkali readings shall be 5 to 9.

3.2 SUBSTRATE TREATMENT

.1 Remove substrate ridges and bumps. Fill low spots, cracks, joints, holes and other defects with filler.

.2 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured.

.3 Prime entire substrate to receive tile flooring with specified primer, to primer manufacturer's recommendations.

3.3 TILE APPLICATION

.1 Refer to Room Finish Schedule for locations of resilient tile types, and floor pattern requirements.

.2 Apply adhesive uniformly using recommended notched trowel in strict accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.3 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles shall be minimum half tile width.

.4 Install tile flooring in patterns outlined in finishes schedule on sheet A801 in architectural drawings.

.5 As installation progresses, roll flooring with 45kg roller to ensure full adhesion. Roll floor again in its entirety after installation.

.6 Cut tile and fit neatly around fixed objects, and floor protrusions. Flooring shall run continuously under all millwork without interrupting floor pattern.

.7 Install flooring in pan type floor access covers. Maintain floor pattern and direction.

.8 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.

.9 Install reducers at unprotected or exposed edges where flooring terminates, in accordance with Section 09 65 13.

3.4 CLEANING AND POLISHING

.1 Initial Surface Protection

.1 Apply initial surface protection within 48 hours after completion of installation and final set of adhesive. Prohibit all traffic on floor surface prior to application of initial surface protection.

.2 Remove excess adhesive from floor, base and wall surfaces without damage to such surfaces. Remove all dust, dirt, and debris.

.3 Clean floors with neutral detergent solution specified (85 to 113g/4.5L), to flooring manufacturer's instructions.

.4 Apply one coat of commercial floor sealer specified.

.5 Apply minimum two coats of commercial floor polish specified.

.2 Final Surface Protection

.1 Apply final surface protection immediately prior to final inspection by the Consultant.

.2 Clean floors with neutral detergent solution specified (113 to 170g/4.5L), to flooring manufacturer's instructions.

.3 Apply three coats of commercial floor polish specified.

3.5 PROTECTION OF FINISHED WORK

.1 Protect new floors from scratches, gouges, scuff marks and other damage from time initial surface protection application, until final inspection.

.2 Prohibit all traffic on tile floor surfaces after application of final surface protection.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

1. Provide fiberglass reinforced plastic (FRP) panels for wall applications.

1.2 SUBMITTALS

1. Product Data: Submit manufacturer's literature including product characteristics, accessories and limitations.

2. Selection Samples: Submit samples of colors and finishes if requested by Architect.

3. Verification Samples: Submit samples of selected materials specified to verify color and finish.

4. Industry Certifications and Standards: Submit copy of documentation indicating compliance.

1.3 QUALITY ASSURANCE

1. Manufacturer: Minimum of 5 years experience manufacturing similar products.

1.4 DELIVERY, STORAGE AND HANDLING

1. Deliver materials and products in unopened factory labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations.

1.5 WARRANTY

1. Manufacturer's Warranty: Provide manufacturer's standard warranty against defects in manufacturing.

PART 2 - PRODUCTS

2.1 FIBERGLASS REINFORCED PLASTIC PANELS

1. Manufacturer: Panolam FRP by Panolam Industries International, Inc., 20 Progress Drive, Shelton, CT 06484.. Tel: 877-726-6526, Fax: 203-225-0050. Web: www.panolam.com. Panels shall comply with the following:

    1. Classic Collection: White color.
    2. Surface Texture: Smooth
    3. Fire Rating ASTM E 84: Class A.
    4. Sustainability, Indoor Air Quality: GREENGUARD Gold Certification. 6. Thickness: 1.9 mm
    5. Barcol Hardness ASTM D2583: 35 typical.
    6. Water Absorption ASTM D570: 0.2 percent typical.
    7. Accessories: Color matched dividers, outside corners, inside corners, end caps and fastening rivets.
    8. Adhesive: As recommended by manufacturer.

PART 3 – EXECUTION

3.1 EXAMINATION

1. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. Install products in strict accordance with manufacturer's instructions and approved submittals.

    1. Clean substrate of dirt, dust, waxes, and other bond breaking substances prior to beginning installation.
    2. Install panels with bottom edge located to clear top of resilient base.
    3. Apply adhesive uniformly using adhesive manufacturers recommended trowel to the entire back of panels completely to the edge (100% coverage).
    4. Lay FRP panels in place leaving approximately 1/8 inch between panels and 1/4 inch space top and bottom.
    5. Follow adhesive manufacturer's recommendations for set and application times.
    6. Apply pressure to entire panel face with laminate type roller, removing trapped air and ensure proper adhesion between surfaces.

3.3 ADJUSTING AND CLEANING

1. Replace installations out of plumb and not aligned with adjacent panels and construction.

2. Clean panel face to remove soiling, stains, dust, and dirt using clean rags, and cleaning agents as instructed by manufacturer.

3. Leave installation clean, free of residue and debris resulting from work of this Section.

END OF SECTION

PART 1 GENERAL

1.1 Section Includes

.1 Furnish all labour, materials and tools, ladders, scaffolding and other equipment necessary for completion of this work according to the plans and specifications.

.2 Other than for factory applied finishes and finishing work specifically called for elsewhere in the specifications for other trades, supply all materials and labour necessary for the complete protection and decoration of all of the exterior and interior surfaces throughout the building unless noted on the schedule of finishes to be left unfinished. All other fabricated items elsewhere on site which are supplied and installed as part of this contract shall also be painted.

.3 Anodized aluminum and bright metal surfaces will not be painted.

.4 The architectural millwork shall be finished in the factory and shall arrive on site prefinished ready for installation. This section shall be responsible for finishing all other exterior and interior woodwork exposed to view after installation.

.5 Painting Subcontractor shall allow for a total of four (4) colours on walls.

.6 This section shall be responsible for finishing all wood finishes including doors. Refer to Door Schedule.

.7 Ensure that block filler fully covers the standard architectural block prior to priming and finished painting. Two coats of block filler may be required.

.8 Contractor is responsible for ensuring that the primer being used on existing walls is compatible with existing paint finishes and the new paint finishes.

1.2 Examination

.1 Examine the drawings and specifications for the various trades and become familiar with the provisions regarding their finishing.

.2 The painting contractor shall be responsible for inspection of the work of others prior to the application of any paint or finishing materials. If any surface to be finished cannot be put in proper condition for finish by customary cleaning, sanding and puttying operations, the painting contractor shall immediately notify the General Contractor or Architect in writing or assume the responsibility for and rectify any unsatisfactory finish resulting.

.3 Commencement of work will be interpreted as an acceptance of the surface to be painted as being satisfactory.

1.3 Reference Standards

.1 Ontario Painting Contractors Association (OPCA) Architectural Specification Manual, latest edition.

1.4 Submittals

.1 Submit required submittals in accordance with Section 01 33 00 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

.2 Product data sheets: Submit manufacturer's Product data sheets for Products proposed for use in the work of this section, including additional data as may be required to demonstrate compliance with the Contract Documents.

.3 Test Results: Submit certified test results for each required fire resistance rated assembly for work of this section.

1.5 Quality Assurance

.1 Work of this Section shall be executed by a company able to deploy adequate equipment and skilled personnel to complete Work expediently in an efficient and orderly manner.

.2 A crew of painters shall be maintained throughout the duration of the Work who shall be qualified to fully satisfy the requirements of this specification.

1.6 Delivery, Storage and Handling

.1 Paint materials shall be delivered to the job site in sealed original labelled containers bearing the manufacturer's name, types of paint, brand name, colour designation, and instructions for mixing and reducing.

.2 Store materials where directed by the Contractor. Paint materials shall be stored at a minimum ambient temperature of 7oC, in a well ventilated and heated, single designated area.

.3 Take all necessary precautionary measures to prevent fire hazards and spontaneous combustion.

1.7 Inspection

.1 All work where a coat of material has been applied must be inspected and approved by the Architect before application of succeeding coats.

1.8 Protection

.1 The painter shall protect all adjacent work and materials by suitable covering during progress of the work.

PART 2 PRODUCTS

2.1 Acceptable Manufacturers and Product:

.1 Paints, stains and varnish:
- .1 General Paint
- .2 Benjamin Moore
- .3 Sherwin Williams
- .4 Zinsser
- .5 Glidden

2. Latex Water Based Epoxy
- Sherwin Williams B70W00211-Waterbased catalyzed epoxy extra white / Tint base A / B60V00025 – Waterbased Catalyzed epoxy Semi Gloss Hardner Part B
- Glidden – 4420 –True Glaze Waterborn epoxy / 4426 True Glaze semi gloss converter

3. Latex Super Adherant Primer,
- General Paint 51-050 Premium Latex Plastic Primer
- Benjamin Moore # 23-00 Freshstart Acrylic Primer Sealer
- Zinser 1-2-3 Acrylic Primer Sealer
- Sherwin-Williams –B51WQ8850-Adhesion Prm White
- Glidden Latex super undercoat 94280

4. Interior Latex Block Filler, C.G.S.B. Standard #-GP-188M
- General Paint 70-224 Premium Latex Block Filler
- Benjamin Moore # 595-01 Latex Block filler
- Glidden # 36250 Concrete Block Filler
- Sherwin Williams B42W00046 Heavy Duty Block Filler

5. Stain Suppresent Sealer/Primer Hi-Hide, C.G.S.B. # 1-GP-119M (Prior approval Required)
- General Paint 60-200 X-Terminator 2 Latex Sealer
- Zinsser BIN Primer, hi-hide (spot prime only)
- Zinsser Bullseye Odourless
- Sherwin-Williams –B49WQ8820 Multipur LTX Pr Wh
- Glidden / Jammer 200

2.2 Materials:

1. Colours shall be those of the Architects Paint Schedule or as per Owner's directions. All primers and undercoats may be tinted to no more than 25% of the intensity of the finish colour. Where deep/intense colours are specified, only colours from the nearest factory premixed colour selection shall be altered to match those specified. The application of Clear Base Deep Tints in either Primer or Finish is not acceptable.

2. All primer and paint must be delivered to the job site in manufacturer's original containers.

3. All materials used in this painting contract are to be applied according to product label directions and in accordance with information stated on the Products Data Specification sheet.

4. Unless otherwise indicated two coats of the specified finish paint are required.

5. Any work not conforming to the specification, or not meeting with the approval of the Architect or Owner's representative, shall be removed or corrected and or/repainted.

6. Manufacturer's sales representatives shall perform inspections on the owner's behalf. In order to ensure compliance with product specifications. Manufacturer's to supply a written letter of compliance.

.7 Two colours will be used for Walls, colours as per finish schedules and consultant selections.

.8 Two colours will be used for door frames, colours as per finish schedules and selected by consultants.

.9 Ceilings to be Ceiling White.

.10 Primers shall be as specified by manufacturer and fully compatible with existing wall finishes and new finish coats. Block filler to be used as a primer on all concrete block walls to be painted.

.11 Stains shall be of the rapid dry, alkyd base type or pigment oil type. Manufacturer shall be Cabot.

.12 Varnishes shall be synthetic type.

.13 Shellac shall be pure white gum in pure grain alcohol.

.14 Thinners, cleaners: as recommended by paint manufacturer.

.15 Concrete block/concrete wall sealer (Sld.): water based acrylic matte, tinted grey as directed by Architect: "Glazol" W.B. by Sternson or 'Wallglaze" by Evespec.

.16 The Architect will select and/or approve colours and determine the number of colours to be used on the job. If required, prepare panels for finish and colour in advance, with the materials as specified for the approval of the Architect.

.17 All paints, varnishes, enamels, lacquers, stains, etc. must be delivered in the original containers with the seals unbroken and labels intact. In both paints and varnishes, use only materials which bear identifying labels on the containers.

PART 3 EXECUTION

3.1 Work

.7 Quality of work shall be of the best. Only skilled mechanics shall be employed. All material shall be used as directed by the manufacturer's label on the container. Sand between paint coats as required to assure a smooth finish surface.

3.2 Climatic Conditions

.7 Exterior finish shall not be applied while the surface is damp, or during cold, rainy or frosty winter weather or when the temperature is likely to drop to freezing. Avoid finishing surfaces while they are exposed to hot sun.

3.3 Unpainted Metals

.7 Anodized aluminum, bronze, chromium plate, nickel, stainless steel and monel metal, shall not be painted or finished unless specified. Otherwise all exposed piping, ducts, j-hooks, conduit and lintels shall be painted.

3.4 Application

.7 In accordance with manufacturer's printed instructions and manufacturer's Site representative.

.8 With suitable, clean equipment in good condition.

.9 In dust-free suitable conditions on the surfaces free from machine, tool or sandpaper marks, insects, grease, or any other condition liable to impair finished work to prevent production or good results.

.10 Even, uniform in sheen, colour and texture, free from brush or roller marks, well brushed or rolled in and free of crawls, runs, join marks or other defects.

.11 Permit paint to dry between coats. Touch up suction spots after applying first coat. Tint various coats of multiple coat work in light shades of the final colour selected, to distinguish between coats. Give Consultant due notice and sufficient opportunity (minimum 48 hours) to inspect each coat. Do not proceed with subsequent coat until preceding coat approved. Consultant reserves the right to order complete retreatment if this condition is not observed.

.12 Painting coats are intended to cover surfaces perfectly; if in painter's opinion, formula specified is inadequate to provide a first class finished surface, report to the Consultant before commencing work. Surfaces imperfectly covered shall receive additional coats at no additional cost.

.13 Use paint unadulterated. Use same brand of paint for primer, intermediate and finish coats. Factory mix all paints.

.14 Paint finish shall be applied by roller except in the case of wood trim, door frames, base board and similar work of small surface area which shall be painted by brush. Do not use roller for applying finish other than paint.

.15 Spray painting will not be permitted unless specifically approved in writing by the Consultant in each instance. Spray painting will only be permitted for the concrete block prime filler coat to be followed by 2 coats of roller applied paint. Spray painting of H.M. door frames is not permitted.

.16 Spray painting will be allowed in those areas where there is exposed metal deck. Paint must be “Dry Fall” and the work must be complete before the installation of flooring and wall finishes.

.17 Finish all edges of doors with paint or stain treatment as required to match face of door. Seal hidden edges of wood doors with one coat of shellac and one coat varnish or two coats paint. Repaint tops and edges of wood doors after fitting.

.18 Even up stained woodwork in colour as required by nature of wood and as directed by Consultant. Apply same finish on trim, fitments, cupboards and other protecting ledges as on surrounding work, disregard sight lines.

.19 Carefully hand smooth and sandpaper wood between coats (including priming). Apply one coat sealer before applying first coat paint filler to knots or sap blemishes on wood surfaces to receive paint or stain finish.

.20 Remove rust, oil, grease and loose shop paint from metal work by brushing or with wire brushes and make good shop coat before proceeding with final finish. Feather out edges to make touch up patches inconspicuous.

.21 After first coat, fill nail holes, splits and scratches, using putty coloured to match finish.

.22 Clean castings with wire brush before application of first paint coat.

.23 Do not etch galvanized metal. Use zinc rich primer. This includes metal door frames and the like with wiped zinc coating.

.24 Remove form oil or parting compounds from concrete surfaces. Use Xylol or approved compound.

.25 Paint interior of pipe spaces, ducts, etc. visible through grilles, through linear metal ceilings.

.26 Conform with Consultant's colour schedule and exactly match approved samples.

.27 Mechanical and Electrical Pipes, Ducts and Conduits:

.1 Commence Work when piping installation is complete in the area concerned.

.2 Paint conduit in same colour as background paint.

.3 Apply formulae specified even though surface prime painted at shop prior to delivery. Touch up shop priming where damaged.

.4 Use heat resistant epoxy paint on pipes and surfaces where operating surface temperature exceeds 65 degrees C.

.5 Paint exposed pipes and ducts and their supports and related items in colours to suit colour coding adopted by Owner, to Consultant's later instructions. Refer to Mechanical Division 15 for further instructions.

3.5 Repairs

.7 Cracks occurring in walls or ceilings requiring patching during "Warranty Period" shall be repainted in such a way that the patch is not visible at a distance of 3'0" (1 m).

.8 If patch painting is not acceptable, repaint entire wall, or ceiling.

3.6 Interior Metal Work

.7 All exposed interior metal work, including baseboard cabinets, electrical cabinets and ductwork shall be painted with one coat of BM Interior Trim Primer and 2 coats of BM Dulamel Gloss. Note: Delete first coat on all previously "Primed" Metal. Areas where metal work shall be concealed with wall and ceiling finishes shall not be painted.

3.7 Exposed Block Walls (Interior-Painted)

.7 Shall be painted with 1 coat of BM Primer Filler and 2 coats of Benjamin Moore MooreStyle/K568 Interior Latex Semi-Gloss.

.8 Prior to start of interior painting on block walls, the painting subcontractor shall apply in the presence of the Architect, a sample area (to be agreed upon) consisting of the above specification. Prim-A-Fill shall be applied at the rate of not more than 7m2 (80 sq. ft.) per gallon, by brush or roller application. No further work shall proceed until this sample section has been completed and approved and this shall be standard for the remainder of the contract for finish of block walls.

.9 Where indicated on the finish schedule apply steel floated screed of Durabond 90 to the exposed block wall prior to painting.

3.8 Colour Scheme

.7 Refer to finishes schedule on in architectural drawings for colour scheme. All piping in mechanical room, and boiler room must be painted to colour coding supplied by the Consultant. Accent colour on block walls where indicated on finish plans shall be painted with clean, sharp, edges, properly masking junctions.

3.9 Clean Up and Touch Up

.7 On completion of all of the work, touch up any discrepancies or damage which has occurred subsequent to finishing, then remove all waste and surplus materials from the premises.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Supply and Installation of Markerboards and Tackboards.

.2 Supply all labour, materials and equipment and complete the installation of all whiteboards, and tackboards including trim and accessories as shown on architectural drawings.

1.2 Storage

.1 Store all materials within the building in clean, dry area designated by the General Contractor.

.2 Store material in manner which will not damage, mar or cause other defects detrimental to the finished appearance. Provide such protection as necessary to guard against damage and marring from this and other trades. Maintain such protection until ordered removed by the Consultant.

1.4 Shop Drawings

.1 The General Contractor shall submit shop drawings for review by the Architect before fabrication as per Section 01 33 00.

.2 Checking of shop drawings by the Architect is a precaution against oversight and error and shall not be construed as relieving the Contractor of responsibility for making the work accurate and in conformity with drawings and specifications. Review is for general design and arrangement only.

.3 Submit shop drawings complete with all dimensions, mounting heights, construction details and description of products.

1.5 Warranty

.1 All work performed and materials supplied under this Section to be warranted from defects for a period of two (2) years from Substantial Completion.

.2 Whiteboards and Tackboards shall carry a 25-year warranty against defects due to normal usage and wear. All warranties to be given in writing.

PART 2 PRODUCTS

2.1 Acceptable Manufacturers:

.1 It is intended that manufacturer's products listed in this section represent basis upon which quality and performance of other qualified manufacturers' products will be compared and shall so meet, rather than to limit the supply of such products to that one manufacturer only.

.2 Unless noted otherwise, Work as described in this section based on the products of Architectural School Products Ltd, Global Industrial, or Cveti.

2.3 Whiteboards

.1 Whiteboards core shall be impregnated sound absorbing fibreboard, 12 mm (7/16") thick. Laminate under heat and pressure.

.2 All whiteboards shall consist of face panel, core, balancing rear sheet, trim and chalk rails.

.3 Face panel shall be 28 gauge high quality enamelling steel base with a porcelain enamel writing surface fused to a ground coat of not less than 0.076 mm (.003") nor more than 0.127 mm (.005") after firing at temperatures between 730 Deg C. (1350 Deg F) and 760 Deg C (1400 Deg F), in accordance with the Porcelain Enamel Institute Standards PEI S104 as regards to durability, smoothness of texture, colour continuity and a gloss factor of 6-8 as measured by 45 Deg glossometer. Colour: white. Face Panel to be manufactured by PG BELL INC., 60 Armstrong Avenue, Georgetown, ON.

.4 Surface shall be washable. General household detergents shall not damage face panel in any manner. Surface shall be cleanable with acetone, alcohol and cleaning fluid.

.5 Balancing rear sheet shall be 28 gauge zinc coated stretcher leveled steel in one unjointed section. Overall thickness of whiteboard lamination shall not exceed 12.5 mm (1/2").

.6 Vertical jambs shall be provided for all chalkboards/whiteboards, same length of board, c/w contour fittings and castings.

.7 Trim shall be aluminum 6063T5 alloy with clear etched, anodized satin finish 0.051 mm (.002") satin finish, free from extruding draw marks and surface scratches. Perimeter trim shall be 19 mm (3/4") exposed face, weight of approximately 91 g (.20 lbs) per linear foot. Use A.S.P. Series 200 Trim, or approved equal. Use A.S.P. No. 207 divider bar -

aluminum trim for adjacent whiteboard/whiteboard panels, whiteboard/tackboard panels to be 12.7 mm (1/2") exposed face and weight of approximately 113 g (.25 lbs) per linear foot. Use No. 206 map rail over all whiteboards. Use No. 200 perimeter to sides of whiteboard and around fixed tackboard.

.8 Use No. 264 marker tray and end caps where whiteboard is located over architectural woodwork. Use No. 212 marker tray and end caps in all other whiteboard locations. Do not provide marker tray for whiteboards in gymnasium.

.9 Accessories manufacturer's standard:

.1 Map hooks every 90 mm o.c.

2.4 Tackboard Materials

.1 All tackboards shall be 12.5 mm (1/2") factory prelaminated. One half the thickness indidcated shall be A.S.P. natural cork, fine grain laminated to 6.25 mm (1/4") particleboard or masonite substrate under mechanical pressure.

.2 Maximum panel sizes shall be 1200 mm x 2400 mm (4' x 8'). Use bonding of materials by a waterproof adhesive that will not delaminate or rupture at the contact surfaces for all material bonding.

.3 Trim shall be aluminum 6063T5 alloy with clear etched, anodized 0.051 mm (0.002") satin trim, 0.051 mm (.002") satin finish, free from extruding draw marks and surface scratches. Weight shall be 90g (0.20 lbs per foot.

.4 All tackboards shall be mounted as per manufacturer's instructions. See drawing for location. Perimeter trim shall be 19mm (3/4") exposed face.

.5 See plans for tackboard size, location and number.

PART 3 EXECUTION

3.1 Examination

.1 Examine all support surface which may affect this work and report any discrepancies to the Architect. The commencement of work shall indicate acceptance of conditions.

3.2 Installation

.1 Millwork units forming an integral part of the chalkboard/tackboard installation shall be installed before commencing the chalkboard/tackboard installation.

.2 Supply all labour, materials, anchors, fasteners necessary to complete the installation of chalkboards, whiteboards, and tackboards throughout the project. All installation to be done by workers experienced in this type of work.

.3 Erect all units plumb, level and accurately in locations shown on the Drawings or as directed by Consultant. Securely and permanently fix to the wall surfaces with concealed fasteners. Fastening to be accomplished by the use of #10x1" (25.4mm) steel wood screws attached to walls by the use of rawl plugs.

.4 Include for extended aluminum jambs, trim, track and chalktrays and accommodate all other special conditions as required.

.5 Accurately cut, machine and fit to form tight flush hairline connections all joints in trim and rails. Corners of trim to be square and true and mitre cut. Cap ends of rails with cast aluminum end fittings.

.6 Whiteboards shall be jointed together by the use of a 14 gauge x 25.4mm (1") wide steel spline and an extruded polyvinyl slotted insert to ensure a flush butt joint with a hairline appearance.

.7 Whiteboards shall be properly cleaned after installation. Leave whiteboards in a state for immediate use by Owner.

.8 Do not install finished materials until overhead work such as acoustic ceiling, electrical, mechanical and painting have been completed.

3.3 Cleaning

.1 Leave trim and board surfaces clean and free of stains or marks.

.2 Furnish to the General Contractor for inclusion in the Data Book duplicate copies of trade literature on the care and maintenance of the installations.

END OF SECTION

1.1 GENERAL

1.1 Section Includes

.1 Supply and Installation of Washroom Accessories

1.2 Submittals

.1 Submit required submittals in accordance with Section 01 33 00 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

.2 Product data sheets: Submit manufacturer's Product data sheets for Products proposed for use in the work of this section, including additional data as may be required to demonstrate compliance with the Contract Documents.

.3 Test Results: Submit certified test results for each required fire resistance rated assembly for work of this section.

1.3 Manufacturers

.1 Subject to compliance with the requirements of these specifications the following manufacturers are acceptable:

.1 Frost or approved alternate

1.4 Delivery and Storage

.1 All washroom accessories shall be delivered in protective sealed cartons and shall be stored in a location safe from incidental damage.

PART 2 PRODUCTS

2.1 General Construction

.1 All exposed surfaces shall be type 301 stainless steel with #4 satin finish.

.2 All exposed waste container bins, with or without removable plastic or canvas liners, shall be all stainless steel leak proof construction.

.3 Concealed liners shall be zinc coated designation "Wiped Coat" except napkin disposal units which shall be stainless steel.

.4 Doors shall be double pan type reinforced to prevent twisting with continuous stainless steel piano type hinges.

.5 Fit all waste receptacles with self-closing fire stop access panel with stainless steel piano hinge.

.6 Welding or soldering marks shall not be visible on exposed faces.

2.2 Equipment

.1 Paper Towel Dispenser

.1 Supplied by Owner

.2 Toilet Paper Dispenser

.1 Supplied by Owner

.3 Waste Bin

.1 By Owner

.4 Coat Hook

.1 #1150 by Frost Products Ltd.

.5 BF Shelf

.1 #950-4 by Frost Products Ltd.

.6 Wall Mounted Soap Dispensers

.1 Supplied by Owner

.7 Mirror

.1 Mirror

.1 #941-1830 by Frost Products Ltd.

.8 Grab Bars

.1 Equip water closets with barrier free with grab bars in conformance with the Ontario Building Code, Bobrick Series. Grab bars shall be stainless steel, with welded flanges, concealed mounting and non-slip surface.

.1 Refer to Architectural Drawings for the size, location and configuration of the Grab Bars.

.2 #1055 by Frost Products Ltd. c/w Toilet Paper Holder and #1001NP24 by Frost Products Ltd.

.9 Water Closet Seat/Cover

.1 “#1950 or #1955C” by Bemis Manufacturing or equal. Colour “Black”

PART 3 EXECUTION

3.1 Inspection

.1 This Contractor shall inspect the work of previous trades and report any discrepancies which might prevent the proper installation of materials in this section.

3.2 Installation

.1 Securely fasten accessories, level and plumb in the shown on the drawings and as specified herein. Mounting heights, as shown on the drawings, or as directed.

.2 Coordinate installation with the work of trades providing adjacent construction as required to achieve the reveals or other edge or where front faces of units are flush with the finished wall surfaces.

.3 Perform drilling of steel, masonry and concrete necessary to install the accessories.

.4 Insulate accessory surfaces to prevent electrolysis due to contact with masonry, concrete or dissimilar metal surface. Use bituminous paint, building paper or other approved methods.

.5 All items shall be firmly lagged to masonry or screwed to metal surfaces. Use tamperproof screw heads. All square items shall be set plumb.

3.3 Grab Bars

.1 Grab bars shall be installed in accordance with O.B.C. handicap standards. Securely lag to masonry walls only using interrupted slot or break off screw heads.

3.4 Protection

.1 All stainless steel items shall have a removable surface protection film for later removal by General Contractor.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to provide all prefabricated metal lockers.
  .1 Wall mounted locker banks.

1.2 REFERENCE STANDARDS

.1 ASTM A653; Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
.2 CSA-W59; Welded Steel Construction (Metal Arc Welding).

1.3 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00.
.2 Shop Drawings
  .1 Submit shop drawings for all lockers.
  .2 Indicate gauges of metal, fabricating methods, assembled banks of lockers, bases, trim, numbering, filler panels & end panels.
  .2 Include all installation instructions, and requirements for wall strapping.

.2 Samples
  .1 Submit duplicate complete colour selection charts to the Consultant to assist in colour selections.

  .2 Submit duplicate sheet steel colour sample chips in colours selected by the Consultant for verification purposes.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials in original unopened packages, clearly labeled with manufacturer's name and product designation.

.2 Store products in safe dry area, protected from elements, and construction traffic.

.3 Handle in such a manner to ensure against racking, distortion, or physical damage of any kind.

2 PRODUCTS

2.1 MANUFACTURERS

.1 Shanahan's Manufacturing Limited, Calgary AB.
.2 Cambrian.
.3 Hadrian
.4 General Storage Systems (GSS), London Ontario.

2.2 MATERIALS

.1 Sheet steel: commercial grade, stretcher-leveled sheet steel to ASTM A653. Thicknesses specified are "base metal thickness" prior to galvanizing or finishing.

2.3 LOCKER PRODUCTS

.1 Standard Lockers
- .1 SML Deluxe, by Shanahan's Manufacturing Ltd., Calgary, AB.
- .2 Atlas Institutional Series, by Anthony Steel Manufacturing Ltd., Brampton Ontario.
- .3 Tradition or Tradition Plus, by American Specialties Inc. (ASI), Mississauga Ontario
- .4 Elite or Excalibur Series, by General Storage Systems (GSS), London Ontario.
- .5 Deluxe Series, by Shanahan's Manufacturing Limited, Calgary AB.

2.4 LOCKER UNIT DESIGN

.1 Locker Sizes:
- .1 Type L1 (1-Tier) Standard Lockers
  - .1 Width: 305mm.
  - .2 Depth: 380mm.
  - .3 Height: 1525 mm

.2 Latch set: single point through recessed metal pocket.

.3 Locking System
- .1 Padlocks: Model MK3 key-operated padlocks by Dudley Inc., Hemmingford PQ, as supplied by the Owner.

2.2 FABRICATION

.1 Standard Lockers
- .1 Fabricate lockers to the following base metal thickness:
  - .1 Locker bodies (panels): 20 gauge sides to be double ribbed
  - .2 Locker bodies (shelves): 16 gauge
  - .3 Locker bodies (fillers): 16 gauge
  - .4 Locker bodies (bottoms): 16 gauge
  - .5 Locker bodies (end panels): 16 gauge
  - .6 Doors (outer face): 16 gauge
  - .7 Doors (inner panel): 20 gauge
  - .8 Door Frames: 16 gauge
  - .9 Hinges: HD Piano

- .2 Fabricate doors in double pan construction, from (16 gauge) 1.0mm outer panel, welded to (20 gauge) 0.7mm inner panel, with (1") 25mm cell structural honeycomb core. Provide rubber door bumpers (minimum 2 per door) for all doors.

.3 Fabricate frames of (16 gauge) 1.6mm formed steel channels, welded to form a rigid box structure with integral door stop, welded steel hasp, and full lintel support under bottom shelf.

.4 Provide unobstructed ventilation by means of louver perforations in locker frames, coupled with perforations in shelves.

.5 Fabricate locker bodies (sides, backs, tops, bottoms, shelves, dividers) from pre-painted (20 gauge) 0.7mm steel with edges formed to provide rigid assembly when bolted or pop-riveted together. Tops, bottoms and shelves shall be flanged on all sides with hemmed channel front edges for shelves.

.6 Latching/Locking Device: (11 gauge) 3.038mm, (2") 51mm x (3/4") 19mm padlock hasp shall be securely welded to the continuous strike midway up on the frame and centered at the handle location. Hasp shall be formed to protrude through an extruded aluminum recessed handle, clip-locked and bonded to the door. Handle's inner surface shall be concave and grooved for fingertip door control. To keep the door closed when not in use, a (1/2") 13mm O.D. nylon friction catch shall be installed on the door to engage the frame in one (1) location.

.7 Hinge: A full-length (18 gauge) 1.214mm continuous piano hinge shall be securely welded to the frame and fastened to the door with screws or rivets.

.8 Ventilation: Airflow is achieved through 4 sets of 5 unobstructed louvers (3/4") 19mm wide x (1/4") 6mm high in the vertical frame members. Provide 18 each (3/16") 5mm diameter perforations at outside perimeter of each top, shelf, and bottom to offer additional ventilation throughout the inside of each locker.

.9 Fabricate fillers, and trims from pre-painted (20 gauge) steel with edges formed to provide rigid assembly when bolted or pop-riveted together.

.10 Interior Equipment:

.1 Single Tier: three single-prong coat hooks and one double-prong coat hook and (1") 25mm O.D. coat rods with stainless steel brackets. All hooks are chrome-plated steel with ballpoint heads and attached with two fasteners.

.11 Number Plates: each door shall have a high-strength, black, laminated plastic, number plate, (2-1/2") 64mm wide x (1-1/8") 29mm high with numbers not less than (7/16") 11mm high. Plates shall accommodate up to four digits, be set in a recess flush with door surface and shall be fastened to door with two rivets. Lockers will be numbered consecutively from 1 – up as directed by the Owner.

.12 Fasteners: cadmium-plated steel tamperproof type screws and bolts.

2.3 FINISH

.1 All painted steel surfaces shall be factory-finished with electro-statically applied, thermosetting, powder coat polymer enamel. Site painting is not acceptable.

.2 Colours
- .1 Frames, fillers, and trim: colour to match doors.
- .2 Interiors: Oyster G223 by GSS Ltd.
- .3 End panels: colour to match doors.

.3 Doors – see drawings for colour locations and quantities:
- .1 Shanahan's Utramarine 800.
- .2 Shanahan's Yellow 403.
- .3 Custom Green Benjamin Moore Rosemary Green 2029-30.
- .4 Shanahan's Grey 301.

3 EXECUTION

3.1 EXAMINATION

.1 Examine all adjacent surfaces and confirm their acceptance as substrates prior to locker installation.

.2 Confirm location and extent of wall strapping conforms to manufacturer's requirements for installation.

.3 Commencement of locker installation shall imply acceptance of substrate conditions.

3.2 INSTALLATION

.1 Assemble and install lockers in accordance with manufacturer's installation instructions.

.2 Provide separation membrane (dampproof course) between steel lockers and all concrete surfaces.

.3 Securely fasten lockers to wood nailing strips. Ensure installation is plumb, square and level.

.4 Install wall trim around recessed locker banks.

.5 Install filler panels (false fronts) where indicated and where obstructions occur.

.6 Install finished end panels to all exposed ends of locker banks.

.7 Install sloped tops as indicated, complete with fillers, ends, and trims as required.

.8 Install benches where indicated on the drawings. Bolt securely to floor slab.

3.3 CLEANING AND PROTECTION

.1 Protect surfaces of lockers from damage, from time of installation until final cleaning immediately prior to final inspection.

.2 Leave protective films in place where present until time of final cleaning.

.3 Clean surfaces of lockers in accordance with manufacturer's instructions immediately prior to final inspection.

.4 Replace dented, scratched, or otherwise defective components with new components prior to final inspection.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to provide window blinds as follows:

.1 Manual vertical sun screen shades

.2 Manual room darkening shades

1.2 REFERENCES

.1 ASTM E84; Surface Burning Characteristics of Building Materials.

.2 NFPA 701; Standard Methods Of Fire Tests For Flame Propagation Of Textiles And Films.

.3 ASTM E162; Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.

1.3 DESIGN CRITERIA

.1 Fabric for blinds to have flame-spread ratings and degree of flame resistance required by the National Fire Code of Canada.

.1 Flame Spread Rating: less than 25.

1.4 SAMPLES

.1 Submit one representative working sample of each type blind in accordance with Section 01 33 00.

.2 Submit duplicate sample sets of manufacturer's standard fabrics for selection by Consultant.

1.5 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00.

.2 Indicate dimensions in relation to window jambs, operator details, head and sill conditions between adjacent blinds corner conditions anchorage details, hardware and accessories details.

1.6 CLOSEOUT SUBMITTALS

.1 Operations and Maintenance Data

.1 Submit data for inclusion into Operations and Maintenance manuals in accordance with Section 01 78 00.

.2 Include methods for maintaining installed products, methods of cleaning fabrics, and methods of adjustment.

1.7 EXTENDED WARRANTY

.1 Submit a manufacturer’s warranty certificate in the name of the Owner, warranting the Products specified under this section against defects in material or manufacture for a period of Two (2) years from Date of Substantial Performance.

2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

.1 Solarfective Products Ltd.
.2 SunProject Toro Inc.
.3 HunterDouglas (Nysan Solar Control).
.4 Sun Glow Window Coverings of Canada Ltd.
.5 Elite Window Fashions, Concord ON.
.6 200vic, Kitchener, ON.

2.2 ROLLER SHADES

.1 Manual Sunscreen Roller Shades: chain drive manual sun screen roller shades, soffit-mounted, 65mm tube size, clear anodized aluminum fascias, mounting brackets, bottom bar, and end covers;
  .1 Design: 1 blind/window.
  .2 Sunscreen Fabric: medium weight, flame-retardent sunscreen fabric, colour/pattern as selected by Consultant from manufacturer's standard ranges.
  .3 Shading Fabric: 90% blackout
  .4 Locations: See drawings.
  .5 Acceptable Products
    .1 Moduline 105 Lite-Lift by SunProject.
    .2 Teleshade by Solarfective.
    .3 RB-500 by Hunter Douglas.
    .4 V-Series Manual by Sun Glow.
    .5 Z-300/400 Series by Elite Window Fashions.

2.3 FABRICS

.1 Construction of shadeband includes fabric, external bottom bar, and attachment of the shadeband to the roller tube:

.2 Fabric shade cloths shall be woven of vinyl-coated polyester yarn consisting of single thickness non-raveling vinyl fabric, comprising of 20-25% polyester and 75-80% reinforced vinyl (PVC), and dimensionally stable.

.3 Flame retardance: Fabric shall be certified by independent laboratory to pass the small scale vertical burn requirements test; CAN/ULC-S109-M87 and NFPA 701.

2.4 SHADE ROLLER TUBE

.1 Rigid roller tubes shall be extruded aluminum with reinforced internal ribs to provide maximum span without tube deflection. Tube sizes will depend on shade size, as recommended by manufacturer.

2.5 TUBE END PLUG

.1 Internal tension idler limiter automatically adjusts and controls the amount of torque being generated for constant smooth operation of the shade system. The limiter must automatically release during down-travel, and automatically engage during up-travel of the shade system.

2.6 DRIVE

.1 Shall consist of a heavy duty commercial grade sprocket. Drive sprocket must contain a planetary gear system for increased performance, speed ratio, smoothness, and balance to the shade system. Must provide for infinite positioning of shade system.

2.7 OPERATING CHAIN (MANUAL SHADES)

.1 Shall be No. 10 qualified heavy duty stainless steel bead chain 90 lb load test formed in a continuous loop. With stops at highest and lowest positions to prevent overwinding and unrolling.

2.8 EXTERIOR HEMBAR

.1 Shall be extruded aluminum with recess to secure fabric without visible seams. End plugs shall be screwed securely on ends showing no exposed aluminum. Design allowing shade to be pulled on the hembar. Finish/colour shall match fascia.

2.9 MOUNTING BRACKETS

.1 Shall be 0.60" galvanized steel snap on brackets for ceiling, wall, or recessed mount in ceiling.

2.10 FASCIAS

.1 One piece 1.7mm thick aluminum front or bottom fascias.

.2 Finish: clear anodized aluminum, or custom painted in colour selected by Consultant.

2.11 GUIDE CHANNELS

.1 One piece 1.7mm thick aluminum jamb guide channels for room darkening shades.

2.12 OPERATION

.1 General

.1 An internal tension idler limiter automatically adjusts and controls the amount of torque being generated for constant smooth operation of the shade system. The limiter automatically releases during down-travel, and automatically engages during up-travel of the shade system.

.2 Lifting mechanism must accommodate tension modules for maximum shade performance when necessary. The tension modules must also contain a memory lock for torque retention.

.3 Noise reduction seals must be used for sound isolation and absorption of the mechanism.

.4 Drive sprocket must contain a planetary gear system for increased operational performance, speed ratio control, smoothness of lift, and balance to the chain and shade system.

.2 Manual Drive

.1 Shade to be able to move freely when pulled on chain. The unit shall consist of a tension activated lifting mechanism. The lifting mechanism must contain a memory lock which shall maintain pre-tensioning when the shade is removed from the cassette bracket, and shall not require re-tensioning when shade is re-inserted into the bracket. The roller mechanism must be reversible for future alterations and maintenance on site.

3 EXECUTION

3.1 INSTALLATION

.1 Install bracket mounted blinds in accordance with manufacturer's instructions.

.2 Install blinds square, plumb, true to line with operable parts adjusted for correct function.

.3 Secure head rails with stainless steel screws. Use non corrosive metal fasteners for installation, concealed in final assembly. Install all bottom panels, fascias, and end panels to provide concealed installation.

END OF SECTION

Division 26 Common Requirements for Electrical

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END OF SECTION

Part 1 General

1.1 GENERAL

.1 This Section covers items common to Electrical Division 26, as well as Division 27 and Division 28.

.2 This section supplements requirements of Division 1.

.3 Furnish labour, materials, and equipment necessary for completion of work as described in contract documents.

1.2 INTENT

.1 Mention herein or indication on Drawings of articles, materials, operations, or methods requires: supply of each item mentioned or indicated, of quality, or subject to qualifications noted; installation according to conditions stated: and, performance of each operation prescribed with furnishing of necessary labour, equipment, and incidentals for electrical work.

.2 Where used, words “Section” and “Division” shall also include other Subcontractors engaged on site to perform work to make building and site complete in all respects.

.3 Where used, word “supply” shall mean furnishing to site in location required or directed complete with accessory parts.

.4 Where used, word “install” shall mean secured in place and connected up for operation as noted or directed.

.5 Where used, word “provide” shall mean supply and install as each is described above.

1.3 TENDERS

.1 Submit tender based on specified described equipment or Alternates listed.

.2 State in Tender, names of all Subcontractors proposed for work under this Division.

1.4 LIABILITY INSURANCE

.1 This contractor must maintain and produce at the request of the consultant proof of proper insurance to fully protect the owner, the consultant and the contractor from any and all claims due to accidents, misfortunes, acts of God, etc.

1.5 ELECTRICAL SAFETY AUTHORITY

.1 The contractor is to determine general inspection fees with Electrical Safety Authority and include as part of tender.

1.6 DRAWINGS

.1 Electrical Drawings do not show structural and related details. Take information involving accurate measurement of building from building drawings, or at building. Make, without additional charge, any necessary changes or additions to runs of conduits and ducts to accommodate structural conditions. Location of conduits and other equipment may be altered by the consultant without extra charge provided change is made before installation and does not necessitate major additional material.

.2 As work progresses and before installing fixtures and other fittings and equipment which may interfere with interior treatment and use of building, provide detail drawings or obtain directions for exact location of such equipment and fitments.

.3 Electrical drawings are diagrammatic. Where required work is not shown or only shown diagrammatically, install same at maximum height in space to conserve head room (minimum 2200 mm (88") clear) and interfere as little as possible with free use of space through which they can pass. Conceal wiring, conduits and ducts in furred spaces, ceilings and walls unless specifically shown otherwise. Install work close to structure so furring will be small as practical.

.4 Before commencing work, check and verify all sizes, locations, grades, elevations, levels and dimensions to ensure proper and correct installation. Verify existing/municipal services.

.5 Locate all electrical equipment in such a manner as to facilitate easy and safe access to and maintenance and replacement of any part.

.6 In every place where there is indicated space reserved for future or other equipment, leave such space clear, and install services so that necessary installation and connections can be made for any such apparatus. Obtain instructions whenever necessary for this purpose.

.7 Relocate equipment and/or material installed but not co-ordinated with work of other Sections as directed, without extra charge.

.8 Where drawings are done in metric and product not available in metric, the corresponding imperial trade size shall be utilized.

1.7 INTERFERENCE AND CO-ORDINATION DRAWINGS

.1 Prepare interference and equipment placing drawings to ensure that all components will be properly accommodated within the constructed spaces provided.

.2 Prepare drawings to indicate co-ordination and methods of installation of a system with other systems where their relationship is critical. Ensure that all details of equipment apparatus, and connections are co-ordinated.

.3 Ensure that clearances required by jurisdictional authorities and clearances for proper maintenance are indicated on drawings.

.4 Upon consultant’s request submit copies of interference drawings to the consultant.

.5 Due to the nature of the building and the complexity of the building systems provide the following:

.1 Interference drawings, showing coordination of architectural, structural, mechanical, and electrical systems for the consultant's review prior to fabrication.

.2 Detailed equipment room drawings clearly showing all distribution equipment.

.3 Detailed layout drawings clearly showing conduit/feeder runs 78 mm diameter or larger, including hangers or tray.

.6 Provide CAD drawings (minimum file version AutoCAD 2013) in addition to hard copies.

1.8 QUALITY ASSURANCE

.1 The installations of the division must conform to the latest edition of the Electrical Safety Code as well as its supplemental bulletins and instructions. Provide materials and labour necessary to comply with rules, regulations, and ordinances.

.2 Abbreviations for electrical terms: to CSA Z85-1983.

.3 In case of differences between building codes, provincial laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern. Promptly notify consultant in writing of such differences.

1.9 ALTERNATES AND SUBSTITUTIONS

.1 Throughout these sections are lists of "Alternate Equipment" manufacturers acceptable to consultant if their product meets characteristics of specified described equipment.

.2 Each bidder may elect to use "Alternate Equipment" from lists of Alternates where listed. Include for any additional costs to suit Alternated used. Prices are not required in Tender for Alternates listed except where specifically noted as "Separate Price". Complete the Supplementary Tender Form.

.3 When two or more suppliers/manufacturers are named in the Bid Documents, only one supplier/manufacturer of the products named will be acceptable; however, it is the responsibility of this Division to ensure "Alternate Equipment" fits space allocated and gives performance specified. If an "Alternate Equipment" unit is proposed and does not fit space allotted nor equal specified product in consultant's opinion, supply of specified described equipment will be required without change in Contract amount. Only manufacturers listed will be accepted for their product listing. All other manufacturers shall be quoted as substitution stating conditions and credit amount.

.4 If item of material specified is unobtainable, state in Tender proposed substitute and amount added or deducted for its use. Extra monies will not be paid for substitutions after Contract has been awarded.

1.10 EXAMINATION

.1 Site Reviews

.1 Examine premises to understand conditions, which may affect performance of work of this Division before submitting proposals for this work.

.2 No subsequent allowance for time or money will be considered for any consequence related to failure to examine site conditions.

.2 Drawings

.1 Electrical Drawings show general arrangement of fixtures, power devices, equipment, etc. Follow as closely as actual building construction and work of other trades will permit.

.2 Consider Architectural, Mechanical, and Structural Drawings part of this work insofar as these drawings furnish information relating to design and construction of building. These drawings take precedence over Electrical Drawings.

.3 Because of small scale of Drawings, it is not possible to indicate all offsets, fittings, and accessories, which may be required. Investigate structural and finish conditions affecting this work and arrange work accordingly, providing such fittings and accessories required to meet conditions.

.3 Ensure that items to be furnished fit space available. Make necessary field measurements to ascertain space requirements including those for connections and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of Contract Documents. If approval is received by Addendum or Change Order to use other than originally specified items, be responsible for specified capacities and for ensuring that items to be furnished will fit space available.

1.11 SEQUENCING AND SCHEDULING

.1 It is understood that while Drawings are to be followed as closely as circumstances permit, this Division will be held responsible for installation of systems according to the true intent and meaning of Contract Documents. Anything not clear or in conflict will be explained by making application to consultant. Should conditions arise where certain changes would be advisable, secure consultant's approval of these changes before proceeding with work.

.2 Coordinate work of various trades in installing interrelated work. Before installation of electrical items, make proper provision to avoid interferences in a manner approved by consultant. Changes required in work specified in these sections caused by neglect to do so shall be made at no cost to owner.

.3 Arrange fixtures, conduit, ducts, and equipment to permit ready access to junction boxes, starters, motors, control components, and to clear openings of doors and access panels.

.4 Furnish and install inserts and supports required by these sections unless otherwise noted. Furnish sleeves, inserts, supports, and equipment that are an integral part of other Divisions of the Work to Sections involved in sufficient time to be built into construction as the Work proceeds. Locate these items and see that they are properly installed. Expense resulting from improper location or installation of items above shall be borne by the electrical trade.

.5 Adjust locations of ducts, conduits, equipment, fixtures, etc., to accommodate work from interferences anticipated and encountered. Determine exact route and location of each conduit and duct prior to installation.

.1 Make offsets, transitions, and changes in direction of ducts, and electrical raceways as required to maintain proper head room and pitch of sloping lines whether or not indicated on Drawings.

.2 Supply and install pull boxes, etc., as required to affect these offsets, transitions, and changes in direction.

1.12 REQUEST FOR INFORMATION (RFI) PROCEDURES

.1 RFIs shall be submitted to the consultant minimum two (2) weeks prior to answer being required. Failure to submit and RFI in a timely manner will forfeit delay claims and schedule extension requests by the contractor.

.2 All RFIs will be submitted with the following information:

.1 RFI number
.2 Name of project
.3 Date of initiation
.4 Date response required by (minimum two (2) weeks)
.5 Subject
.6 Submitter's name
.7 Drawing/specification reference
.8 Photograph of the issue (if applicable)
.9 Description of the issue
.10 Contractor's proposed resolution

1.13 DRAW BREAKDOWN

.1 This contractor MUST submit a breakdown of the tender price into classifications to the satisfaction of the consultant, with the aggregate of the breakdown totaling the total contract amount. **Each item must be broken out into material and labour costs.** Progress claims, when submitted are to be itemized against each item of the draw breakdown. This shall be done in table form showing contract amount, amount this draw, total to date, % complete and balance.

.2 Breakdown shall be as follows:

.1 Permits and fees

.2 Mobilization (maximum 1%)

.3 Demolition

.4 Panelboards and miscellaneous distribution equipment

.5 Branch conduits

.6 Branch wiring

.7 Lighting fixtures (interior)

.8 Emergency lighting

.9 Fire alarm system devices and verification

.10 Auxiliary system rough-ins

.11 Commissioning (minimum 3%)

.12 Electrical contractor closeout requirements (minimum of 3% but not less than $2,500.00)

.3 The breakdown must be approved by the consultant prior to submission of the first draw.

.4 Breakdowns not complying to the above will not be approved.

.5 Breakdown must indicate total contract amount.

.6 Mobilization amount may only be drawn when all required shop drawings have been reviewed by the consultant.

1.14 SHOP DRAWINGS AND PRODUCT DATA

.1 General

.1 Furnish complete catalog data for manufactured items of equipment to be used in the work to consultant for review within 14 days after award of Contract.

.2 Upon receipt of reviewed shop drawing, product is to be ordered immediately.

.3 Provide a complete list of shop drawings to be submitted prior to first submission.

.4 Before submitting to the consultant, review all shop drawings to verify that the products illustrated therein conform to the Contract Documents. By this review, the contractor agrees that it has determined and verified all field dimensions, field construction criteria, materials, catalogue numbers, and similar data and that it has checked and coordinated each shop drawing with the requirements of the work and of the Contract Documents. The contractor's review of each shop drawings shall be indicated by stamp, date and signature of a qualified and responsible person possessing by the appropriate authorization.

.5 If material or equipment is not as specified or submittal is not complete, it will be rejected by consultant.

.6 Additional shop drawings required by the contractor for maintenance manuals, site copies etc., shall be photocopies of the "reviewed" shop drawings. All costs to provide additional copies of shop drawings shall be borne by the contractor.

.7 **Submit all shop drawings for the project as a package. Partial submittals will not be accepted**.

.8 Catalog data or shop drawings for equipment, which are noted as being reviewed by consultant or his engineer shall not supersede Contract Documents.

.9 Review comments of consultant shall not relieve this Division from responsibility for deviations from Contract Documents unless consultant's attention has been called to such deviations in writing at time of submission, nor shall they relieve this Division from responsibility for errors in items submitted.

.10 Check work described by catalog data with Contract Documents for deviations and errors.

.11 Shop drawings and product data shall show:

.1 Mounting arrangements.

.2 Operating and maintenance clearances. e.g. access door swing spaces.

.12 Shop drawings and product data shall be accompanied by:

.1 Detailed drawings of bases, supports, and anchor bolts.

.2 Manufacturer test data where requested.

.3 Manufacturer to certify as to current model production.

.4 Certification of compliance to applicable codes.

.13 State sizes, capacities, brand names, motor HP, accessories, materials, gauges, dimensions, and other pertinent information. List on catalog covers page numbers of submitted items. Underline applicable data.

.14 If a shop drawing is returned "reviewed as noted" this contractor must provide written indication that the comments have been complied with.

.15 A partial list of shop drawings includes:

.1 Fire alarm system devices

.2 Luminaires and drivers

.3 Emergency battery units, exit signs, and fixtures

.4 Firestopping materials

.5 Surface raceways

.6 Hand dryers

.7 Wiring devices

.8 Lighting controls

.2 Submissions shall be submitted electronically as per the following directions:

.1 Electronic Submissions:

.1 Electronically submitted shop drawings shall be prepared as follows:

.1 Use latest software to generate PDF files of submission sheets.

.2 Scanned legible PDF sheets are acceptable. Image files are not acceptable.

.3 PDF format shall be of sufficient resolution to clearly show the finest detail.

.4 PDF page size shall be standardized for printing to letter size (8.5" x 11"), portrait with no additional formatting required by the consultant. Submissions requiring larger detail sheets shall not exceed 11" x 17".

.5 Submissions shall contain multiple files according to section names as they appear in Specification.

.6 File names shall include consultant project number and description of shop drawing section submitted.

.7 Each submission shall contain an index sheet listing the products submitted, indexed in the same order as they appear in the Specification. Include associated PDF file name for each section.

.8 On the shop drawing use an “electronic mark” to indicate what is being provided.

.9 **Each file shall bear an electronic representation of the “company stamp” of the contractor. If not stamped the file submission will not be reviewed.**

.2 Email submissions shall include subject line to clearly identify the consultants’ project number and the description of the shop drawings submitted.

.3 Electronic attachments via email shall not exceed 10MB. For submissions larger than 10MB, multiple email messages shall be used. Denote related email messages by indicating “1 of 2” and “2 of 2” in email subject line for the case of two messages.

.4 Electronic attachments via web links (URL) shall directly reference PDF files. Provide necessary access credentials within link or as username/password clearly identified within body of email message.

.5 On site, provide one (1) copy of the “reviewed” shop drawings in a binder as noted above.

.6 Contractor to print copies of “reviewed” shop drawings and compile into maintenance manuals in accordance with requirements detailed in this section.

1.15 CARE, OPERATION AND START-UP

.1 Instruct consultant and operating personnel in the operation, care and maintenance of equipment.

.2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components.

.3 Provide these services for such period, and for as many visits as necessary to put equipment in operation and ensure that operating personnel are conversant with all aspects of its care and operation.

1.16 VOLTAGE RATINGS

.1 Operating voltages: to CAN3-C235-83.

.2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard. Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

1.17 PERMITS, FEES, AND INSPECTION

.1 A submission has been made (if required by this scope of project) by the consultant to the Electrical Safety Authority for review of this project. The payment of the required review costs will be co-ordinated by the consultant. A copy of the Electrical Safety Authority review report will be forwarded to the successful contractor for information and action.

.2 The contractor is required to include in his tender all required inspection costs by the Electrical Safety Authority. Permit application is the responsibility of the contractor.

.3 Reproduce drawings and specifications required by Electrical Safety Authority at no cost.

.4 Notify consultant of changes required by Electrical Safety Authority prior to making changes.

.5 Furnish Certificates of Acceptance to consultant from Electrical Safety Authority and other authorities having jurisdiction upon completion of work.

.6 This contractor must furnish any certificates required to indicate that the work completed conforms with laws and regulations of authorities having jurisdiction.

1.18 ADDITIONAL INSTALLED EQUIPMENT

.1 The electrical contractor is to review all specification sections forming part of the electrical bid documents and include additional equipment or components, as well as all associated installation costs and testing costs as noted, in the electrical bid price.

1.19 MATERIALS AND EQUIPMENT

.1 Equipment and material to be CSA certified. Where there is no alternative to supplying equipment which is not CSA certified, obtain special approval from Electrical Safety Authority.

.2 Factory assemble control panels and component assemblies.

1.20 ELECTRIC MOTORS, EQUIPMENT, AND CONTROLS

.1 Supplier and installer responsibility is indicated in the Equipment Wiring Schedule on electrical drawings.

.2 Control wiring and conduit is specified in the Electrical specifications except for conduit, wiring and connections below 50 V, which are related to control systems specified in the Mechanical specifications.

1.21 FINISHES

.1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.

.1 Paint outdoor electrical equipment "equipment green" finish.

.2 Paint indoor switchgear and distribution enclosures light grey.

.2 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.

.3 Clean and prime exposed non-galvanized hangers, racks, fastenings, and conduits etc. to prevent rusting.

1.22 EQUIPMENT IDENTIFICATION

.1 Identify electrical equipment with nameplates as follows:

.2 Nameplates:

.1 Lamicoid 3 mm (1/8") thick plastic engraving sheet, black face, white core, mechanically attached with self tapping screws.

NAMEPLATE SIZES

Size 1	9 mm x 50 mm (3/8" x 2")	1 line	3 mm (1/8") high letters
Size 2	12 mm x 70 mm (1/2" x 2 1/2")	1 line	5 mm (3/16") high letters
Size 3	12 mm x 70 mm (1/2" x 2 1/2")	2 lines	3 mm (1/8") high letters
Size 4	20 mm x 90 mm (3/4" x 3 1/2")	1 line	9 mm (3/8") high letters
Size 5	20 mm x 90 mm (3/4" x 3 1/2")	2 lines	5 mm (3/16") high letters
Size 6	25 mm x 100 mm (1" x 4")	1 line	12 mm (1/2") high letters
Size 7	25 mm x 100 mm (1" x 4")	2 lines	6 mm (1/4") high letters

.3 Wording on nameplates labels to be approved by consultant prior to manufacture.

.4 Allow for average of twenty-five (25) letters per nameplate.

.5 Identification to be English.

.6 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.

.7 Nameplates for disconnects, starters and contactors must indicate equipment being controlled and voltage.

.8 Nameplates for transformers must indicate transformer label as indicated and capacity, primary, and secondary voltages.

1.23 WIRING IDENTIFICATION

.1 Identify wiring with permanent indelible identifying markings, either numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and colour coding throughout.

.3 Colour code: to CSA C22.1.

.4 Use colour coded wires in communication cables, matched throughout system.

1.24 CONDUIT AND CABLE IDENTIFICATION

.1 Colour code conduits, boxes and metallic sheathed cables.

.2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m (45') intervals.

.3 Colour bands must be 25 mm (1") wide.

	Prime
Up to 208 V	yellow
209 to 600 V	white
Voice system	green
Data system	orange
Security	brown
Public address	black
Cable TV	blue
Fire alarm	red

.4 This contractor must paint all system junction boxes and covers in conformance with the above schedule.

1.25 PROTECTION OF OPENINGS

.1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

1.26 WIRING TERMINATIONS

.1 Lugs, terminals, screws used for termination of wiring to be suitable for either copper or aluminum conductors.

1.27 MANUFACTURERS AND CSA LABELS

.1 All labels must be visible and legible after equipment is installed.

1.28 WARNING SIGNS

.1 To meet requirements of Electrical Safety Authority and consultant.

.2 Provide porcelain enamel signs, with a minimum size of 175 mm x 250 mm (7" x 10").

1.29 LOCATION OF OUTLETS

.1 Do not install outlets back-to-back in wall; allow minimum 150 mm (6") horizontal clearance between boxes.

.2 Change location of outlets at no extra cost or credit, providing distance does not exceed 3 m (10'), and information is given before installation.

.3 Locate light switches on latch side of doors. Locate disconnect devices in mechanical and elevator machine rooms on latch side of door.

1.30 MOUNTING HEIGHTS

.1 Mounting height of equipment is from finished floor to centreline of equipment unless specified or indicated otherwise. Coordinate with block coursing (if applicable).

.2 If mounting height of equipment is not specified or indicated, verify before proceeding with installation.

.3 Install electrical equipment at following heights unless indicated otherwise.

- .1 Local switches: 1100 mm (43.3").
- .2 Wall receptacles:
  - .1 General: 400 mm (16").
  - .2 Above top of continuous baseboard heater: 200 mm (8").
  - .3 Above top of counters or counter splash backs: 100 mm (4").
  - .4 In mechanical rooms: 1200 mm (48").
- .3 Panelboards: as required by Code or 1400 mm (56").
- .4 Voice/Data outlets: At height of adjacent outlet or at 400 mm (16").
- .5 Fire alarm stations: 1200 mm (3'-11").
- .6 Fire alarm visual and signal devices: 2250 mm (88 ½").
- .7 Television outlets: 400 mm (16").
- .8 Thermostat: 1200 mm (3'-11").
- .9 Clocks: 2100 mm (84").
- .10 Heaters: 200 mm (8" AFF) to bottom of heater.
- .11 Emergency call switches and/or pushbuttons: 900 mm (36").

1.31 LOAD BALANCE

.1 Measure phase current to panelboards with normal loads (lighting) operating at time of acceptance. Adjust branch circuit connections as required to obtain best balance of current between phases and record changes.

.2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.

.3 Submit, at completion of work, report listing phase and neutral currents on panelboards, dry-core transformers and motor control centres, operating under normal load. State hour and date on which each load was measured, and voltage at time of test.

1.32 CONDUIT AND CABLE INSTALLATION

.1 Install conduit and sleeves prior to pouring of concrete. Sleeves through concrete shall be schedule 40 steel pipe, sized for free passage of conduit, and protruding 50 mm (2") beyond either side.

.2 Install cables, conduits and fittings to be embedded or plastered over, neatly and close to building structure so furring can be kept to minimum.

1.33 FIELD QUALITY CONTROL

.1 Conduct and pay for following tests:

.1 Power distribution system including phasing, voltage, grounding, and load balancing.

.2 Circuits originating from branch distribution panels.

.3 Lighting and its control.

.4 Motors, heaters and associated control equipment including sequenced operation of systems where applicable.

.5 Systems: fire alarm system, communications, security.

.2 Furnish manufacturer's certificate or letter confirming that entire installation as it pertains to each system has been installed to manufacturer's instructions.

.3 Insulation resistance testing.

.1 Megger circuits, feeders and equipment up to 350 V with a 500 V instrument.

.2 Megger 350-600 V circuits, feeders and equipment with a 1000 V instrument.

.3 Check resistance to ground before energizing.

.4 Carry out tests in presence of consultant.

.5 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

.6 Submit test results for consultant's review.

1.34 EQUIPMENT NAMEPLATE DATA

.1 Refer to the Equipment Wiring Schedule, Distribution Diagram(s) and Panel Schedules for information regarding the designed electrical connections for all equipment to be connected to the electrical distribution system.

.2 Refer to the shop drawing submissions of all project divisions and coordinate with all trades and equipment manufacturers throughout the construction period for equipment connection requirements.

.3 This electrical trade shall be responsible to coordinate any discrepancies on equipment minimum circuit ampacity, maximum overcurrent protection, voltage and phase, between the equipment manufacturer published literature, the equipment shop drawing submission, the project design drawings equipment wiring schedule, and the nameplate data on the equipment. The contractors installing and connecting all equipment shall be responsible for the coordination of this data through the construction period.

.4 Equipment shall not be connected where the specified maximum overcurrent protection and minimum circuit ampacity values do not meet the requirements of the equipment nameplate data on site.

.5 Electrical distribution equipment shop drawings shall not be submitted prior to approval of equipment to be connected including, but not limited to, mechanical units, pumps, elevators, etc. Electrical distribution equipment shall not be released into production until all connected equipment requirements are confirmed and included in approved shop drawings.

.6 Where nameplate data of equipment on site varies from that data listed in the approved equipment shop drawings, the consultant shall be notified in writing, and the equipment shall not be connected until the equipment connection details are confirmed. The final installation must meet the nameplate data of the equipment on site.

.7 No subsequent allowance for time or money for changes to breakers, wiring and conduit, or equipment sizes will be considered for any consequence related to failure by the electrical trade to coordinate final equipment connection requirements with nameplate data and electrical distribution equipment shop drawings.

1.35 CO-ORDINATION OF PROTECTIVE DEVICES

.1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings as indicated on drawings or as determined from co-ordination study.

.2 Electrical connections to all equipment requiring connection to the electrical distribution system as part of this electrical tender have been specified according to the anticipated equipment manufacturer electrical requirements and the applicable sections of the OESC. This contractor must coordinate electrical connections to all equipment specified to be connected as part of this electrical tender.

.3 Prior to submitting electrical distribution shop drawings to the consultant, review all shop drawings for all equipment specified for connection to the electrical distribution system to verify that the product electrical connection requirements listed by the manufacturer conform to the equipment electrical connections specified on the electrical design drawings and specifications. Make necessary revisions to breaker ratings associated with the review of all product shop drawings and identify such changes as part of the electrical distribution equipment shop drawing submission.

.4 Prior to making final equipment connections, this electrical contractor shall examine equipment nameplates at the project site to confirm voltage and phase requirements, minimum circuit ampacity and maximum overcurrent protection values, and bring to the attention of the consultant in writing any connection requirements which may vary from the designed connections or approved electrical distribution shop drawings. No subsequent allowance for time or money for changes to breaker or wire and conduit sizes will be considered for any consequence related to failure to examine site conditions.

1.36 GUARANTEE AND WARRANTY

.1 At ready for takeover of this project this Contractor must provide a written guarantee indicating that any defects, not due to ordinary wear and tear or improper use which occur within the first **TWO years** from the date of ready for takeover will be corrected at the contractor's expense.

.2 If the electrical sub-contractor's office is 50 kilometers (30 miles) or more from the project site, the sub-contractor is to provide a service/warranty work agreement for warranty period with a local electrical sub-contractor approved by consultant. Include copy of service/warranty agreement in warranty section of operation and maintenance manual.

.3 Warranty period shall start from date of ready for takeover completion.

.4 Refer to individual specification sections for information on any special manufacturer's equipment warranties.

1.37 SYSTEM START UP

.1 Provide consultant with written notice verifying all equipment operation and installation is complete prior to scheduled start-up period.

.2 Start up shall be in presence of the following: owner or representative, contractor, and manufacturer's representative. Each person shall witness and sign off each piece of equipment. Consultant's attendance will be determined by consultant.

.3 Arrange with all parties and provide 72 hours notice for start up procedure.

.4 Simulate system start up and shut down and verify operation of each piece of equipment.

.5 These tests are to demonstrate that the systems and equipment installed are operational as specified.

.6 The contractor must describe during the start up session the required maintenance for each piece of equipment according to the manufacturer.

.7 The contractor must provide all necessary tools (including a digital multimeter) to successfully complete the start up procedure.

1.38 OPERATION AND MAINTENANCE MANUAL

.1 Provide operation and maintenance data for incorporation into manual as specified in other Sections of this Division.

.2 Operation and maintenance manual to be approved by, and final copies deposited with, consultant before final inspection.

.1 Submit one (1) copy of Operation and Maintenance Manual to consultant for review and approval. Submission of individual data will not be accepted unless so directed by consultant. Submission can be done electronically in PDF format or as a hard copy.

.1 Electronic submission/PDF file is required to be bookmarked. Any submission received without bookmarking will be immediately returned as unacceptable.

.2 Hard copy submission shall be in a three-ring binder (minimum 50 mm (2") ring) and labelled as 'Operation and Maintenance Manual' with project name and location. Dividers are to be used for binder organization.

.2 Make changes as required and re-submit as directed by consultant.

.3 Each manual must include (in "tabbed" sections) the following:

.1 Index

.2 List of General, Mechanical, Electrical Contractors and all associated sub-contractor names, addresses and contact numbers.

.3 List of suppliers and equipment wholesalers local to the project.

.4 Letter of contractor's warranty and guarantee for all parts, equipment and workmanship.

.5 WRDSB Project Asset and Warranty Card for all assets replaced, newly installed, and removed.

.6 List of manufacturers, spare parts list and source.

.7 Copy of typewritten schedules for all new and renovated panels.

.8 Copy of all substantial performance final certificates.

.9 Copy of electrical shop drawings which have been stamped and reviewed by consultant.

.10 Electrical As-built drawings including contractor company's as built stamp.

.11 Any special warranties on equipment required (i.e. LED lighting, digital lighting control).

.12 Certificate of completion from all associated sub-contractors.

.13 System commissioning certificate and report.

.4 Final Submittals:

.1 Upon acceptance of Operation and Maintenance Manual by the consultant, provide the following:

.1 Provide two (2) copies of final Operation and Maintenance Manuals, as well as a PDF file of the entire approved manual on a USB stick. Only one (1) USB stick is to be provided containing both the approved manual and as-built drawings.

1.39 AS-BUILT DRAWINGS

.1 Site records:

.1 Contractor shall provide two (2) sets of reproducible electrical drawings. Provide sets of white prints as required for each phase of the work. Mark thereon all changes as work progresses and as changes occur. This shall include field and contract changes to electrical systems.

.2 On a weekly basis, transfer information to reproducibles, revising reproducibles to show all work as actually installed.

.3 Use different colour waterproof ink for each service.

.4 Make available for reference purposes and inspection at all times.

.2 As-built drawings submittal for review:

.1 Identify **each drawing** in lower right-hand corner in letters at least 3 mm (1/8") high as follows: - "AS-BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW ELECTRICAL SYSTEMS AS INSTALLED" (Company Name) (Signature of Contractor) (date).

.2 Submit copy to consultant for approval. When returned, make corrections (if any) as directed.

.3 As-built drawings final submittal:

.1 Once approved, submit completed, reproducible paper as-built drawings as well as a scanned PDF file copy on USB stick with Operation and Maintenance Manuals.

1.40 DEMONSTRATION AND OPERATING AND MAINTENANCE INSTRUCTIONS

.1 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, trouble-shooting and servicing of all systems and equipment during regular work hours, prior to acceptance.

.2 Manufacturers or their representatives are to provide demonstrations and instructions.

.3 Use operation and maintenance manual, As-built drawings, audio visual aids, etc. as part of instruction materials.

.4 Instruction duration time requirements as specified in appropriate sections.

.5 Where deemed necessary, consultants may record these demonstrations on video tape for future reference.

1.41 READY FOR TAKEOVER

.1 Complete the following to the satisfaction of the consultant prior to request for ready for takeover.

.1 As-built Drawings

.2 Maintenance Manuals

.3 System Start up

.4 Instructions to Owners

.5 Lighting Control System

.6 Outlet cover circuit labels

1.42 TRIAL USAGE

.1 Consultant or owner may use equipment and systems for test purposes prior to acceptance. Supply labour, material, and instruments required for testing.

1.43 REVISION TO CONTRACT

.1 Provide the following for each item in a given change notice:

.1 Itemized list of material with associated costs.

.2 Labour rate and itemized list of labour for each item.

.3 Copy of manufacturers/suppliers invoice if requested.

1.44 EQUIPMENT SUPPORTS

.1 Equipment supports supplied by equipment manufacturer: shall be installed by the electrical contractor.

.2 Equipment supports not supplied by equipment manufacturer: fabricate from structural grade steel meeting requirements of - Structural Steel Section. Submit structural calculations with shop drawings if necessary.

.3 Mount base mounted equipment on chamfered edge housekeeping pads, minimum of 100 mm (4") high and 150 mm (6") larger than equipment dimensions all around. This installation of this pad shall be the responsibility of the electrical contractor.

.4 This contractor shall be responsible for providing all anchor bolts and associated formed concrete bases for lighting standards as detailed.

1.45 SLEEVES

.1 Pipe sleeves: at points where pipes pass through masonry, concrete, or fire rated assemblies and as indicated.

.2 Schedule 40 steel pipe.

.3 Sleeves with annular fin continuously welded at midpoint:

.1 Through foundation walls.

.2 Where sleeve extends above finished floor.

.4 Sizes: minimum 6 mm (1/4") clearance all around, between sleeve and conduit.

.5 Terminate sleeves flush with surface of concrete and masonry walls, concrete floors on grade and 25 mm (1") above other floors.

.6 Through foundation walls PVC sleeves are acceptable.

.7 Fill voids around pipes:

.1 Caulk between sleeve and pipe in foundation walls and below grade floors with waterproof fire retardant non-hardening mastic.

.2 Where sleeves pass through walls or floors, provide space for firestopping. Where pipes/ducts pass through fire rated walls, floors and partitions, maintain fire rating integrity.

.3 Fill future-use sleeves with easily removable filler.

1.46 FIRESTOPPING

.1 Firestopping material and installation within annular space between conduits, ducts, and adjacent fire separation.

.2 Provide materials and systems capable of maintaining effective barrier against flame, smoke, and gases.

.3 Comply with the requirements of CAN4-S115-M35, and do not exceed opening sized for which they have been tested.

.4 Systems to have an F or FT rating (as applicable) not less than the fire protection rating required for closures in a fire separation.

.5 Provide “firewrap” blanket around services penetrating firewalls. Extent of blanket must correspond to ULC recommendations. In general wrap individual conduits with approved firewrap materials on each side of firewall. Refer to architectural drawings for FT ratings. Provide 1 and/or 2 layers of firewrap with transverse and longitudinal seams overlapped and/or butted (second layer offset from first layer). Cut edges are to be sealed with aluminum foil tape. Provide 50 mm stainless steel banding at 200 mm intervals. Install firewrap to manufacturers’ recommendations for proper FT rating. Acceptable manufacturers are 3M Firemaster ductwrap or approved equal.

.6 The firestopping materials are not to shrink, slump or sag and be free of asbestos, halogens and volatile solvents.

.7 Firestopping materials are to consist of a component sealant applied with a conventional caulking gun and trowel.

.8 Firestop materials are to be capable of receiving finish materials in those areas, which are exposed and scheduled to receive finishes.

.9 Firestopping shall be inspected and approved by local authority prior to concealment or enclosure.

.10 Install material and components in accordance with ULC certification, manufacturers instructions and local authority.

.11 Submit product literature and installation material on firestopping in shop drawing and product data manual.

.12 Acceptable manufacturers:

.1 Rectorseal Corporation (Metacaulk)

.2 Proset Systems

.3 3M

.4 Hilti

.5 STI Firestop

Note: Fire stop material must conform to requirements of local authorities having jurisdiction. Contractor to confirm prior to application and ensure material used is compatible with that used by other trades on site.

1.47 PAINTING

.1 Refer to Section Interior Painting and specified elsewhere.

.2 Apply at least one coat of corrosion resistant primer paint to ferrous supports and site fabricated work.

.3 Prime and touch up marred finished paintwork to match original.

.4 Restore to new condition, or replace equipment at discretion of consultant, finishes which have been damaged too extensively to be merely primed and touched up.

1.48 ACCESS DOORS

.1 Supply access doors to concealed electrical equipment for operating, inspecting, adjusting and servicing.

.2 Flush mounted 600 mm x 600 mm (24" x 24") for body entry and 300 mm x 300 mm (12" x 12") for hand entry unless otherwise noted. Doors to open 180º, have rounded safety corners, concealed hinges, screwdriver latches, and anchor straps.

.3 Material:

.1 Special areas such as tiled or marble surfaces: use stainless steel with brushed satin or polished finish as directed by consultant.

.2 Remaining areas: use prime coated steel.

.3 Fire rated areas: provide ULC listed access doors

.4 Installation:

.1 Locate so that concealed items are accessible.

.2 Locate so that hand or body entry (as applicable) is achieved.

.3 Installation is specified in applicable sections.

.5 Acceptable materials:

.1 Le Hage

.2 Zurn

.3 Acudor

.4 Nailor Industries Inc.

1.49 DELIVERY, STORAGE, AND HANDLING

.1 Follow Manufacturer's directions in delivery, storage, and protection, of equipment and materials. Contractor to include all costs associated with delivery storage and handling in tender price.

.2 Deliver equipment and material to site and tightly cover and protect against dirt, water, and chemical or mechanical injury, but have readily accessible for inspection. Store items subject to moisture damage (such as controls) in dry, heated space.

1.50 REPAIR, CUTTING, CORING, AND RESTORATION

.1 Be responsible for required digging, cutting, and patching incident to work of this Division and make required repairs afterwards to satisfaction of consultant. Cut carefully to minimize necessity for repairs to existing work. Do not cut beams, columns, or trusses.

.2 Patch and repair walls, floors, ceilings, and roofs with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes shall exactly match existing finishes of same materials.

.3 Each Section of this Division shall bear expense of cutting, patching, repairing, and replacing of work of other Sections required because of its fault, error, tardiness, or because of damage done by it.

.4 Cutting, patching, repairing, and replacing pavements, sidewalks, roads, and curbs to permit installation of work of this Division is responsibility of Section installing work.

.5 Slots, cores and openings through floors, walls, ceilings, and roofs shall be provided by this contractor but performed by a trade specializing in this type of work. This Division shall see that they are properly located and do any cutting and patching caused by its neglect to do so.

1.51 EXISTING SYSTEMS

.1 Connections into existing systems to be made at time approved by consultant. Request written approval of time when connections can be made.

.2 Be responsible for damage to existing plant by this work.

1.52 CLEANING

.1 Clean interior and exterior of all electrical equipment provided including light fixture lenses.

.2 In preparation for final acceptance, clean and refurbish all equipment and leave in operating condition.

1.53 DISCONNECTION AND REMOVAL

.1 Disconnect and/or remove equipment as indicated.

.2 Cap and conceal all redundant and obsolete connections.

.3 Provide a list of equipment to be removed to the owner, for his acceptance of same. Remove all equipment from site, which the owner does not retain.

.4 Store equipment to be retained by owner on site where directed by consultant.

1.54 OWNER SUPPLIED EQUIPMENT

.1 Connect to equipment supplied by the owner and make operable.

.2 Design drawings are diagrammatic and do not necessarily indicate all specific final connection requirements. For the purposes of bidding, electrical trade shall include but not be limited to provision of a junction box to connect equipment wiring tail, provision of suitable disconnecting means, and flexible connection directly to equipment.

1.55 ENCLOSURES

.1 This contractor must ensure that all electrical equipment mounted in sprinklered areas is provided with an enclosure in conformance with the Electrical Safety Code.

1.56 EXISTING CONCRETE SLAB X-RAY/SCANNING

.1 This contractor shall retain the services of a qualified company to provide and X-ray and/or scan of the existing buried services in walls and/or floors prior to starting any work in the affected area.

.2 Failure to locate existing piping, conduit, rebar etc., shall not relieve this contractor of repair of same prior to installing his service.

.3 This contractor shall be responsible for all repairs and/or replacement of existing services caused by cutting the existing concrete slabs and/or walls.

Part 2 Not Used

Part 3 Not Used

END OF SECTION

Part 1 General

1.1 GENERAL PROVISIONS

.1 Conform to the General Provisions of Division 1 and Electrical General Requirements Section.

.2 This project is one of a retrofit nature in part, and which will require extensive demolition.

.3 Allow for all remedial work in areas indicated on the drawings and as generally defined in the relevant sections of the specifications.

1.2 SCOPE OF WORK

.1 The scope of work is essentially the selected disconnection and/or removal of services and/or equipment, devices etc. as indicated or required to complete the work.

.2 The reference drawings indicate some of the services which shall remain, and some may have to be retained through construction and a phased changeover to help construction i.e. electrical service, phone service, winter heat, and temporary construction services i.e. washroom facility. This co-ordination remains the responsibility of the contractors.

Part 2 Products

2.1 GENERAL

.1 This Division is to liaise with the Owners or Consultant for equipment being removed that may be suitable for reuse to that specified or handed over to the owner.

.2 This Division to take full responsibility for any special tools or equipment required to disassemble or remove material from building.

Part 3 Execution

3.1 GENERAL

.1 The general requirements are indicated on the drawings and on the outline specification in Division 1.

.2 The general execution of the demolition is to be carried out in a clean and efficient manner.

.3 Demolition of existing ceiling, walls etc., to facilitate removal of existing services or equipment or installation of new to be kept to a minimum and then restored to match existing.

.4 All openings or holes created by removal of existing electrical systems which are not being reused are to be patched with the same material surrounding surfaces.

.5 All new holes and openings to facilitate electrical systems are to be patched to match surrounding surfaces.

.6 Protect all existing furnishings materials and equipment. Any damage occurring as a result of the work of this Division shall be repaired or replaced at the expense of this Division.

.7 Where work involves breaking into or connecting to existing services, carry out work at times directed by the Owners in an expedient manner with minimum disruption to the facility and systems downtime.

.8 Where unknown services are encountered immediately advise Consultant and confirm findings in writing.

.9 Where the location of any services has been shown on the plans, such information is not guaranteed. It is this Division's responsibility to verify locations, etc., immediately after moving on site. Should for any reason the information obtained necessitates changes in procedure or design, advise the Consultant at once. If verification of existing conditions is not done at the outset and any problems arise, the responsibility for same is entirely this Division's.

.10 Disconnect and/or remove equipment, devices, cabling, services, etc. as indicated.

.11 Remove all redundant and obsolete systems, connections, and wiring.

.12 Provide a list of equipment to be removed to the owner, for their acceptance of same. Remove all equipment from site that the owner does not retain.

.13 Maintain equipment to be retained by owner on site where directed by consultant.

.14 Demolition of all parts of the work must be completed within the confines of the work area and in such a way as the dust produced and risk to injury of will not adversely affect the building users.

END OF SECTION

Part 1 General

1.1 GENERAL

.1 This Section covers items common to Electrical Division 26, as well as Division 27 and Division 28.

.2 This section supplements requirements of Division 1.

1.2 OCCUPANCY REQUIREMENTS

.1 The contractor shall provide the following documentation to the consultant's satisfaction prior to receiving occupancy. Failure to provide the proper documentation will result in the occupancy not being granted. List of required documentation:

.1 Final Certificates (required prior to consultant's release of conformance letter).

.1 Electrical Safety Authority.

.2 Emergency Lighting.

.3 Fire Alarm Verification Certificate.

Part 2 Not Used

Part 3 Not Used

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 CSA C22.2 No.0.3-92, Test Methods for Electrical Wires and Cables.

.2 CAN/CSA-C22.2 No.131-M89(R1994), Type TECK 90 Cable.

.3 CAN/ULC S319 (latest edition), Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control, and Data Cables.

.4 CSA C22.2 No. 123 (latest edition), Metal Sheathed Cables.

1.2 PRODUCT DATA

.1 Submit product data in accordance with Electrical General Requirements Section.

Part 2 Products

2.1 BUILDING WIRES

.1 Conductors: stranded for 10 AWG and larger.

.2 Minimum size: 12 AWG.

.3 Copper conductors: size as indicated, with 600 V insulation of chemically cross-linked thermosetting polyethylene material 90°C (194ºF) rated T90 for indoor above grade installations and RW90 for below grade installations.

2.2 TECK CABLE

.1 Cable: to CAN/CSA-C22.2 No.131.

.2 Conductors:

.1 Grounding conductor: Copper.

.2 Circuit conductors: Copper, size as indicated.

.3 Inner jacket: Polyvinyl chloride material.

.4 Armour: Aluminum.

.5 Overall covering: Polyvinyl chloride material.

.6 Fastenings:

.1 One hole steel zinc straps to secure surface cables 50 mm (2") and smaller. Two-hole steel straps for cables larger than 50 mm (2").

.2 Channel type supports for two or more cables at 1500 mm (60") centres.

.3 Threaded rods: 6 mm (1/4") diameter to support suspended channels.

.7 Connectors must be suitable for:

.1 Installed environment and approved for use with TECK cable.

2.3 ARMOURED CABLES

.1 Conductors: insulated, copper minimum size as indicated above.

.2 Type: AC90 (minimum size 12 AWG).

.3 Armour: interlocking type fabricated from aluminum strip.

.4 Connectors must be suitable for installed environment and approved for use with armoured cable.

2.4 FIRE RATED CABLES

.1 Cable: to CAN/ULC S319 and CSA C22.2 No. 123.

.2 Conductors: insulated, copper minimum size as indicated above.

.3 Type: Fire-resistive 2-hour certified cable MC/RC90 or Mineral Insulted type MI (minimum size 12 AWG unless otherwise noted).

.4 Armour MC/RC90: Seamless, smooth metal sheath, or seamless, corrugated metal sheath applied over one or more insulated conductors.

.5 Armour MI: Magnesium oxide powder copper sheath applied over one or more insulated conductors, corrosion resistant.

.6 Connectors must be suitable for installed environment and approved for use with fire rated cable type.

Part 3 Execution

3.1 INSTALLATION OF BUILDING WIRES

.1 Install wiring from source to load through raceways as specified.

.2 Provide separate neutral conductors for all lighting circuits and circuits originating from surge protected panels. Size raceways accordingly.

3.2 INSTALLATION OF TECK CABLE 0 - 1000 V

.1 Group cables wherever possible on channels.

.2 Terminate cables in accordance with Wire and Box Connectors - 0 - 1000 V Section.

3.3 INSTALLATION OF FIRE RATED CABLES

.1 Group cables wherever possible.

.2 Terminate cables in accordance with manufacturer’s recommended installation instructions.

.3 Cables are to be installed as a single continuous run to maintain fire rating integrity.

.4 Support cables horizontally or vertically every 1219 mm (48") intervals and on each side of a bend.

.5 Provide thermoplastic barrier at all mounting locations as per manufacturer's installation instructions.

3.4 INSTALLATION OF ARMOURED CABLES

.1 Group cables wherever possible.

.2 Terminate cables in accordance with Wire and Box Connectors - 0 - 1000 V Section.

.3 These cables are to be installed in concealed locations only. These concealed locations are considered to be stud walls and "drops" to stud walls, lighting fixtures, and ceiling mounted devices.

.4 These "drops" shall not be permitted to exceed 2.4 m (8'-0"). To limit these "drops" to lengths noted above provide additional branch wiring in conduit.

END OF SECTION

Part 1 General

1.1 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit shop drawings and product data for cabinets in accordance with Electrical General Requirements Section.

Part 2 Products

2.1 MATERIALS

.1 Splitters must conform to CSA C22.2 No. 76 (latest edition).

.2 Junction and pull boxes must conform to CSA C22.2 No. 40 (latest edition)

2.2 SPLITTERS

.1 Sheet metal enclosure, welded corners and formed hinged cover suitable for locking in closed position.

.2 Main and branch lugs to match required size and number of incoming and outgoing conductors as indicated.

.3 At least three spare terminals on each set of lugs in splitters less than 400 A.

.4 Splitter length must match arrangement of equipment unless indicated otherwise.

2.3 JUNCTION AND PULL BOXES

.1 Welded steel construction with screw-on flat covers for surface mounting.

.2 Covers with 25 mm (1") minimum extension all around, for flush-mounted pull and junction boxes.

Part 3 Execution

3.1 SPLITTER INSTALLATION

.1 Install splitters and mount plumb, true and square to the building lines on 21 mm (3/4") painted plywood backboards.

3.2 JUNCTION AND PULL BOXES INSTALLATION

.1 Install pull boxes in inconspicuous but accessible locations.

.2 Install junction and pull boxes so as not to exceed 30 m (100') of conduit run between pull boxes and in conformance with the Electrical Safety Code.

3.3 IDENTIFICATION

.1 Provide equipment identification in accordance with General Electrical Requirements Section.

.2 Install size 2 identification labels indicating system name, voltage and phase.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Outlet boxes, conduit boxes, and fittings must conform to CSA C22.2 No. 18 (latest edition).

Part 2 Products

2.1 OUTLET AND CONDUIT BOXES GENERAL

.1 Size boxes in accordance with CSA C22.1.

.2 102 mm (4") square or larger outlet boxes as required for special devices.

.3 Gang boxes where wiring devices are grouped.

.4 Blank cover plates for boxes without wiring devices.

.5 347 V outlet boxes for 347 V switching devices.

.6 Combination boxes with barriers where outlets for more than one system are grouped.

2.2 SHEET STEEL OUTLET BOXES

.1 Electro-galvanized steel single and multi gang flush device boxes for flush installation, minimum size 76 mm x 50 mm x 64 mm (3" x 2" x 2½") or as indicated. 102 mm (4") square outlet boxes when more than one conduit enters one side with extension and plaster rings as required. Iberville 1104 Series.

.2 Electro-galvanized steel utility boxes for outlets connected to surface-mounted EMT conduit **in utility rooms**, minimum size 102 mm x 57 mm x 38 mm (4" x 2¼" x 1½"). Iberville 1110 Series.

.3 102 mm (4") square or octagonal outlet boxes for lighting fixture outlets.

.4 102 mm (4") square outlet boxes with extension and plaster rings for flush mounting devices in finished tile walls.

2.3 MASONRY BOXES

.1 Electro-galvanized steel masonry single and multi gang boxes for devices flush mounted in exposed block walls.

2.4 CONCRETE BOXES

.1 Electro-galvanized sheet steel concrete type boxes for flush mount in concrete with matching extension and plaster rings as required.

2.5 CONDUIT BOXES

.1 Cast FS or FD feraloy boxes with factory-threaded hubs and mounting feet for surface wiring of switches and receptacle **in areas (other than utility rooms) where surface conduit is used.**

2.6 FITTINGS- GENERAL

.1 Bushing and connectors with nylon insulated throats.

.2 Knock-out fillers to prevent entry of debris.

.3 Conduit outlet bodies for conduit up to 32 mm (1- 1/4") and pull boxes for larger conduits.

.4 Double locknuts and insulated bushings on sheet metal boxes.

Part 3 Execution

3.1 INSTALLATION

.1 Support boxes independently of connecting conduits.

.2 Fill boxes with paper, sponges or foam or similar approved material to prevent entry of debris during construction. Remove upon completion of work.

.3 For flush installations mount outlets flush with finished wall using plaster rings to permit wall finish to come within 6 mm (1/4") of opening.

.4 Provide correct size of openings in boxes for conduit, mineral insulated and armoured cable connections. Reducing washers are not allowed.

.5 Outlets if unwired are to be provided with blank coverplates to suit related sections of this specification.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 CSA C22.2 No.65-1956(R1965) Wire Connectors.

Part 2 Products

2.1 MATERIALS

.1 Pressure type wire connectors: with current carrying parts of copper sized to fit copper conductors as indicated.

.2 Fixture type splicing connectors: with current carrying parts of copper sized to fit copper conductors 10 AWG or less.

.3 Clamps or connectors for armoured cable, mineral insulated cable, and flexible conduit, as required.

Part 3 Execution

3.1 INSTALLATION

.1 Remove insulation carefully from ends of conductors and:

.1 Apply coat of zinc joint compound on aluminum conductors prior to installation of connectors.

.2 Install mechanical pressure type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Installation shall meet secureness tests in accordance with CSA C22.2 No.65.

.3 Install fixture type connectors and tighten. Replace insulating cap.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA)

- .1 CAN/CSA C22.2 No.18-92, Outlet Boxes, Conduit Boxes, and Fittings.
- .2 CSA C22.2 No.45-M1981(R1992), Rigid Metal Conduit.
- .3 CSA C22.2 No.56-1977(R1977), Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.
- .4 CSA C22.2 No.83-M1985(R1992), Electrical Metallic Tubing.
- .5 CSA C22.2 No.211.2-M1984(R1992), Rigid PVC (Unplasticized) Conduit.
- .6 CAN/CSA C22.2 No.227.1, Nema TC-13, Flexible Nonmetallic Tubing.

Part 2 Products

2.1 CONDUITS

.1 Rigid metal conduit: to CSA C22.2 No.45, aluminum threaded.

.2 Epoxy coated conduit: to CSA C22.2 No.45, with zinc coating and corrosion resistant epoxy finish inside and outside.

.3 Electrical metallic tubing (EMT) with couplings: to CSA C22.2 No.83.

.4 Rigid PVC conduit: to CSA C22.2 No.211.2.

.5 Flexible metal conduit: to CSA C22.2 No.56, aluminum and liquid-tight flexible metal.

.6 Flexible PVC conduit: to CAN/CSA C22.2 No.227.1 and Nema TC-13, Electrical nonmetallic tubing (ENT).

2.2 CONDUIT FASTENINGS

.1 One hole steel straps to secure surface conduits 53 mm (2") and smaller. Two hole steel straps for conduits larger than 53 mm (2").

.2 Beam clamps to secure conduits to exposed steel work.

.3 Channel type supports for two or more conduits at 1.5 m (5'-0") oc.

.4 Threaded rods, 6 mm (1/4") diameter, to support suspended channels.

2.3 CONDUIT FITTINGS

.1 EMT fittings shall be set screw style (zinc alloy).

.2 Flexible metal conduit fittings shall be screw-in type.

.3 Liquid type flexible metal conduit fittings shall be sealtite type.

.4 PVC fittings shall be PVC type complete with PVC adaptors at all boxes.

.5 Rigid conduit and mineral insulated conduit fittings shall be threaded type.

.6 Coating: same as conduit.

.7 Factory "ells" where 90° bends are required for 27 mm (1") and larger conduits.

.8 Where bushings are noted to be provided they must be “screwed” type fastened to a conduit connector. Push-fit or glued in place bushings will NOT be accepted.

2.4 FISH CORD

.1 Nylon twine.

Part 3 Execution

3.1 INSTALLATION

.1 Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.

.2 Conceal conduits except in mechanical/ electrical service rooms and in unfinished areas.

.3 Where devices are to be installed on existing walls in finished area, which cannot be “fished”, install feeds in a surface metal raceway equal to Wiremold V700 series. Coordinate surface installations with Consultant prior to rough-in, unless otherwise noted.

.4 Use electrical metallic tubing (EMT) for all branch circuits unless specified otherwise.

.5 Electrical nonmetallic tubing (ENT) may be used only for branch circuits in non-combustible buildings, in framed wall construction for residential suites, within block walls, and in precast or cast in place walls and floors. **Use of ENT for direct burial, plenum ceilings, or outdoor environments will not be accepted.**

.6 Use rigid aluminum threaded conduit where specified and up to 2.1 m (7'-0") above finish floor where exposed to mechanical injury.

.7 Use rigid PVC conduit underground and in kitchen areas.

.8 Use flexible metal conduit for connection to motors in dry areas, connection to recessed fixtures without a prewired outlet box, connection to surface or recessed fixtures, work in movable metal partitions.

.9 Use liquid tight flexible metal conduit for connection to motors or vibrating equipment in damp, wet or corrosive locations and for connections to kitchen equipment.

.10 Conduits terminating at electrical equipment in sprinklered areas are to be provided rain-tight insulated compression style connectors.

.11 **Minimum conduit size for branch circuits shall be 21 mm (3/4").** Single drops from ceiling mounted junction boxes down to a light switch or duplex receptacle may be reduced to 16 mm (½").

.12 Bend conduit cold. Replace conduit if kinked or flattened more than 1/10th of its original diameter.

.13 Mechanically bend steel conduit over 27 mm (1") diameter.

.14 Field threads on rigid conduit must be of sufficient length to draw conduits up tight.

.15 Install fish cord in empty conduits.

.16 Run 2- 27 mm (1") spare conduits up to accessible ceiling space from each flush panel. Terminate these conduits in 152 mm x 152 mm x 102 mm (6" x 6" x 4") junction boxes in ceiling space.

.17 Remove and replace blocked conduit sections. Do not use liquids to clean out conduits.

.18 Dry conduits out before installing wire.

.19 Do not install, store, or handle ENT in cold temperatures below -20°C(-4°F). Do not store ENT outside.

3.2 SURFACE CONDUITS

.1 Run parallel or perpendicular to building lines.

.2 Locate conduits behind infrared or gas fired heaters with 1.5 m (5') clearance.

.3 Run conduits in flanged portion of structural steel.

.4 Group conduits wherever possible on suspended or surface channels.

.5 Do not pass conduits through structural members except as indicated.

.6 Do not locate conduits less than 75 mm (3") parallel to steam or hot water lines with minimum of 25 mm (1") at crossovers.

.7 Do not fasten surface conduit to roof deck. Provide standoffs or supports as manufactured by Caddy or use Unistrut trapeze fastened to structure.

3.3 CONCEALED CONDUITS

.1 Do not install horizontal runs in masonry walls.

.2 Do not install conduits in terrazzo or concrete toppings.

END OF SECTION

Part 1 General

1.1 SHOP DRAWINGS

.1 Submit shop drawings for each system in Conformance with The Electrical General Requirements Section.

1.2 PRODUCT/MAINTENANCE DATA

.1 Submit product/maintenance data for each system for inclusion in maintenance manual conforming to The General Electrical Requirements Section.

1.3 SCOPE

.1 The scope of this Section will include the following systems.

- .1 Surface mounted raceway.
- .2 Hand dryers.
- .3 Auxiliary systems rough-in.
- .4 Security and access control rough-in.
- .5 Telecommunication network system rough-in.
- .6 Miscellaneous clocks.
- .7 Public address system rough-in.
- .8 Line voltage power packs and low voltage occupancy sensors.

Part 2 Products

2.1 SURFACE MOUNTED RACEWAY

.1 The two compartment surface raceway shall be complete with the following features:

- .1 Surface non-metallic raceway is to be utilized in dry interior locations only.
- .2 The surface non-metallic raceway system specified herein for branch circuit wiring and/or data network, voice, video and other low-voltage wiring shall be the 5400 System as manufactured by the Wiremold Company.
- .3 The raceway and all system components must be UL Listed, and exhibit non-flammable self-extinguishing characteristics tested to comparable specifications of UL94V-0. The raceway base and cover shall be manufactured by rigid compound, available in ivory or white colours (Architect Selection).
- .4 The raceway shall be a two-piece design with a base and a snap-on cover. Total width shall be 133 mm (5¼") by 44.5 mm (1¾") deep with an approximate thickness of 2.4 mm (1/12"). The base and cover shall be available in 2.4 m (8') lengths. The raceway shall be available with two multiple wiring channels formed by integral barriers in the base.

.5 The cover shall span the entire width of the base concealing all of the wiring channels.

.6 A full complement of fittings must be available including, but not limited to flat, internal and external elbows, tees entrance fittings, cover clips and end caps. They shall be manufactured of a rigid PVC compound. The fittings shall have a matte texture, in ivory or white colours to match the base and cover. They shall overlap the cover and base to hide uneven cuts. All fittings shall be supplied with a base where applicable to eliminate mitring. A transition fitting shall be available to adapt to other Wiremold series raceways.

.7 Device brackets shall be available for mounting standard devices in-line with the raceway. Faceplates shall match and fit flush in the device plate. They shall be manufactured of rigid PVC compound. They shall be ivory or white colours to match raceway base cover (Architect selection). Contractor is to provide devices as noted.

.8 The raceway manufacturer will provide a complete line of connectivity outlets and modular inserts for UTP (including Category 5e and 6), STP (150 ohm) Fibre Optic, Coaxial and other cabling types with face plates and bezels to facilitate mounting. The electrical contractor is to provide adapter plates for faceplates to be provided by the voice/data sub-contractor. The recommended plate is a Deco adapter 3-port plate style, confirm with voice/data sub-contractor.

.2 Acceptable alternate manufacturers include:

.1 Hubbell Base Trak

.2 Panduit Pan-Way

2.2 HAND DRYERS

.1 Hand dryers where noted on the drawings are to be supplied and installed by this Division with the following features:

.1 Surface mounting.

.2 Fixed nozzle.

.3 White finish with automatic activation.

Final finish selection by owner/architect.

Rating of 1450 W at 120 – 230V universal.

.4 Comac Cat. #C-100220004 School Edition (no equals), no LED, brushed SS finish

2.3 CABLE MANAGEMENT HANGERS

.1 Hangers where noted are to be complete with the following features:

.1 Approximately 150 mm (6") high by 80 mm (3¼") protrusion.

.2 Constructed from 5 mm (3/16") x 20 mm (3/4") flat steel bar and formed to resemble the letter “G”.

.3 Seven 6 mm (1/4") diameter mounting holes are to be provided around the hanger perimeter.

.4 Matte black finish.

.5 Suitable for wall or suspended mounting.

.6 Acceptable Manufacturers:

.1 EMF Cat. #H-533-S

.7 Manufacturer Contact:

Electron Metal Fabricators Inc.
2160 Dagenais Boulevard West
Laval, Quebec
H7L 5X9
Phone: 450-625-8064 or 1-800-267-8064
Fax: 450-625-8004

.8 Acceptable Alternate:

Wiremold Cat. #GH030406
Mono System Cat. # The Hook H-433
Cablofil Cat. #CSGH-3-4-6
Eaton Cat. #B-Line

.2 As an alternate to the hanger system detailed the contractor may

a) Use as an equal one run of 50 mm (2") x 150 mm (6") wire mesh cable management system equal to Cablofil Cat. #CF 54/150 EZ complete with Cat. #FAS L 150 universal wall bracket where noted to be wall mounted and Cat. # FAS C 200 where noted to be hung. The hangers are to be installed at intervals as recommended by the manufacturer but no greater than 2.4 m (8'-0") on centre.

2.4 AUXILIARY SYSTEMS ROUGH-IN

.1 Outlets where noted shall be single gang boxes unless specified otherwise.

.2 Outlets if unwired are to be provided with blank coverplates to suit related sections of this specification.

.3 Coordinate final outlet locations, quantities, etc. with respective system vendor and owner's representative.

2.5 SECURITY AND ACCESS CONTROL ROUGH-IN

.1 Provide conduit from device and outlet locations to cable management systems as noted on drawings.

.2 Outlets if unwired are to be provided with blank coverplates to suit related sections of this specification.

.3 Provide grounding of equipment as noted on drawings.

.4 Security and access control systems installation shall be by Owner's approved vendor as part of separate tender.

2.6 TELECOMMUNICATION NETWORK SYSTEM ROUGH-IN

.1 Outlets where noted shall be single gang flush mounted in wall or surface raceways.

.2 Outlets if unwired are to be provided with blank coverplates to suit related sections of this specification.

.3 Provide a #6 insulated green ground conductor from main service ground to voice equipment backboard located on drawings.

.4 Telecommunication Network installation shall be by Owner's approved vendor as part of separate tender.

2.7 MISCELLANEOUS CLOCKS

.1 Room and/or office clocks shall be surface mounted 300 mm (12") round style, battery operated. Finish to suit Architect.

.2 Library and general purpose room clocks shall be surface mounted 375 mm (15") round style, battery operated. General purpose room clocks must be provided with wire guard. Finish to suit Architect.

.3 Manufacturers shall be as follows:

.1 300 mm (12"):

American Time Cat. #R54BHSD989 (no equals**)**

2.8 PUBLIC ADDRESS SYSTEM ROUGH-IN

.1 Provide conduit from device and outlet locations to cable management systems as noted on drawings.

.2 Outlets if unwired are to be provided with blank coverplates to suit related sections of this specification.

.3 Provide grounding of equipment as noted on drawings.

.4 Public address system installation shall be by Owner's approved vendor as part of separate tender.

2.9 LINE VOLTAGE POWER PACKS AND LOW VOLTAGE OCCUPANCY SENSORS

.1 Line voltage power packs and occupancy sensors shall be one manufacturer throughout the project.

.2 Line Voltage Power packs shall be provided to match the room lighting load, control requirements, and lighting voltage. Power packs shall have the following features:

.1 Mount to standard junction box.

.2 Simple replacement. It shall be capable to replace the unit without requiring any configuration or set-up.

.3 Plenum rated

.4 120VAC or 347V, 60HZ operation.

.5 Acceptable materials:

.1 Sensorswitch Cat. #PP20 Series

.2 Legrand Cat. #BZ-250 Series

.3 Greengate Cat. #SP15 Series

.3 Low voltage / analog occupancy sensors shall be complete with the following features:

.1 Coverage pattern to suit room ceiling height.

.2 Suitable to detect minor and medium motion patterns within rooms less than 2000 sq. ft.

.3 Mount to standard junction box.

.4 Simple replacement. It shall be capable to replace the unit without requiring any configuration or set-up.

.5 Relays shall not be integrated within the occupancy sensor. Relays shall be provided within separate power pack.

.6 Acceptable materials

.1 Sensorswitch Cat. #CM-PDT Series

.2 Legrand Cat. #CI-205

.3 Greengate Cat. #OAC-DT-2000

Part 3 Execution

3.1 SURFACE MOUNTED RACEWAY

.1 Raceway is to be supplied and installed complete with all necessary fittings, hardware and device brackets for configuration as noted in the drawings for a complete functional installation.

.2 Install conduit system, wiring and devices as indicated.

.3 Ensure raceway is installed as per manufacturer recommendations.

.4 Where the raceway ends at a wall install end cap.

3.2 HAND DRYERS

.1 Install and connect hand dryers in conformance with manufacturer's recommendations.

.2 Hand dryers are to be mounted at a height to suit age of expected users. Unless otherwise noted confirm height with manufacturer, owner, Architect, and/or consultant prior to rough-in.

.3 Once installed this contractor is to caulk the joint between dryer and wall surface with a bead of clear silicone.

3.3 AUXILIARY SYSTEMS ROUGH-IN

.1 Provide backboard for each system use as noted complete with ground buss connection as specified.

.2 Outlets are to be installed complete with minimum 21 mm (3/4") conduit to accessible ceiling space or as otherwise detailed.

.3 Conduits terminated into ceiling spaces must be within 3m (10') of zone conduits when noted.

.4 Provide insulated bushings on all conduits terminated in ceiling space.

.5 Ensure specified zone or riser conduits are installed back to equipment backboard.

3.4 SECURITY AND ACCESS CONTROL ROUGH-IN

.1 Outlets are to be provided for devices with conduit as detailed on drawings.

.2 Conduits terminated into ceiling spaces must be within 1m of cable management of tray.

3.5 TELECOMMUNICATION NETWORK SYSTEM ROUGH-IN

.1 Install incoming service ducts and terminate as noted.

.2 Provide backboard as noted complete with ground connection to main service ground.

.3 Conduits terminated into ceiling spaces must be within 3m (10') of zone conduits (if applicable).

.4 Ensure specified zone conduits are installed back to service backboard.

.5 Outlets are to be installed complete with 25 mm (1") conduit to corridor ceiling space or nearest zone conduit (if applicable).

.6 Provide insulated bushings on all conduits terminated in ceiling space.

.7 A 25 mm (1") conduit is to be installed from elevator machine room to voice service backboard.

.8 Refer to Telecommunication Network Installations Section for additional requirements.

3.6 MISCELLANEOUS CLOCKS

.1 Ensure clocks are installed where noted complete with batteries and all necessary mounting hardware.

.2 Set clocks to proper time of day and ensure all are operational at the time of final inspection.

3.7 PUBLIC ADDRESS SYSTEM ROUGH-IN

.1 Conduits terminated into ceiling spaces must be within 1m (10') of cable management tray.

.2 Outlets are to be installed complete with 25 mm (1") conduit to corridor ceiling space or nearest cable management tray.

.3 Provide insulated bushings on all conduits terminated in ceiling space.

.4 Electrical contractor shall obtain speaker back boxes from School Board vender for installation into ceiling tiles, block walls, etc.

3.8 LINE VOLTAGE POWER PACKS AND LOW VOLTAGE OCCUPANCY SENSORS

.1 Install power packs in accessible maintenance areas.

.2 Provide access doors if power packs are installed above drywall ceilings.

.3 Sensors installed in areas of high abuse shall be complete with wire guards.

.4 It shall be the contractor's responsibility to locate and aim sensors in the correct location required for complete and proper coverage within the range of coverage as per the manufacturer's recommendations. The locations and quantities of sensors shown on the drawings are diagrammatic and indicate only the rooms which are to be provided with sensors. The contractor shall provide additional sensors if required to properly and completely cover the respective rooms.

.5 It is the contractor's responsibility to arrange a pre-installation meeting with the manufacturer's factory authorized representative, at the facility, to verify placement to sensors and installation criteria.

.6 The contractor shall also provide the on-site training necessary to familiarize the owner's personnel with the operation, use, adjustment and problem solving diagnosis of the occupancy sensing devices systems.

.7 Upon completion of the installation, the system shall be completely commissioned by the manufacturer's factory authorized technician who will verify all adjustments and sensor placement to ensure a trouble-free occupancy-based lighting control. Submit commissioning report with closeout documents.

.8 **All lighting controls shall be provided with functional testing and documentation conforming to Ashrae 90.1, latest adoption. This cost shall be included in the Tender Price.**

END OF SECTION

Part 1 General

1.1 PRODUCT DATA

.1 Submit product data in accordance with Electrical General Requirements Section.

Part 2 Products

2.1 BREAKERS GENERAL

.1 Moulded case circuit breakers must conform to CSA C22.1 No.5.1-M91 (latest edition.)

.2 Bolt-on moulded case circuit breaker quick-make, quick-break type, for manual and automatic operation.

.3 Common-trip breakers: with single handle for multi-pole applications.

.4 Unless otherwise indicated moulded case circuit breaker to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping and instantaneous tripping for short circuit protection.

Part 3 Execution

3.1 INSTALLATION

.1 Install circuit breakers as indicated complete with all necessary mounting hardware and filler panels if necessary.

.2 Provie lamicoid labels for series rating breakers. Lamicoid label to state “Series Rating Breaker.” Lamicoid to be size 2.

.3 Provie lamicoid labels for ARMS capable breakers. Lamicoid label to state “Arc Flash Reduction Maintenance System Breaker.” Lamicoid to be size 2.

END OF SECTION

Part 1 General

1.1 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit shop drawings and product data in accordance with Electrical General Requirements Section.

Part 2 Products

.1

2.2 RECEPTACLES

.1 Receptacles, plugs, and other similar wiring devices must conform to CSA 22.2 No 42 (latest edition).

.2 Duplex receptacles, CSA type 5-15 R, 125 V, 15 A, U ground, with following features (20A where noted):

- .1 Urea molded housing (Colour by architect).
- .2 Suitable for No. 10 AWG for back and side wiring.
- .3 Break-off links for use as split receptacles.
- .4 Eight back wired entrances, four side wiring screws.
- .5 Triple wipe contacts and rivetted grounding contacts.

.3 Other receptacles with ampacity and voltage as indicated.

.4 Receptacles of one manufacturer throughout project.

.5 Acceptable materials:

- .1 Above 20A
  - .1 Dryer receptacle: Hubbell Cat # HBL9430A
  - .2 Range receptacle: Hubbell Cat # HBL9450A
- .2 Tamper resistant
  - .1 Tamper resistant ground fault protected receptacle: Hubbell Cat. #GFTR15
  - .2 Tamper resistant ground fault protected T-slot receptacle: Hubbell Cat. #GFTR20
  - .3 Tamper resistant duplex receptacle complete with dual USB ports: Hubbell Cat. #USB15XXX
  - .4 Automatically Controlled Tamper Resistant Receptacles (Green): Hubbell Cat. #BR15C2GNTR

.6 Acceptable alternate manufacturers include:

- .1 Pass & Seymour
- .2 Leviton

2.3 COVER PLATES

.1 Cover plates from one manufacturer throughout project.

.2 Sheet steel utility box cover for wiring devices installed in surface-mounted utility boxes.

.3 Stainless steel, brushed, 1 mm (1/32") thick cover plates for wiring devices mounted in flush-mounted outlet box.

.4 Sheet metal cover plates for wiring devices mounted in surface-mounted FS or FD type conduit boxes.

.5 Provide p-touch labels on cover plates for all receptacles. Labels shall include source panel and branch circuit, including switch leg indicator as applicable for automatically controlled receptacles.

Part 3 Execution

3.1 INSTALLATION

.1 Receptacles:

.1 Install receptacles in gang type outlet box when more than one receptacle is required in one location.

.2 Mount receptacles at height specified in Electrical General Requirements Section or as indicated.

.3 Where split receptacle has one portion switched mount vertically and switch upper portion.

.2 Occupancy sensors:

.1 Occupancy sensors shall be set to 5 minutes “delay to off” unless otherwise noted.

.3 Occupancy sensors and dimmers:

.1 Switches with occupancy sensors and dimmers shall be programmed as follows:

.1 5 minutes “delay to off” unless otherwise noted.

.2 “Auto on” to 50% dimming level.

.4 Cover plates:

.1 Protect stainless steel cover plate finish with paper or plastic film until painting and other work is finished.

.2 Install suitable common cover plates where wiring devices are grouped.

.3 Do not use cover plates meant for flush outlet boxes on surface-mounted boxes.

.5 Dimmer:

.1 Dimming Switches

.1 Mount devices at height as specified in Electrical General Requirements Section.

.2 Install in upright position as per manufacturer's installation instructions.

.3 Provide class II 0-10V control wiring from 0-10V dimming switch to each fixture driver in 21mmC.

END OF SECTION

Part 1 General

1.1 PRODUCT DATA

.1 Submit product data in accordance with Electrical General Requirements Section.

Part 2 Products

2.1 DISCONNECT SWITCHES

.1 Enclosed manual air break switches must conform to CSA C22.1 No.4 (latest edition).

.2 Fuseholder assemblies must conform to CSA C22.2 No.39 (latest edition).

.3 Fusible, and/or non-fusible, horsepower rated disconnect switches, size as indicated.

.4 Provision for padlocking in off switch position by three locks.

.5 Mechanically interlocked door to prevent opening when handle in ON position.

.6 Fuses: size as indicated, to Fuses - Low Voltage Section.

.7 Fuseholders: relocatable and suitable without adaptors, for type and size of fuse indicated.

.8 Quick-make, quick-break action.

.9 ON-OFF switch position indication on switch enclosure cover.

.10 Disconnects feeding elevator controllers must be equipped with two auxiliary contacts approved by the elevator supplier.

.11 Service entrance rated with fault bracing, fusing and barrier as required.

2.2 EQUIPMENT IDENTIFICATION

.1 Provide equipment identification in accordance with Electrical General Requirements Section.

.2 Indicate name of load controlled on size 4 nameplate.

2.3 ACCEPTABLE MANUFACTURERS

Manufacturer	General Purpose	Weather Proof
Eaton	IHD Series	3HD Series
Schneider Electric	Type A Series	Type R Series
Siemens	ID Series	NFR/FR Series

Part 3 Execution

3.1 INSTALLATION

.1 Install disconnect switches complete with fuses if applicable.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE)

.1 ANSI/IEEE C62.41- 1991, Recommended Practices for Surge Voltages in Low-Voltage AC Power Circuits.

.2 American Society for Testing and Materials (ASTM)

.1 ASTM F1137- 88 (1993), Specification for Phosphate/Oil and Phosphate/Organic Corrosion Protective Coatings for Fasteners.

.3 United States of America, Federal Communications Commission (FCC)

.1 FCC (CFR47) EM and RF Interference Suppression.

.4 IESNA LM-79-08, IES Electrical Method for the Electrical and Photometric Measurements of Solid State Lighting Products.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit shop drawings in accordance with Electrical General Requirements Section for all light fixtures supplied under this contract.

.2 Submit complete photometric data prepared by independent testing laboratory for luminaires where specified, for review by Consultant.

.3 Photometric data to include: VCP Table spacing criterion.

1.3 SCOPE

.1 This contractor is responsible to supply and install all lighting fixtures as scheduled and/or indicated including lamp and those accessories required for a complete lighting system. This contractor must coordinate lighting installations with all other Divisions of this project.

.2 All fixtures must be CSA approved or approved at this contractor's expense by the Special Inspection Division of the Electrical Safety Authority.

1.4 GUARANTEE

.1 Guarantees for materials replacement shall be as follows from date of ready for takeover.

.1 LED lamps: 3 months

.2 LED fixtures, and driver: 5 years.

.2 The labour required to replace these ballasts, lamps or drivers must be included in the above guarantee, however only for the extent of the contract guarantee and warranty period as noted in Electrical General Requirements.

1.5 EXISTING FIXTURE BALLAST REMOVAL AND DESTRUCTION

.1 Scope

.1 This Contractor is responsible for contracting with an approved company for the dismantling, disposal and removal of all existing fluorescent ballasts and lamps from this project. This process must include but is not limited to the following:

.1 Removal of existing ballasts from fixtures by this contractor.

.2 This contractor is to compare the ballast number to the PCB ballast identification booklet provided by the disposal company.

.3 If the ballast is not contaminated it is to be disposed of by normal means.

.4 If the ballast is contaminated provide:

.1 Approved interm on site storage area.

.2 Approved interm on site storage containers.

.3 Any and all necessary on site inspections.

.4 All necessary approval certificates (include copies in maintenance manuals).

.5 Full dismantling, complete destruction and disposal of all ballasts components.

.2 Approved Disposal Companies

.1 PCB Containment Technology Inc.
75 Wanless Court
Ayr, ON N0B 1E0
Phone: (519) 740-1333 / Fax: (519) 740-2320

.3 Payment Procedures

.1 Cost of complete services of this sub-contractor shall be paid for by this Section. Refer to Allowances and Fees Section for allowance to be carried for this work.

Part 2 Products

2.1 FIXTURE CONSTRUCTION

.1 Fixtures must be constructed of 20 gauge (minimum) cold rolled steel. All metal edges require smooth finish.

.2 Light leaks must be prevented by providing gasketting, stops, and barriers.

.3 Fixtures must be finished in high reflective baked white enamel. This surface must have a reflectance of not less than 85%.

.4 All fixtures operating on 347 Volts must be provided with an integral disconnecting means.

2.2 FIXTURE LENS

.1 Unless otherwise noted fixture lenses shall be as follows:

.1 Lens thickness: 3.2 mm (1/8")

.2 Material: injection moulded clear prismatic virgin acrylic

.3 Frame: hinged, latched, steel.

2.3 LED FIXTURES

.1 Fixture LEDs must be tested in conformance with IESNA LM80 standard.

.2 LEDs must be selected using a binning algorithm to ensure colour and lumen output of a given fixture are consistent, as well as meet or surpass ANSI C78.377 specification for the rated lifetime of the fixture. Colour accuracy between products must be within a 2-step MacAdam ellipse.

.3 Luminaires must be tested to IESNA LM79 by an independent approved laboratory.

.4 Luminaires must be tested prior to shipping.

.5 Luminaires must be ULC certified and approved for use in Canada.

.6 Fixtures must maintain a minimum of 90% of their initial light output for 60,000 hours. Submit test results upon request.

.7 Lumen values indicated for fixtures in the project documents are to be considered as “absolute” or “delivered” values.

.8 Other than for specialty fixtures, and unless otherwise indicated, the maximum driver current is to be 750 mA.

2.4 STANDARD EXIT LIGHTING UNITS

.1 Exit lighting units must conform to CSA C860, CSA 22.2 No. 141 (latest edition).

.2 Housing: extruded aluminum housing, white finish.

.3 Face and back plates: extruded aluminum.

.4 Lamps: 2W LED.

.5 Operation: 25 year.

.6 Units are to be provided with three (3) pictogram legends indicating “left from here”, “straight from here”, and “right from here”.

.7 Face plate to remain captive for relamping.

2.5 SELF-POWERED COMBINATION EXIT/EMERGENCY LIGHTING UNITS

.1 Exit lighting units must conform to CSA C860, CSA 22.2 No. 141 (latest edition).

.2 Housing: Extruded aluminum housing. White Finish.

.3 Face and back plates: Extruded aluminum.

.4 Lamps 2W LED (EXIT).

.5 Operation: 25 year life.

.6 Units are to be provided with three (3) pictogram legends indicating “left from here”, “straight from here”, and “right from here”.

.7 Face plate to remain captive for relamping.

.8 Supply voltage: As noted on drawings.

.9 Output voltage: 12 V DC.

.10 Battery: Sealed maintenance free 10 year life.

Note: Battery must be capable of supplying the wattage indicated for a minimum of 30 minutes.

.11 Charger: Solid state, voltage/current regulated, inverse temperature compensated, short circuit protected, with regulated output of plus or minus 0.01 V for plus or minus 10% V input variation.

.12 Solid state transfer circuit.

.13 Signal lights: “AC Power On” condition and “charging” condition.

.14 Lamp heads: Integral on unit, 345º horizontal and 180º vertical adjustment. Lamp type: minimum 4 watt LED.

.15 Mounting: Suitable for universal mounting directly on junction box and complete with knockouts for conduit. Removable or hinged front panel for easy access to batteries.

.16 Cabinet: finish: White.

.17 Auxiliary equipment:

.1 Test switch.

2.6 EMERGENCY LIGHTING UNITS

.1 Emergency lighting units must conform to CSA C22.2 No 141 (latest edition).

.2 Supply voltage: As noted on drawings.

.3 Output voltage: 12 V DC.

.4 Battery: Sealed, maintenance free, 10 year life.

Note: Battery units must be capable of supplying the wattage indicated for a minimum of 30 minutes.

.5 Charger: Solid state, multi rate, voltage/current regulated, inverse temperature compensated, short circuit protected with regulated output of plus or minus 0.01 V for plus or minus 10% input variations.

.6 Solid state transfer circuit.

.7 Low voltage disconnect: Solid state, modular, operates at 80% battery output voltage.

.8 Signal lights: “AC Power ON” condition and “charging” condition.

.9 Lamp heads: Integral on unit, 345º horizontal and 180º vertical adjustment. Lamp type: minimum 4 watt LED.

.10 Cabinet suitable for direct of shelf mounting to wall and complete with knockouts for conduit. Removable or hinged front panel for easy access to batteries.

.11 Auxiliary equipment:

.1 Test switch.

.2 Ac input and DC output terminal blocks inside cabinet.

.3 Shelf.

.4 Cord and plug connection for AC. **(Not applicable on 347 V units)**.

2.7 ACCEPTABLE LIGHTING MANUFACTURERS

.1 Refer to the light fixture schedule as indicated on drawings.

Part 3 Execution

3.1 INSTALLATION

.1 Locate and install luminaires as indicated. Luminaires are not to be supported from the roof deck. Provide additional Unistrut support channel and/or support from structure. Co-ordinate with consultant on site.

.2 Ball align hangers must be provided for rod suspended fixtures.

.3 Fixtures surface mounted to suspended ceilings must be secured through ceiling assembly to cross member supports. These supports are to be steel channels or angles independently secured **to structure** using # 12 “jack” chain. Each chain must be secured so no fixture weight is added to the ceiling assembly.

.4 Plaster frames/flange kits must be provided by this Division for fixtures recessed in plaster and/or drywall ceilings.

.5 Where specified, fixtures to be chain hung shall be hung using “jack” chain with a capacity to suit the fixture weight. Branch circuit wiring feeding these fixtures shall be AC90 cable “ty-wrapped” at 900 mm (36") intervals along length of drop. Final appearance must be neat and professional.

.6 Install exit lighting units with illuminated faces and chevrons/arrows indicating path(s) of exit as indicated. Unless otherwise noted install exit fixtures at 2400 mm (8'-0") above finished floor.

.7 Install emergency lighting units and associated remote mounted fixtures as indicated.

.8 Provide a 15 A 120 V duplex receptacle (connected to circuit indicated) adjacent to unit. **Not applicable on 347 V units. This receptacle connection is to be no lower than 8'-0" (2400 mm) AFF.**

.9 Special installation: Secure fixtures to structure to conform to the Electrical Safety Code using "jack chain" NOT ceiling suspension wire. Where coreslab is used, suspension point must be independent of the one used for suspension of the ceiling assembly. As an alternate to jack chain the contractor may use a pre-manufactured aircraft cable suspension and fastening system as manufactured by Gripple (Gripple Cat. #HF02-10F2). Provide minimum 2 per fixture.

.10 All battery units are to be provided with a visible lamicoid label indicating the unit number as per drawings.

3.2 WIRING

.1 Connect luminaires to lighting circuits as indicated.

.2 Connect exit fixtures to exit lighting circuits and unit equipment (if applicable).

.3 Connect unit equipment to circuits as indicated.

.4 All wiring of remote emergency fixtures shall be minimum #10 T90 for each circuit and run in conduit. Wiring must be sized in conformance with manufacturer's recommendations for distances required.

3.3 LUMINAIRE ALIGNMENT

.1 Align luminaires mounted in continuous rows to form straight uninterrupted line.

.2 Align luminaires mounted individually parallel or perpendicular to building grid lines.

3.4 DELIVERIES

.1 Fixtures are to be completely assembled at the manufacturer's plant and delivered to the project site in original unitized containers. Ensure that a dry, protected and secure space is available for proper storage before scheduling delivery of fixtures.

3.5 TESTING/CERTIFICATION

.1 At the completion of the project and in the presence of the consultant, test all exit and emergency fixtures. On company letterhead, the contractor is to prepare a chart indicating:

.1 Project
.2 Date
.3 Equipment type
.4 Certification of correct connection
.5 Certification of correct operation
.6 Duration of test in minutes (minimum 30)

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE).

.2 Underwriter Laboratories of Canada (ULC).

.3 International Electrotechnical Commission.

.4 International Organization for Standardization (ISO).

.5 National Electrical Manufacturers Association (NEMA).

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit shop drawings in accordance with Section 26 01 16.

.2 Submit composite wiring diagrams and control schedule for each room control circuit type as proposed to be installed. Include load type, sequence of operation, sensor parameters, time delays, sensitivities and daylighting set points.

.3 Catalog cut sheets with performance specifications demonstrating compliance with specified requirements.

1.3 SCOPE

.1 This contractor is responsible to supply and install all equipment and control wiring as specified for the digital occupancy and daylight control systems. This contractor must coordinate these control systems with the lighting fixtures being supplied for the project to ensure intended function as specified.

.2 Control Intent: Control Intent includes, but is not limited to:

.1 Defaults and initial calibration settings for such items as time delay, sensitivity, fade rates, etc.

.2 Initial sensor and switching zones.

.3 All equipment must be CSA approved or approved at this contractor's expense by the Special Inspection Division of the Electrical Safety Authority.

.4 Reference section 26 51 13 for Lighting information.

.5 Reference section 26 05 75 for line voltage occupancy sensors and switches (hard wired analog).

1.4 SYSTEM DESCRIPTION AND OPERATION

.1 The Digital Lighting Control (room level) as defined under this section covers the following equipment:

.1 Digital Room Controllers – Self-configuring, digitally addressable one, two or three relay controllers.

.2 Digital Occupancy Sensors – Self-configuring, digitally addressable and calibrated occupancy sensors with LCD display and two-way active infrared (IR) communications.

.3 Digital Switches – Self-configuring, digitally addressable pushbutton switches, dimmers, and scene switches with two-way active infrared (IR) communications.

.4 Digital Photosensors – Single-zone closed loop sensors with two-way active infrared (IR) communications can provide switching or dimming control for daylight harvesting.

.5 Configuration Tools – Handheld remote for room configuration provides two-way infrared (IR) communications to digital devices and allows complete configuration and reconfiguration of the device / room from an accessible location.

1.5 LIGHTING CONTROL APPLICATIONS

.1 Provide a minimum application of intended lighting control functions as detailed on design drawings and specified herein. Control functions shall include the following:

.1 Space Control Requirements – Provide occupancy/vacancy sensors with Manual-ON functionality in all spaces except toilet rooms, storerooms, or other applications where hands-free operation is desirable and Automatic-ON occupancy sensors are more appropriate. For spaces with multiple occupants, or where line-of-sight may be obscured, provide ceiling- or corner-mounted sensors.

.2 Bi-Level Lighting – Provide single zone, multi-level controls in any enclosed office, conference room, meeting room, and training room in all enclosed spaces except where variable dimming or multi-zone switching is used.

.3 Daylit Areas – All luminaries closest to the daylight source, and zoned separately from other fixtures in the space, shall be controlled separately from luminaires outside of daylit zones. Multiple-leveled switched daylight harvesting controls may be utilized for areas marked on drawings.

1.6 WARRANTY

.1 Provide a five-year complete manufacturer's warranty on all products to be free of manufacturers' defects.

.2 The labour required to replace these products must be included in the above warranty, however only for the extent of the contract guarantee and warranty period as noted in Electrical General Requirements.

1.7 QUALITY ASSURANCE

.1 Manufacturer: Minimum 10-years experience in manufacture of lighting controls.

Part 2 Products

2.1 MANUFACTURERS

.1 Basis of design product: WattStopper Digital Lighting Management (DLM). Acceptable alternates are subject to compliance and prior approval with specified requirements of this section, as one of the following:

.1 Cooper Controls (Wavelinx).

.2 Acuity Controls (nlight).

.2 Substitutions:

.1 All proposed substitutions (clearly delineated as such) must be submitted in writing for approval by the design professional a minimum of 7 working days prior to the bid date and must be made available to all bidders.

.2 By using pre-approved substitutions, the contractor accepts responsibility and associated costs for all required modifications to circuitry, devices, and wiring.

2.2 DIGITAL WALL OR CEILING MOUNTED OCCUPANCY SENSOR SYSTEM

.1 Wall or ceiling mounted (to suit installation) passive infrared (PIR), ultrasonic or dual technology digital (passive infrared and ultrasonic) occupancy sensor. Furnish the Company's system which accommodates the square-foot coverage requirements for each area controlled, utilizing room controllers, digital occupancy sensors and accessories which suit the lighting and electrical system parameters.

.2 Digital Occupancy Sensors shall provide calibration and electronic documentation for the following features:

.1 Digital calibration and pushbutton programming for the following variables:

.1 Sensitivity – 0-100% in 10% increments

.2 Time delay – 1-30 minutes in 1 minute increments

.3 Test mode – Five second time delay

.4 Detection technology – PIR, Ultrasonic or Dual Technology activation and/or re-activation.

.5 Walk-through mode

.6 Load parameters including Auto/Manual-ON, blink warning, and daylight enable/disable when photosensors are included in the DLM local network.

.2 Two-way infrared (IR) transceiver to allow remote programming through handheld commissioning tool and control by remote personal controls.

.3 Device Status LEDs including:

.1 PIR Detection

.2 Ultrasonic detection

.3 Configuration mode

.4 Load binding

.4 Manual override of controlled loads.

.5 One or two RJ-45 port(s) for connection to DLM local network.

.3 Multiple occupancy sensors may be installed in a room by simply connecting them to the free topology DLM local network. No additional configuration will be required.

WattStopper product numbers: LMPX, LMDX, LMPC, LMUC, LMDC

2.3 DIGITAL WALL SWITCHES

.1 Low voltage momentary pushbutton switches in 1, 2, 3, 4, 5, and 8 button configuration; colour per architect, compatible with wall plates with decorator opening. Wall switches shall include the following features:

.1 Two-way infrared (IR) transceiver for use with personal and configuration remote controls.

.2 Removable buttons for field replacement with engraved buttons and/or alternate color buttons. Button replacement may be completed without removing the switch from the wall.

.2 Multiple digital wall switches may be installed in a room by simply connecting them to the free topology DLM local network. No additional configuration will be required to achieve multi-way switching.

.3 The following switch attributes may be changed or selected using a wireless configuration tool:

.1 Load and Scene button function may be reconfigured for individual buttons (from Load to Scene, and vice versa).

.2 Individual button function may be configured to Toggle, On only or Off only.

.3 Individual scenes may be locked to prevent unauthorized change.

.4 Switch buttons may be bound to any load on a room controller and are not load type dependent; each button may be bound to multiple loads.

.4 Two RJ-45 ports for connection to DLM local network.

.5 Multiple digital wall switches may be installed in a room by simply connecting them to the free topology DLM local network. No additional configuration will be required to achieve multi-way switching.

.6 WattStopper product numbers: LMSW-101, LMSW-102, LMSW-103, LMSW-104, LMSW-105, LMSW-108, LMDM-101.

2.4 DIGITAL POWER PACKS (ROOM CONTROLLERS)

.1 Room Controllers automatically bind the room loads to the connected devices in the space without commissioning or the use of any tools. Room Controllers shall be provided to match the room lighting load and control requirements. The controllers will be simple to install and will not have, dip switches, potentiometers or require special configuration. The control units will include the following features:

- .1 Automatic room configuration to the most energy-efficient sequence of operation based upon the devices in the room.
- .2 Simple replacement – Using the default automatic configuration capabilities, a room controller may be replaced with an off-the-shelf unit without requiring any configuration or setup.
- .3 Device Status LEDs to indicate:
  - .1 Data transmission
  - .2 Device has power
  - .3 Status for each load
  - .4 Configuration status
- .4 Quick installation features including:
  - .1 Standard junction box mounting
- .5 Plenum rated
- .6 Manual override and LED indication for each load
- .7 120 VAC, 60 Hz operation.
- .8 Zero cross circuitry for each load.

.2 On/Off Room Controllers shall include:

- .1 One or multiple relay configuration to suit control details
- .2 Efficient 150 mA switching power supply
- .3 Sufficient sensor connection points to suit indicated function without the requirement for additional hardware
- .4 Discrete model listed for connection to receptacles, for schedule-based control of plug loads within the space.
  - .1 One relay configuration only.
  - .2 Automatic-ON/OFF configuration.
  - .3 Optional Network Bridge for BACnet MS/TP communications
- .5 Three RJ-45 DLM local network ports.
- .6 WattStopper product numbers: LMRC-101, LMRC-102, LMPL-101, LMPL-201.

.3 On/Off Room/Dimming enhanced Room Controllers shall include:

- .1 One or multiple relay configuration to suit control details.
- .2 Efficient 250 mA switching power supply.
- .3 One 0-10 volt analog output per relay for control of compatible ballasts and LED drivers.

.4 The following dimming attributes may be changed or selected using a wireless configuration tool:

.1 Establish preset level for each load from 0-100%.

.2 Set high and low trim for each load.

.3 Set lamp burn in time for each load up to 100 hours.

.5 Four RJ-45 DLM local network ports.

.6 Optional Network Bridge for BACnet MS/TP communications.

.7 WattStopper product numbers: LMRC-211, LRMC-212, LRMC-213, LMPL-201, LMRC-311, LMRC-312, LMRC-313.

2.5 DIGITAL ROOM CONTROL SYSTEMS

.1 Digital occupancy and daylight control system designed to control a small area of a building (room level). Digital devices connect to the room controller(s) using CAT 5e cables (LMRJ) with RJ-45 connectors which provide both data and power to room devices. Features of the system shall include:

.1 Plug n' Go automatic configuration and binding of occupancy sensors, switches and lighting loads to the most energy-efficient sequence of operation based upon the device attached.

.2 Simple replacement of any device in the system with a standard off the shelf unit without requiring commissioning, configuration or setup.

.3 Push n' Learn configuration to change the automatic configuration, including binding and load parameters without tools, using only the buttons on the digital devices which are part of the local system.

.4 Two-way infrared communications for control by handheld remotes, and configuration by a handheld tool including adjusting load parameters, sensor configuration and binding, within a line of sight of up to 30 feet from a sensor, wall switch or IR receiver.

2.6 CONFIGURATIONS TOOLS

.1 A configuration tool facilitates optional customization of digital lighting control system featuring infrared communications.

.2 Features and functionality of the wireless configuration tool shall include:

.1 Two-way infrared (IR) communication with DLM IR-enabled devices within a range of approximately 30 feet.

.2 Read, modify and send parameters for occupancy sensors, daylighting sensors, room controllers and buttons on digital wall switches.

.3 Save up to nine occupancy sensor setting profiles and apply profiles to selected sensors.

.3 WattStopper Product Numbers: LMCT-100, LMCI-100/LMCS-100

2.7 PROGRAMMING, CONFIGURATION AND DOCUMENTATION SOFTWARE

.1 PC-native application for optional programming of detailed technician-level parameter information for all DLM products, including all parameters not accessible via BACnet and the handled IR configuration tool. Software must be capable of accessing room-level parameter information locally within the room when connected via the optional LMCI-100 USB programming adapter, or globally for many segment networks simultaneously utilizing standard BACnet/IP communication.

.2 Additional parameters exposed through this method include but are not limited to:

.1 Occupancy sensor detection LED disable for performance and other aesthetic spaces where blinking LEDs present a distraction.

.2 Six occupancy sensor action behaviors for each controlled load, separately configurable for normal hours and after hours modes. Modes include: No Action, Follow Off Only, Follow On Only, Follow On and Off, Follow On Only with Override Time Delay, Follow Off Only with Blink Warn Grace Time, Follow On and Off with Blink Warn Grace Time.

.3 Separate fade time adjustments per load for both normal and after hours from 0 - 4 hours.

.4 Configurable occupancy sensor re-trigger grace period from 0 - 4 minutes separate for both normal hours and after hours.

.5 Separate normal hours and after hours per-load button mode with modes including: Do nothing, on only, off only, on and off.

.6 Load control polarity reversal so that on events turn loads off and vice versa.

.7 Per-load DR (demand response) shed level in units of percent.

.8 Load output pulse mode in increments of 1second.

.9 Fade trip point for each load for normal hours and after hours that establishes the dimmer command level at which a switched load closes its relay to allow for staggered On of switched loads in response to a dimmer.

.3 Generation of reports at the whole file, partial file, or room level. Reports include but are not limited to:

.1 Device list report: All devices in a project listed by type.

.2 Load binding report: All load controller bindings showing interaction with sensors, switches, and daylighting.

.3 BACnet points report: Per room Device ID report of the valid BACnet points for a given site's BOM.

.4 Room summary report: Device manifest for each room, aggregated by common BOM, showing basic sequence of operations.

.5 Device parameter report: Per-room lists of all configured parameters accessible via hand held IR programmer for use with O&M documentation.

.6 Scene report: All project scene pattern values not left at defaults (i.e. 1 = all loads 100 percent, 2 = all loads 75 percent, 3 = all loads 50 percent, 4 = all loads 25 percent, 5-16 = same as scene 1).

.7 Occupancy sensor report: Basic settings including time delay and sensitivities for all occupancy sensors.

.4 Network-wide programming of parameter data in a spreadsheet-like programming environment including but not limited to the following operations:

.1 Set, copy/paste an entire project site of sensor time delays.

.2 Set, copy/paste an entire project site of sensor sensitivity settings.

.3 Search based on room name and text labels.

.4 Filter by product type (i.e. LMRC-212) to allow parameter set by product.

.5 Filter by parameter value to search for product with specific configurations.

.5 Network-wide firmware upgrading remotely via the BACnet/IP network.

.1 Mass firmware update of entire rooms.

.2 Mass firmware update of specifically selected rooms or areas.

.3 Mass firmware upgrade of specific products

.6 Wattstopper Product Number: LMCS-100, LMCI-100

2.8 SYSTEM INPUT/OUTPUT

.1 Provide a means to allow seamless integration with third party devices to provide additional functionality to the Digital Lighting Management system via low voltage input/output interface. Wattstopper Product Number: LMIN-104.

.2 Provide a means to integrate analog occupancy sensors to the Digital Lighting Management system via low voltage analog sensor input module. Wattstopper Product Number: LMIO-201.

Part 3 Execution

3.1 INSTALLATION

.1 Install the work of this Section in accordance with manufacturer's printed instructions unless otherwise indicated.

.2 When using wire for connections other than the DLM local network (LMRJ Cat 5e with RJ-45 connectors), provide detailed point to point wiring diagrams for every termination. Provide wire specifications and wire colors to simplify contactor termination requirements.

.3 Calibrate all sensor time delays and sensitivity to guarantee proper detection of occupants and energy savings.

.1 Adjust time delay so that controlled area remains lighted for 5 minutes after occupant leaves area.

.4 Install power packs in accessible maintenance areas unless noted otherwise. Provide access doors if power packs are installed above drywall ceilings.

.5 Install sensors in gym where noted on plan at mid-height of wall.

.6 It shall be the contractor's responsibility to locate and aim sensors in the correct location required for complete and proper coverage within the range of coverage as per the manufacturer's recommendations. The locations and quantities of sensors shown on the drawings are diagrammatic and indicate only the rooms which are to be provided with sensors. The contractor shall provide additional sensors if required to properly and completely cover the respective rooms.

.7 Provide written or computer-generated documentation on the commissioning of the system including room by room description including:

.1 Sensor parameters, time delays, sensitivities, and daylighting setpoints.

.2 Sequence of operation, (e.g. manual ON, Auto OFF. etc.)

.3 Load Parameters (e.g. blink warning, etc.)

.8 Re-commissioning – After 30 days from occupancy re-calibrate all sensor time delays and sensitivities to meet the Owner's Project Requirements. Provide a detailed report to the Architect / Owner of re-commissioning activity.

3.2 FACTORY COMMISSIONING

.1 Upon completion of the installation, the system shall be commissioned by the manufacturer's factory authorized representative who will verify a complete fully functional system.

.2 The electrical contractor shall provide both the manufacturer and the electrical engineer with ten working days written notice of the system startup and adjustment date.

.3 Upon completion of the system commissioning the factory-authorized technician shall provide the proper training to the owner's personnel on the adjustment and maintenance of the system.

.4 Factory commissioning shall include functional testing and documentation of the control system conforming to the "Functional Testing" requirements included in the current ASHRAE standard. This cost shall be included in the Tender Price.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 CAN/ULC-S524 (latest edition), Installation of Fire Alarm Systems.

.2 ULC-S525 (latest edition), Audible Signal Appliances for Fire Alarm Systems.

.3 CAN/ULC-S526 (latest edition), Visual Signal Appliances, Fire Alarm.

.4 CAN/ULC-S527 (latest edition), Control Units, Fire Alarm.

.5 CAN/ULC-S528 (latest edition), Manual Pull Stations.

.6 CAN/ULC-S529 (latest edition), Smoke Detectors.

.7 CAN/ULC-S530 (latest edition), Heat Actuated Fire Detectors, Fire Alarm.

.8 CAN/ULC-S531 (latest edition), Smoke Alarms.

.9 CAN/ULC-S536 (latest edition), Inspection and Testing of Fire Alarm Systems.

.10 CAN/ULC-S537 (latest edition), Verification of Fire Alarm Systems.

.11 CAN/ULC-S552 (latest edition), Inspection, Testing and Maintenance of Smoke Alarms.

.12 CAN/ULC-S553 (latest edition), Installation of Smoke Alarms.

.13 OBC-2024, Ontario Building Code Compendium.

1.2 DESCRIPTION OF EXISTING SYSTEM

.1 The existing addressable system includes:

.1 An addressable control panel as manufactured by **Edwards Quickstart** to carry out fire alarm and protection functions including receiving alarm signals, initiating general alarm, supervising system continuously, actuating zone annunciators, and initiating trouble signals.

.2 Trouble signal devices.

.3 Power supply facilities.

.4 Addressable manual alarm stations.

.5 Addressable automatic alarm initiating devices.

.6 Audible and visual signal devices.

.7 End-of-line devices.

.8 Annunciator(s).

.9 Ancillary devices.

.10 Interface and zone modules.

.11 Remote trouble indicator.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

.1 This system is subject to review by local building department officials, local fire department officials. **Therefore, submission of verification certificate and field technician device verification sheets is required prior to inspection by these officials. Schedule accordingly.**

1.4 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Electrical General Requirements Section.

.2 Include:

.1 New components.

.2 Complete wiring diagram for control panel replacements.

1.5 OPERATION AND MAINTENANCE DATA

.1 Provide operation and maintenance data for Fire Alarm System for incorporation into manual specified in Electrical General Requirements Section.

.2 Include:

.1 Operation and maintenance instructions for complete fire alarm system to permit effective operation and maintenance.

.2 Technical data - illustrated parts lists with parts catalogue numbers.

.3 Copy of approved shop drawings.

.4 List of recommended spare parts for system.

1.6 TRAINING

.1 Arrange and pay for on-site demonstrations by fire alarm equipment manufacturer to train operational personnel in use and maintenance of fire alarm system. **Obtain written receipt of training session and include in maintenance manual.**

1.7 SYSTEM OPERATION

.1 The existing Fire Alarm Sequence of Operation shall remain as currently programmed and to include new devices and zones per design drawings.

1.8 PERFORMANCE CRITERIA

.1 These specifications describe the minimum functional requirements for an electronically supervised, microprocessor based, fully integrated system. The initial installation shall include all the necessary electronic hardware, software and memory for a completely operable system in accordance with these specifications.

1.9 QUALITY ASSURANCE

.1 Each and all items of the fire alarm system shall be listed as the products of a single manufacturer under the appropriate category by the Underwriter's Laboratories of Canada and shall bear the "U.L.C." label.

.2 Each and all items of the fire alarm system shall be covered by a one year parts and labour warranty covering defects resulting from faulty workmanship and materials. The warranty shall be deemed to begin on the date the system is accepted by the Project Manager on issuance of the substantial performance certificate for the project.

.3 All control equipment must have Transient Protection Devices to comply with U.L.C. requirements.

Part 2 Products

2.1 GENERAL

.1 It is the intention of this renovation to maintain the existing addressable fire alarm system control panel and remote annunciator, as well as existing signal and detection devices, while expanding the system to include additional control panel components, additional signal devices, and additional detection devices as shown on design drawings to suit the project scope.

.2 For information & coordination purposes, the following fire alarm manufacturer representative contact information is provided to the bidding trade:

.1 Troy Life & Fire Safety Ltd. (Edwards)
Ross McKay (519)-778-5839

2.2 AUDIBLE/VISUAL SIGNAL DEVICES

.1 150 mm (6") Bells: surface mounted bell, vibration type 24Vdc, 150 mm (6"), 92dBA rating at 3 m (10'), red finish, FM and ULC listed.

.2 Strobe: semi-recessed, 24Vdc operation, complete with selectable 15/30/75/110 candela output (unless otherwise noted set at 75 cd), synchronized strobe, red finish, FM and ULC listed. Suitable for mounting on a single gang box.

NOTES:

.1 Any surface mounted signal devices must be provided with suitable backboxes supplied by the manufacturer.

.2 Provide synchronization modules to suit signal devices (if required by manufacturer).

.3 Set signal devices in classrooms to LOW setting.

2.3 END OF LINE RESISTORS

.1 End-of-line resistors for signalling circuits shall be sized to ensure the correct supervisory current flows in each circuit.

.2 End-of-line resistors shall be mounted on a stainless steel plate for mounting on a standard single gang box and bear the ULC label.

2.4 SYSTEM WIRING

.1 Maintain existing device wiring where noted on drawings for replacement devices.

.2 The system wiring must be FSA rated in conformance with the Electrical Safety Code to suit the type of installation.

.3 Wiring shall be minimum #18 AWG twisted shielded pair in conduit. “Securex 2” armoured cable will be permitted to be used for “drops” to devices on accessible ceilings.

.4 Signal wiring is to be cross connected in a class ‘B’ configuration.

.5 Install isolator modules and end of line resistors in service rooms no higher than 2.4 M AFF. Provide location of these devices at the time of shop drawing submission.

.6 **These are the basic wiring requirements for system operation. Prior to tender close manufacturer and contractor are to confirm all necessary wiring specifications and requirements.**

2.5 APPROVED EQUIPMENT

DEVICE	**EDWARDS**
Control Panel	
	Quickstart
Conventional and Auxiliary Devices	
150 mm (6”) Bells	439D Series or MB Series
Strobe	G1R-VM

Part 3 Execution

3.1 INSTALLATION

.1 Install new and replacement components in accordance with CAN/ULC-S524 (latest edition) and approved manufacturers manuals and wiring diagrams. The contractor shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for the complete installation, All wiring shall be of the type recommended by the Electrical Safety Code, approved by local authorities having jurisdiction for the purpose, and shall be installed in dedicated conduit throughout.

.2 Disruption of fire alarm coverage for the building shall be kept to a minimum. Coordinate with owner and consultants required system shutdowns, periods of bypass, etc. to suit the required scope of renovation and replacement work.

.3 Connect alarm circuits to main control panel.

.4 Locate and install signal devices and connect to signalling circuits.

.5 Connect signalling circuits to main control panel.

.6 Install end-of-line devices at end of applicable alarm and signalling circuits.

3.2 PROTECTION

.1 Contractor is to ensure all fire protection system detectors are protected from dust, dirt, humidity, and water at all times during construction. This applies to detectors installed, stored on site or stored in storage containers. Any detectors that are damaged or dirty shall be replaced at the contractor's expense.

3.3 FIELD QUALITY CONTROL

.1 The system shall be installed and fully tested under the supervision of trained manufacturer's representative. The system shall be demonstrated to perform all the functions as specified.

3.4 ACCEPTABLE INSTALLER

.1 The fire alarm / life safety system specified herein shall be installed by an Authorized Electrical Contractor who is CFAA certified.

3.5 EXAMINATION

.1 Prior to the commencement of any of the work detailed herein, an examination and analysis of the area(s) where the Fire Alarm / Life Safety System and all associated components are to be installed shall be made.

.2 Any of these area(s) which are found to be outside the manufacturers' recommended environments for the particular specified products shall be noted on a Site Examination Report which shall be given to the Building Owners Representative, and the Consultant.

.3 Any shorts, opens, or grounds found on existing wiring shall be corrected prior to the connection of these wires to any panel component or field device.

3.6 DEMONSTRATION

.1 Each of the intended operations of the installed Fire Alarm / Life Safety System shall be demonstrated to the Building Owners' Representative and the Consultant.

3.7 SYSTEM TEST

.1 Perform tests in accordance with General Electrical Requirements Section and CAN/ULC-S537-(latest edition) Standard for the Verification of Fire Alarm Systems.

.2 Fire alarm system:

.1 Test each device and alarm circuit to ensure noted devices transmit alarm to control panel and actuate general alarm and ancillary devices.

.2 Check annunciator panels to ensure zones are shown correctly.

.3 Simulate grounds and breaks on alarm and signalling circuits to ensure proper operation of system.

.4 Class A circuits.

.1 Test each conductor on all circuits for capability of providing alarm signal on each side of single open-circuit fault condition imposed near middlemost point of circuit. Reset control unit after each alarm function and correct imposed fault after completion of each test.

.2 Test each conductor on all circuits for capability of providing alarm signals during ground-fault condition imposed near middlemost point of circuit. Reset control unit after each alarm function and correct imposed fault after completion of each test.

.5 Class B circuits

.1 Test each conductor on all circuits for capability of providing alarm signal on line side of single open-circuit fault condition imposed at electrically most remote device on circuit. Reset control unit after each alarm function and correct imposed fault after completion of each test.

.3 The control panel shall continuously perform as automatic self-test routine on each sensor, which will functionally check the sensor electronics and ensure the accuracy of the valves being transmitted to the control panel.

.4 Automatic testing will occur at a rate of one sensor every four minutes.

.5 The sensor's average analogue value is the average of the last 2000 recorded analogue entries of its chamber.

.6 Any sensor that fails this test shall indicate a '**SELF-TEST ABNORMAL'** trouble condition with the sensor's address at the control panel.

.7 The system shall automatically indicate when an individual sensor needs cleaning. When the sensor's average value reaches a predetermined value, a **'DIRTY SENSOR'** trouble condition shall be audibly and visually indicated at the local control panel for that sensor. IF a **'DIRTY SENSOR'** indication is left unattended and its average value increases to a second predetermined value, an **'EXCESSIVELY DIRTY SENSOR'** trouble condition shall be indicated at the local control panel for that sensor. To prevent false alarms, these **'DIRTY'** conditions shall in no way decrease the amount of smoke obscuration necessary to generate an alarm condition.

.8 An operator having a proper access level, shall have the capability to manually access the following information from the control panel:

.1 Primary Status

.2 Device Type

.3 Present Average Value

.4 Present Sensitivity Selected*

.5 Highest Peak Detection Values (HVP)*

.6 Sensor Range (Normal, Dirty, Excessively Dirty)

* Values shall be in 'percent of smoke obscuration' format so that no interpretation is required by the operator.

3.8 AUDIBILITY TESTING

.1 It is the intention of this renovation to have the audibility tested in portions of the building within the scope of the project as indicated on drawings.

.2 Audibility Testing:

.1 The contractor is to coordinate an audibility test prior to occupancy of the facility. The test is to be performed by the representatives of the fire alarm manufacturer in the presence of the consultant. The test report is to be in chart form indicating:

.1 Project

.2 Date of test

.3 Room name and number

.4 Ambient dB level

.5 Alarm dB level

.6 Name of testing technician

.2 The test results are to be submitted to the consultant for review prior to issuing to owner's representatives and/or authorities having jurisdiction.

END OF SECTION

26-7842-RFT - Avenue Road Public School Renovations

Opening Date: February 13, 2026 4:00 PM

Closing Date: March 10, 2026 2:00 PM

Schedule of Prices

* Denotes a "**MANDATORY"** field

Do not enter $0.00 dollars unless you are providing the line item at zero dollars to the Board.

Bid Price Form

The amounts stipulated on the Bid Price Form(s) are intended to cover the cost of the complete Work as described in this Procurement and must remain fixed and firm for the term of the Contract unless otherwise specified in this Procurement.

All prices shall be in Canadian Funds, Free On Board (FOB) Destination, and Freight Prepaid (Board locations). and shall be exclusive of Harmonized Sales Tax (HST) but shall include all materials, labour, equipment, disbursements, expenses, insurance, bonding, customs charges, freight, shipping and handling costs, travel costs and all other charges of every kind attributable to the Work and Services provided.

Bid Price includes Cash Allowance

Line Item	Description	Unit of Measure	Quantity	Bid Price *	Total
1	As per scope of work outlined in 26-7842-RFT Avenue Road Public School Renovations	Lump Sum	1		
				Subtotal:	

Summary Table

Bid Form	Amount
Bid Price Form	
HST (13%)	$ 0.00
Total Contract Amount:	

Bid Questions

Bidder Instructions

Answer all questions that are marked Mandatory.

Bill S-211 - This enactment enacts the Fighting Against Forced Labour and Child Labour in Supply Chains Act, which imposes an obligation on certain government institutions entities to ensure measures are taken to prevent and reduce the risk that forced labour or child labour is used by suppliers or in their supply chains. The Board principles align with Bill S-211. Please confirm that your organization will comply with this Act. YES or NO. If no, please explain.	
As per the “Ontario Business” definition as per the BOBI Act is a supplier, manufacturer or distribution of any business structure; conducts its activities on a permanent basis in Ontario; and has either a) its headquarters or main office in Ontario, or b) at least 250 full-time employees in Ontario at the time of the applicable procurement process. Does your company qualify as an Ontario Business under the BOBI Act? YES or NO	
is your company a Canadian business? YES or NO	
Is your company a U.S. business, as defined by the Ontario Treasury Board / Management Board of Cabinet (TB/MBC) as a supplier, manufacturer or distributor of any business structure (includes a sole proprietorship, partnership, corporation or other business structure) that: has its headquarters or main office located in the U.S., and has fewer than 250 full-time employees in Canada at the time of the applicable procurement process? Yes or No. (Comments are allowed).	

Specifications

Bidder's Contact Information

A Site Supervisor and Project Manager, assigned to manage and supervise the Work, must be named in this form. Personnel will be subject to approval by the Board and cannot be changed without prior written approval from the Board.

Note: resumes are required to be uploaded in the document section.

Title	Name *	E-mail *	Cell Phone Number *	
Project Manager				*
Site Supervisor				*
Optional – Alternative Site Supervisor				

Documents

It is your responsibility to ensure the uploaded file(s) is/are not defective or corrupted and are able to be opened and viewed by the Owner. If the attached file(s) cannot be opened or viewed, your Bid Submission may be rejected.

Instructions to Bidders

- Upload a resume for each person named in the Specification section.
- **Certificate of Recognition (COR) Certification (General Contractors)**

All bidders must possess and maintain a valid Certificate of Recognition (COR) issued by a recognized certifying partner at the time of bid submission.
Bidders shall upload proof of current COR Certification with their tender submission. Failure to provide acceptable documentation may render the bid non-compliant and subject to rejection.
The WRDSB reserves the right to verify the validity and status of COR Certification at any time during the procurement process and throughout the term of the contract.

- Project Manager * (mandatory)
- Site Supervisor * (mandatory)
- Optional – Alternative Site Supervisor (optional)
- Certificate of Recognition (COR) Certification (General Contractors) * (mandatory)

BONDING UPLOAD SECTION

Refer to the Bonding Requirements Section of the Terms and Conditions.

Bonding is required if the project is equal to or greater than $200,000.00. Note: The Bidding System has flagged these fields as mandatory. If your bid is less than $200,000.00, please upload a pdf document stating: Not Applicable.

Bidders shall upload their electronically verifiable and enforceable (e-Bond) format for Bid Deposit Bond and Agreement to Bond separately in this section. If both Bonds are in the same file, please upload it in both fields and indicate one is a copy.

Tender # and Project Title must be included on the Bonds

- Bid Deposit Bond * (mandatory)
- Agreement to Bond * (mandatory)

Addenda, Terms and Conditions

I/We have read and understand this Bid Solicitation document, and agree to perform the Work required in accordance with this Bid

Solicitation document, including all addenda, at the price(s) detailed in the Bid.

I/We confirm that:

1. The person named in this Bid is authorized to sign and electronically submit this Bid through the Bidding System.

2. I/We meet all mandatory requirements of the Bid Solicitation document.

3. The bid will remain open for a specified acceptance period after the Closing Time. The Board may, at any time within this period, accept the Bid whether or not any other Bid has previously been accepted.

4. All prices provided in the Bid will remain fixed and firm for the duration of the term of the agreement, unless specified otherwise.

5. All prices provided in my/our Bid are in Canadian funds and include all charges of every kind attributable to the Work. Harmonized Sales Tax will be extra and not shown, unless specified otherwise.

6. To the best of my/our knowledge and belief:

a) the information provided in the Bid is correct; and

b) the Bid is made without any comparison of figures or arrangement with any other individual, corporation or person submitting a Bid for the same Work and is in all respects fair and without collusion or fraud.

7. I/We comply with the all applicable Board policies, provincial, and federal laws, and are aware of the Board's "Principles of Business Conduct" and will comply.

8. I/We agree and understand that the recommendation to award the Work may be subject to the approval from the Board as well as availability of funds.

9. I/We agree to be bound by the terms and conditions of the Bid Solicitation document and submit this Bid on behalf of the Bidder.

☐ I have the authority to bind the Bidder.

The Bidder/Proponent is to declare any actual, potential or perceived conflict of interest that could arise from submitting the Bid/Proposal.

Do you have a potential conflict of interest?

○ **Yes** ○ **No**

The Bidder acknowledges and agrees that the addendum/addenda below form part of the Bid Solicitation Document.

Please check the box in the column "**I have reviewed this addendum"** below to acknowledge each of the addenda.

File Name	I have reviewed the below addendum and attachments (if applicable)	Pages
There have not been any addenda issued for this bid.		