TECHNICAL SPECIFICATIONS FOR:

PROJECT:

HOLY CROSS CROATIAN PARISH HALL
OFFICE, WASHROOM AMD KITCHEN RENOVATIONS

1883 KING STREET EAST

HAMILTON, ONTARIO L8K 1V9

CLIENT: HOLY CROSS CROATIAN ROMAN CATHOLIC CHURCH

PROJECT No.: 2021-15

DATE: MARCH 24, 2022 ISSUED FOR TENDER

ARCHITECT:

GRGURIC ARCHITECTS INCORPORATED

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ENGINEERS: RM Engineering Inc.

RM ENGINEERING

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SPECIFICATIONS

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End of Section

PART 1 - GENERAL

1. Name of General Contractor

1. Name: _____
2. Address: _____
3. Phone: _____
4. Email: _____

2. Name of Project

Holy Cross Croatian Parish Office, Washroom and Kitchen Renovations
1883 King Street East, Hamilton, ON L8K 1V9

3. Addressed to Architect

Grguric Architects Incorporated
28 King Street East, Unit B
Stoney Creek, ON L8G 1J8

4. Tender Amount

We, the undersigned General Contractors, having visited the Site and examined all conditions affecting the work, propose to furnish all materials, labour and equipment required to construct the project according to all Contract Documents including addenda numbered_____ for the stipulated price of:

General Trades: _____ Dollars

Mechanical: _____ Dollars

Electrical: _____ Dollars

CONTRACT PRICE _____ **Dollars**

The Contract Price includes all applicable taxes and duties but excludes the H.S.T.
This price will remain in effect for a period of sixty (60) days after Tender Closing.

Signed by_____

Signature of Authorized Officer of Company_____

Dated,_____

1.5 Cash Allowance

The Stipulated Sum includes the Cash Allowance specified in Section 01020.

1.6 Bonds

Bonding not required.

1.7 Construction Schedule

Should this tender be accepted on or prior to **April 19, 2022**, the contract will be substantially performed no later than **September 7, 2022**, and the contract will be completed no later than **September 20, 2022**.

1.8 Proposed Subcontractors

.1 The following is my List of Subcontractors:

MASONRY _____

MISCELLANEOUS METAL _____

MILLWORK _____

CAULKING AND SEALING _____

DOORS AND FRAMES _____

DRYWALL _____

FLOORING _____

ACOUSTIC CEILINGS _____

PAINTING _____

MECHANICAL _____

ELECTRICAL _____

End of Tender Form

PART 1 - GENERAL

1.1 Tenders

1. Sealed Tenders are invited for the supply of all labour, materials, equipment and service to complete the above noted project, in accordance with the Drawings and Specifications as prepared by Grguric Architect Incorporated, Stoney Creek, Ontario.

2. Tenders for the work will only be accepted on the special forms provided for this purpose by the Architect.

3. In the receipt of Tenders for the work, no obligation is incurred to accept the lowest or any proposal. The Owner reserves the right to refuse any of all Tenders for any subdivision of the work. Each Bid must be construed to cover all of the work of the trade bid, for notwithstanding the fact, that the Bid in recapitulating the same may omit some parts.

4. The Owner reserves the power and right to reject Tenders received from parties who cannot show a reasonable acquaintance with, and preparation for the proper performance of the class of work herein specified and shown on the drawings. Evidence of such competency must be furnished by the Tenderers when requested to do so.

5. Tenders containing escalation clauses will not be considered.

6. Tenderers must furnish all information requested on the Tender Form and should any uncertainty arise as to the proper manner of completing the Form, the Architect will give the requisite information. Tender Forms must be completed in a legible manner without alterations or erasures. Incomplete Tenders will not be considered.

7. Tenders must remain open for acceptance for a period of sixty (60) days and until a formal Contract for the work is executed by the successful Tenderer, as approved by the Owner.

8. Incorporated Companies must attach Corporate Seal, and Signatures of proper Officers must be affixed.

9. Existing Building and Site:

    .1 The existing Building and portions of the site will be occupied during construction. The hall where the work is taking place will not be occupied during construction.
    .2 All work on the renovations should not interfere with the daily access and function of the existing building.
    .3 All areas within the existing building must remain usable for their purpose during construction.
    .4 All dispositions shall be taken to prevent dust, noise and any disturbance to the existing church operations.
    .5 The Contractor shall review with the church administration, on a daily basis all concerns regarding potential safety issues and any disturbance to the church operation and take all appropriate measures immediately at no extra cost to the contract.

1.2 Tender Closing Date

Final Tender Form must be **emailed** to Grguric Architects Incorporated - **office@2gai.com**
Not later than 2:00 p.m. local time, Wednesday, **April 13, 2022**

1.3 Subcontractor

1. The Tenderer must be responsible that all materials and labour called for in the Specifications and Drawings (and any Addenda or changes thereto) are included in the Tender. The Tenderer to state the names of all subcontractors and manufacturers as called for on the Tender Form. The List of Subcontractors and manufacturers set forth **are not to be altered or changed,** except as may be directed by the Architect who may require that an alternative subcontractor be employed at the time of the signing of the Contract, provided that the necessary adjustment is made to the Contract Amount.

1.4 Contract

1. The successful Tenderer is to be required to execute the Canadian Standard Construction Document Stipulated Price Contract CCDC 2, 2008 to include amendments thereto, as set out in the Amendments to General Conditions.

2. The successful Tenderer is to execute the said formal contract as called for within ten (10) days after notification of the acceptance of his Tender.

1.5 Completion Date

1. The work is to be carried to completion as rapidly as possible, consistent with good building practice and reasonable economy ready for the Owner's full occupancy in the time stated in the Tender.

2. The term "Completion" is understood to mean that the work of the Contract has been completed, including all items of the Architect's Deficiency List, to the Architect's satisfaction and the work accepted by the Owner.

1.6 Sales Taxes

1. The Tender Amount shall include all Provincial Sales Taxes, Excise Taxes and Government Duties on all materials required for the completion of the work of the Contract, provided that same are in force at the time of Contract signing, but excludes the H.S.T.

2. In the event of a change being made in the amount of taxes or duties, after the execution of the Contract, the amount of the Contract will be adjusted either more or less in conformity with the changes.

1.7 Drawings & Specifications

1. The drawings hereinafter referred to will be those listed in this Specification, together with such other working drawings as may be issued by the Architect during the progress of the work.

2. Tenderers must examine the Architectural and Structural, Mechanical and Electrical Drawings and Specifications, and fully inform themselves regarding the requirements, conditions and limitations pertaining to the work of the Contract and include and allow for accordingly in the preparation of their Tender.

3. Tenderers must check the set of Drawings and Specifications issued to them for Tendering purposes to ensure that they are complete, and all drawings are included, as listed in the List of Drawings, and all Trades and Pages are included in the Specifications, as listed in the Index.

1.8 Questions Re: Drawings & Specifications

1. Tenderers finding discrepancies in, or omissions from the Drawings and Specifications, or in doubt as to the meaning and intent of any part thereof, may submit questions for clarification to the Architect only through the General Contractors selected to bid on this project. Phone calls will not be entertained. If necessary, written instructions or explanations in the form of Addenda will be sent by the Architect to all General Contractors tendering.

2. Submit questions by email to office@2gai.com to the attention of John Grguric. Last day for questions is April 11, 2022.

   The information contained in the Addenda supersedes and amends the Drawings, Specifications and Schedules, as set forth therein. Tenderers must include and allow for addenda instructions and information accordingly. Tenderers must state on the Tender Form in the space provided, the numbers of all Addenda received and included for, by them in the preparation of the Tender.

1.9 Examination of Site

1. Tenderers must visit and examine the site and satisfy themselves as to the conditions of the site, the means of access to it and the nature and quantity of work required, and no allowance will be made by reason of any error or neglect on complying with these requirements.

2. A MANDATORY site visit for all pre-qualified General Contractors will be on **March 29, 2022 at 3:00 pm.**

1.10 Pre-qualified Contractors

Only General Contractors invited to bid on this project may submit their tender documents.

End of Section

SUPPLEMENTARY CONDITIONS

The Standard Construction Document CCDC-2 2008 for 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 12 inclusive, governing same is hereby made part of these *Contract Documents*, with the following amendments, additions and modifications.

AGREEMENT BETWEEN OWNER AND CONTRACTOR

ARTICLE A-3 – CONTRACT DOCUMENTS

3.1 Add the following to the list of *Contract Documents* in paragraph 3.1:

- CCDC 2 – 2008, Supplementary Conditions
- *General Specifications*
- Technical Specifications
- Drawings
- Tender Addenda
- Tender

ARTICLE A-5 – PAYMENT

5.1 Amend the first sentence of paragraph 5.1, so that it reads as follows:

Subject to the provisions of the *Contract Documents*, and in accordance with legislation and statutory regulations respecting holdback percentages and where such legislation or regulations do not exist or apply, subject to a holdback of 10% and subject to a 2% deficiency holdback (if deficiency exists) to the Owner moneys shall be in Canadian funds.

5.1.3 Amended paragraph 5.1.3 so that it reads as follows:

Upon receipt of the Consultant's final certificate for payment, pay to the *Contractor* the unpaid balance of the Contract Price Less the 2% holdback for deficiency issues as per 5.1 accumulated from previous progress draws to the contract.

5.3.1 Delete paragraph 5.3.1 and 5.3.2 in its entirety.

ARTICLE A-9 – CONFLICT OF INTEREST

Add new Article A-9 – Conflict of Interest:

9.1 The *Contractor*, all of the *Subcontractors,* 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 includes 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 employee or previous employee's employment contract or the previous employer's conflict of interest policy, as it may be amended from time to time.

9.4 A breach of this Article 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.

ARTICLE A-10 – CONFIDENTIALITY

Add new Article A-10 – Confidentiality:

10.1 The *Contractor* agrees to ensure that it shall, both during or following the term of the *Contract*, maintain the confidentiality and security of all *Confidential Information* and *Personal Information*, and that it shall not directly or indirectly disclose, destroy, exploit, or use any *Confidential Information* or *Personal Information*, except where required by law, without first obtaining the written consent of the *Owner*. The *Contractor* may disclose any portion of the *Contract Documents* or any other information provided to the *Contractor* by the *Owner* to any *Subcontractor* or *Supplier* if the *Contractor* discloses only such information as is necessary to fulfill the purposes of the *Contract* and the *Contractor* has included a commensurate confidentiality provision in its contract with the *Subcontractor* or *Supplier*. The *Contractor* acknowledges that it will comply with all requirements at law with respect to the handling of *Personal Information* and *Confidential Information*. The *Contractor* acknowledges that the *Owner* is bound by the provisions of the *Municipal Freedom of Information and Protection of Privacy Act* ("*MFIPPA*"). The *Contractor* further acknowledges that the *Owner* may be required to disclose any or all of the *Confidential Information* and *Personal Information* in the event that it is compelled to do so by law, through a request under *MFIPPA*, or by the rules of any applicable regulatory authority.

DEFINITIONS

Add the following definitions:

0. As-Built Drawings

As-Built Drawings means drawings prepared by the Contractor by marking on a copy of the Drawings the changes from the Drawings which occur during construction including, but are not limited to the exact location of major building components that were shown generally on the Drawings.

2a. 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*.

12b. Personal Information

Personal Information has the same definition as in subsection 2(1) of *MFIPPA* and includes an individual's name, address, age, date of birth, sex, and religion, whether recorded in printed form, on film, by electronic means, or otherwise and disclosed to the *Contractor*.

GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT

1.1 Where a General Condition or paragraph of the General Conditions of the Stipulated Price Contract is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, and the numbering of the deleted item will be retained, unused.

GC 1.1 CONTRACT DOCUMENTS

.1 Add new sentence to the end of paragraph 1.1.6:

The S*pecifications* 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 *Consultant* to settle disputes among the *Subcontractors* and *Suppliers* or as between them and the *Contractor* with respect to such divisions.

.2 Add new subparagraph 1.1.7.5:

1.1.7.5 noted materials and annotations shall take precedence over graphic indications*.*

.3 Delete paragraph 1.1.8 in its entirety and substitute new paragraph 1.1.8:

1.1.8 The *Owner* shall provide the *Contractor*, without charge, two (2) copies of the *Contract Documents plus Digital copy of all Contract Documents.*

GC 1.3 RIGHTS AND REMEDIES

.1 Delete the word "No" from the beginning of paragraph 1.3.2 and substitute the words:

"Except with respect to the notice requirements set out in paragraphs 6.4.1, 6.5.4, and 6.6.1, no …".

GC 1.4 ASSIGNMENT

.1 Delete paragraph 1.4.1 in its entirety and substitute new paragraph 1.4.1:

1.4.1 The *Owner* may assign the *Contract* or a portion thereof without the consent of the *Contractor*. The *Contractor* may not assign the *Contract* or a portion thereof without the consent of the *Owner*, and the granting of such consent shall be in the *Owner's* absolute discretion.

GC 2.4 DEFECTIVE WORK

.1 Add new subparagraphs 2.4.1.1 and 2.4.1.2:

2.4.1.1 The *Contractor* shall rectify, in a manner acceptable to the *Owner* and the *Consultant*, all defective work and deficiencies throughout the *Work*, whether or not they are specifically identified by the *Owne*r or the *Consultant*.

2.4.1.2 When applicable, the *Contractor* shall give priority to the correction of any defective work or deficiencies which the

Owner determines adversely affect its day-to-day operations.

GC 3.1 CONTROL OF THE WORK

.1 Add new paragraph 3.1.3:

3.1.3 Prior to commencing the *Work*, the *Contractor* shall verify, at the *Place of the Work*, all relevant measurements and levels necessary for the proper completion 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 in the *Contract Documents*, the *Contractor* shall immediately notify the *Consultant* in writing and obtain *Supplemental Instructions* from the *Consultant* before proceeding with any part of the affected work.

GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

.1 Delete subparagraph 3.2.2.1 in its entirety

.2 Delete subparagraph 3.2.2.2 in its entirety

.3 Add new subparagraph 3.2.3.4:

3.2.3.4 Subject to General Condition 9.4 - CONSTRUCTION SAFETY, where paragraph 3.2.4 of General Condition 3.2 - CONSTRUCTION BY OWNER OR OTHER CONTRACTORS applies, for the *Owner's* own forces and for other contractors performing work identified in the *Contract Documents*, assume overall responsibility for compliance with all aspects of the applicable health and safety legislation in the *Place of the Work*, including all of the responsibilities of the constructor as that term is defined in the *Occupational Health and Safety Act*.

GC 3.4 DOCUMENT REVIEW

.1 Delete paragraph 3.4.1 in its entirety and substitute new paragraph 3.4.1:

3.4.1 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 paragraph 3.14.1 of the *Contract*. 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. If the *Contractor* does discover any error, inconsistency, or omission in the *Contract Documents,* the *Contractor* shall not proceed with the work affected until the *Contractor* has received corrected or missing information from the *Consultant*.

.2 Add new paragraph 3.4.2:

3.4.2 If, at any time, the *Contractor* finds errors, inconsistencies, or omissions in the *Contract Documents* or has any doubt as to the meaning or intent of any part thereof, the *Contractor* shall immediately notify the *Consultant*, and request a *Supplemental Instruction, Change Order,* or *Change Directive,* as the case may require. Neither the *Owner* nor the *Consultant* will be responsible for the consequences of any action of the *Contractor* based on oral instructions.

GC 3.5 CONSTRUCTION SCHEDULE

.1 Delete paragraph 3.5.1 in its entirety and substitute new paragraph 3.5.1:

3.5.1 The *Contractor* shall,

.1 within 15 days following the award of the *Contract*, prepare and submit to the *Owner* and the *Consultant* for their review and acceptance, a construction schedule 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.* Unless otherwise agreed to in writing, in advance by the *Owner* and the *Contractor*, when required by the *Specifications* to employ construction scheduling software, the *Contractor* shall employ the software Microsoft Project or a comparable software as acceptable to the *Consultant* or the *Owner*, in generating the construction schedule, which permits the progress of the *Work* to be monitored in relation to the critical path established in the schedule. The *Contractor* shall provide the construction schedule and any successor or revised schedules to the *Owner* in electronic format and paper copy. When required by the *Specifications* to employ construction scheduling software, the *Contractor* shall provide the construction schedule to

the *Owner* in editable format, together with a record version in PDF format. 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 and equipment, as are necessary to maintain progress under the accepted baseline construction schedule or any successor or revised schedule accepted by the *Owner* pursuant to General Condition 3.5 – CONSTRUCTION SCHEDULE;

.3 monitor the progress of the *Work* on a weekly basis relative to the baseline construction schedule, or any successor or revised schedule accepted by the *Owner* pursuant to General Condition 3.5 – CONSTRUCTION SCHEDULE, update the schedule on a bi-weekly basis and advise the *Consultant* and the *Owner* in writing of any variation from the baseline or slippage in the schedule; and

.4 if, after applying the expertise and resources required under subparagraph 3.5.1.2, the *Contractor* forms the opinion that the variation or slippage in schedule reported pursuant to subparagraph 3.5.1.3 cannot be recovered by the *Contractor*, it shall, in the same notice, indicate to the *Consultant* and the *Owner* if the *Contractor* intends to apply for an extension of *Contract Time* as provided in PART 6 of the General Conditions - CHANGES IN THE WORK.

.2 Add new paragraph 3.5.2:

3.5.2 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 subparagraph 3.5.1.3, the *Contractor* shall take appropriate steps to cause the actual progress of the *Work* to conform to the schedule or minimize the resulting delay and shall produce and present to the *Owner* and the *Consultant* a recovery plan demonstrating how the *Contractor* will achieve the recovery of the schedule. If the *Contractor* intends to apply for a change in the *Contract Price* in relation to a schedule recovery plan, then the *Contractor* shall proceed in accordance with General Condition 6.5 – DELAYS.

GC 3.6 SUPERVISION

.1 Delete paragraph 3.6.1 in its entirety and substitute new paragraph 3.6.1:

3.6.1 The *Contractor* shall provide all necessary supervision and appoint competent representatives who shall be in attendance at the *Place of the Work* while work is being performed. The appointed representatives shall not be changed except for valid reasons, and upon the *Contractor* obtaining the *Owner's* written consent, which consent will not be unreasonably withheld.

.2 Add new paragraph 3.6.3:

3.6.3 The *Owner* may, at any time during the course of the *Work*, request the replacement of the appointed representative(s), where the grounds for the request involve conduct which jeopardizes the safety and security of the site or the *Owner's* operations. Immediately upon receipt of the request, the *Contractor* shall make arrangements to appoint an acceptable replacement.

GC 3.8 LABOUR AND PRODUCTS

.1 Delete paragraph 3.8.2 and replace with new paragraph 3.8.2:

3.8.2 Unless otherwise specified in the Contract Documents, Products provided shall be new and as specified. The *Contractor* shall not provide substitutions for specified Products without the express written consent of the Consultant and the Owner.

GC 3.11 USE OF THE WORK

.1 Add new paragraph 3.11.3:

3.11.3 The *Contractor* shall abide by and enforce directives and policies of the *Owner* and the County of Brant, including any by-laws, regarding signs, advertisements, fires and smoking at the *Place of the Wor*k as directed by the *Owner* or required by law.

Add new General Conditions 3.14 and 3.15:

GC 3.14 PERFORMANCE BY CONTRACTOR

3.14.1 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 judged against 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*.

3.14.2 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 that would have a material effect on the financial ability of the *Contractor* to perform its work under the *Contract*.

GC 3.15 RIGHT OF ENTRY

3.15.1 The *Owner* shall have the right to enter or occupy the *Work* in whole or in part for the purpose of placing fittings and equipment or for other uses before *Substantial Performance of the Work*, if, in the reasonable opinion of the *Consultant* and *Contractor*, such entry or occupation does not prevent or substantially interfere with the *Contractor's* completion of the *Contract* within the *Contract Time*. Such entry or occupation shall not be considered as acceptance of the *Work* or in any way relieve the *Contractor* from responsibility to complete the *Contract*.

GC 4.1 CASH ALLOWANCES

.1 Delete paragraph 4.1.4 in its entirety and substitute new paragraph 4.1.4:

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, 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*.

.2 Delete paragraph 4.1.5 in its entirety and substitute new paragraph 4.1.5:

4.1.5 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.

.3 Add new paragraph 4.1.8:

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.

GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

.1 Revise the heading, **"GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER"** to read, **"GC 5.1 FINANCING INFORMATION REQUIRED"**.

.2 Delete paragraph 5.1.1 in its entirety and substitute new paragraph 5.1.1:

5.1.1 The *Owner* and *Contractor* shall provide each other with timely *Notice in Writing* of any material change in their financial ability to fulfil their respective obligations under the *Contract*.

.3 Delete paragraph 5.1.2 in its entirety.

GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

.1 Add to the end of paragraph 5.2.7 the following new sentence:

Any *Products* delivered to the *Place of the Work* but not yet incorporated into the *Work* shall remain at the risk of the

Contractor notwithstanding that title has passed to the *Owner* pursuant to General Condition 13.1 - OWNERSHIP OF MATERIALS.

.2 Add new paragraphs 5.2.8, 5.2.9, and 5.2.10:

5.2.8 As a condition of receiving each progress payment after the first, the *Contractor* shall submit a Statutory Declaration on an original form CCDC Document 9A-2001, attesting to the truth of the statements made therein.

5.2.9 The *Contractor* shall submit a Workplace Safety & Insurance Board Clearance Certificate with each application for progress payment.

5.2.10 The *Contractor* shall prepare current *As-Built Drawings* during the course of the *Work*, 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* may retain a reasonable amount and up to a maximum of the amounts outlined in paragraph 5.4.6, from any progress payment for the value of the *As-Built Drawings* not presented for review until the *As-Built Drawings* are presented for review.

GC 5.3 PROGRESS PAYMENT

.1 Delete subparagraph 5.3.1.3 in its entirety and substitute new subparagraph 5.3.1.3:

.3 the *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 of the Agreement – PAYMENT no later than 30 calendar days after the date of a certificate of payment issued by the *Consultant.*

GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK

.1 Delete paragraph 5.4.3 in its entirety and substitute new paragraph 5.4.3:

5.4.3 Immediately prior to the issuance of the certificate of *Substantial Performance of the Work*, the *Contractor*, in consultation with the *Consultant*, shall establish reasonable dates for finishing the *Work* and correcting deficiencies.

.2 Add new paragraphs 5.4.4, 5.4.5, 5.4.6, 5.4.7, 5.4.8 and 5.4.9:

5.4.4 Within 7 calendar days of receiving a copy of the certificate of *Substantial Performance of the Work* signed by the *Consultant*, the *Contractor* shall publish a copy of the certificate in a construction trade newspaper (as that term is defined in the *Construction Lien Act*) and shall provide to the *Consultant* and the *Owner* the date of publication and the name of the construction trade newspaper in which the publication occurred. If the *Contractor* fails to comply with this provision, the *Owner* may publish a copy of the certificate and charge the *Contractor* with the costs so incurred.

5.4.5 Prior to submitting its written application for *Substantial Performance of the Work*, the *Contractor* shall submit to the *Consultant* all:

.1 guarantees;
.2 warranties;
.3 certificates;
.4 testing and balancing reports;
.5 distribution system diagrams;
.6 spare parts;
.7 maintenance manuals;
.8 samples;
.9 existing reports and correspondence from authorities having jurisdiction in the *Place of the Work*; and other materials or documentation required to be submitted under the *Contract*, together with written proof acceptable to the *Owner* and the *Consultant* that the *Work* has been substantially performed in conformance with the requirements of municipal, governmental, and utility authorities having jurisdiction in the *Place of the Work*.

5.4.6.1 Where the *Contractor* is unable to deliver the documents and materials described in paragraph 5.4.5, then, provided that none of the missing documents and materials interferes with the use and occupancy of the *Project* in a material way, the failure to deliver shall not be grounds for the *Consultant* to refuse to certify *Substantial Performance of the Work*. If the *Contractor* fails to deliver any of the materials required in subparagraphs 5.4.5.7 or 5.4.5.8, the *Consultant* shall retain from the payment of holdback under General Condition 5.5 - PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK, the amount set out in paragraph 5.4.7., until the materials

required pursuant to subparagraphs 5.4.5.7 or 5.4.5.8 are delivered.

5.4.6.2 Should the *As-Built Drawings* not be delivered in accordance with subparagraph 5.2.10 or any documents or materials not be delivered in accordance with paragraph 5.4.5 by the earlier of 60 days following publication of the certificate of Substantial Performance of the Work and the submission of the Contractor's application for final payment under paragraph 5.7.1 of General Condition 5.7 – FINAL PAYMENT, then the amount previously retained pursuant to paragraph 5.2.10 or 5.4.7 shall be forfeit to the *Owner* as compensation for the damages deemed to have been incurred by the *Owner*, and not as a penalty, arising from the failure to deliver the documents or materials, and the *Contract Price* shall be reduced accordingly.

5.4.9 Together with the submission of its written application for *Substantial Performance of the Work*, the *Contractor* shall submit to the *Consultant* and to the *Owner* a statutory declaration setting forth in reasonable detail any then outstanding and unresolved disputes or claims between the *Contractor* and any *Subcontractor* or *Supplier,* including any claims allegedly arising from delay, which are, directly or indirectly, related to any then outstanding or anticipated disputes or claims between the *Contractor* and the *Owner,* and this disclosure shall, at a minimum:

.1 identify the parties involved;

.2 identify the amount in dispute;

.3 provide a brief statement summarizing the position of each party;

.4 include copies of any correspondence or documents in support of either party's position;

.5 include copies of any documents of any court or arbitration process related to the matter;

.6 identify the dispute or claim between the *Contractor* and the *Owner* to which the matter relates; and

.7 include a copy of any written agreement or a summary of any oral agreement between the parties related to resolution of the matter.

The disclosure requirements detailed herein are of a continuing nature and survive completion of the *Work*. Accordingly, the *Contractor* shall supplement the information provided with the original statutory declaration with additional materials pertaining to new or existing disputes or claims, as they become available. The *Contractor* shall not be entitled to recover from the *Owner* any amount pertaining to any claim or dispute referred to in this paragraph, if the provisions of this paragraph have not been fully complied with. For greater certainty, the *Contractor* is not obliged to make the aforementioned disclosure with respect to any dispute or claim that is not related to or does not touch upon any then outstanding and unresolved dispute or claim between the *Contractor* and the *Owner*.

GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK

.1 Add new subparagraph 5.5.1.3:

5.5.1.3 submit a statement that no written notices of lien have been received by it.

.2 Delete from line 1 of paragraph 5.5.2, the words, “the statement” and substitute the words:

“the documents”.

.3 Delete paragraph 5.5.3 in its entirety.

GC 5.7 FINAL PAYMENT

.1 Delete paragraph 5.7.1 in its entirety and substitute new paragraph 5.7.1:

5.7.1 When the *Contractor* considers that the *Work* is completed, the *Contractor* shall submit an application for final payment. The *Contractor’s* application for final payment shall be accompanied by any documents or materials not yet delivered pursuant to paragraph 5.4.5. The *Work* shall be deemed not to be performed until all of the aforementioned documents have been delivered.

.2 Delete from the first line of paragraph 5.7.2 the words, “calendar days” and substitute the words:

“*Working Days*”.

.3 Delete from the second line of paragraph 5.7.4 the words, “calendar days” and substitute the words:

“*Working Days*”.

.4 Add new paragraph 5.7.5:

5.7.5 Prior to the release of the finishing holdback provided for under the *Construction Lien Act*, the *Contractor* shall submit:

.1 *Contractor’s* written request for release of the finishing holdback, including a statement that no written notices of lien have been received by it;
.2 a Statutory Declaration CCDC 9A-2001;
.3 a final Workplace Safety & Insurance Board Clearance Certificate.

GC 6.2 CHANGE ORDER

.1 Add new paragraph 6.2.3:

The *Contractor* may apply mark-ups for overhead and profit to approved changes to the *Contract Price* as follows:

.1 compensation for overhead and profit shall be determined by multiplying the approved change in *Contract Price* by 0.10.

GC 6.3 CHANGE DIRECTIVE

.1 Delete paragraph 6.3.3 in its entirety.

.2 Delete subparagraph 6.3.7.1(1) and replace it with:

“(1) carrying out the work, including necessary supervisory services;”

.3 Delete subparagraph 6.3.7.1(2) and replace it with

“(2) intentionally left blank.”

.4 Amend subparagraph 6.3.7.1(3) so that, as amended, it reads:

“(3) engaged in the preparation of *Shop Drawings,* fabrication drawings, coordination drawings and *As-Built Drawings*: or…”

.5 Amend subparagraph 6.3.7.1(4) so that, as amended, it reads:

“(4) including clerical staff engaged in processing changes in the *Work*.”

GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

.1 Add new paragraph 6.4.5:

6.4.5 If the *Contractor* was given access to the *Place of the Work* prior to the submission of the bid on which the *Contract* was awarded, then the *Contractor* confirms that it carefully investigated the *Place of the Work* and, in doing so, applied to that investigation the degree of care and skill required by paragraph 3.14.1. In those circumstances, notwithstanding the provisions of paragraph 6.4.1, the *Contractor* is not entitled to an adjustment to the *Contract Price* or to an extension of the *Contract Time* for conditions which could reasonably have been ascertained by the *Contractor* by such careful investigation, or which could have been reasonably inferred from the material provided with the *Contract Documents*. In those circumstances, should a claim arise, the *Contractor* will have the burden of establishing that it could not have discovered the materially different conditions from a careful investigation, because of restrictions placed on its access or inferred the existence of the conditions from the material provided with the *Contract Documents*.

GC 6.5 DELAYS

.1 Delete the period at the end of paragraph 6.5.1, and substitute the following words:

", but excluding any consequential, indirect or special damages."

.2 Delete the period at the end of paragraph 6.5.2, and substitute the following words:

", but excluding any consequential, indirect or special damages."

.3 Delete subparagraph 6.5.3.3 and place the word "or" at the end of 6.5.3.2.

.4 Add new paragraph 6.5.6.

6.5.6 If the *Contractor* is delayed in the performance of the *Work* by abnormally adverse weather conditions beyond a period of 3 calendar days or, in any event, which has the effect or the possible effect of delaying the *Contract Time*, the *Contractor* shall immediately notify the *Consultant* in an attempt to mitigate any delays to the *Contract Time* as a result of the abnormally adverse weather conditions.

.5 Add new paragraph 6.5.7.

6.5.7 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 the *Contract Time* shall be extended for such reasonable time as the *Consultant* may decide in consultation with 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, the cost of all additional services required by the *Owner* from the *Consultant* or any subconsultants, project managers, or others employed or engaged by the *Owner*. The *Contractor* acknowledges that the *Contract Time* is a material component to the Contract and has relied upon the *Contract Time* as an enticement into this Contract. Reasonable costs and damages incurred by the *Owner* as a result of the delays identified in this Contract may also include, without limitation, student and staff relocation costs and expenses, communication resources associated labour costs in dealing with *Owner's* staff relocation issues resulting from the delay and any and all other associated, consequential and reputational damages resulting therefrom.

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

.1 Revise the heading, **"OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT"** to read, **"OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, SUSPEND THE WORK OR TERMINATE THE CONTRACT"**

.2 Delete paragraph 7.1.6 and add new paragraphs 7.1.6, 7.1.7, 7.1.8, 7.1.9, 7.1.10, and 7.1.11:

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 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 180 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 General Condition 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, SUSPEND THE WORK OR TERMINATE THE CONTRACT or General Condition 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 General Condition 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, SUSPEND THE WORK OR TERMINATE THE CONTRACT or General Condition 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* obligation 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

.1 Delete paragraph 7.2.2 in its entirety.

.2 Delete subparagraph 7.2.3.1 in its entirety.

.3 Delete subparagraph 7.2.3.3 in its entirety and substitute new subparagraph 7.2.3.3:

7.2.3.3 the *Owner* fails to pay the *Contractor* when due the amount certified by the *Consultant* or awarded by arbitration or a court, except where the *Owner* has a bona fide claim for set off, or

.4 Delete from subparagraph 7.2.3.4, the words:

", except for General Condition 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER,"

.5 Delete from the end of paragraph 7.2.4 the words "or terminate the *Contract*" and substitute the words:

"until the default is corrected, provided, however, that in the event of such suspension, the provisions of subparagraph 7.1.10 shall apply. If the *Contractor's Notice in Writing* to the *Owner* was given pursuant to subparagraph 7.2.3.3, then, 180 days after the delivery of the *Notice in Writing*, the *Contractor* may terminate the *Contract,* provided, however, that in the event of such termination, the provisions of subparagraph 7.1.10 shall apply."

GC 8.1 AUTHORITY OF THE CONSULTANT

.1 Delete last sentence of 8.1.3 and substitute the following sentence:

If it is subsequently determined that such instructions were at variance with the *Contract Documents*, the *Owner* shall pay the *Contractor* costs incurred by the *Contractor* in carrying out such instructions which the *Contractor* was required to do beyond the requirements of the *Contract Documents*, including costs resulting from interruption of the *Work*.

GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION

.1 Delete paragraphs 8.2.6, 8.2.7, and 8.2.8 in their entirety and substitute new subparagraph 8.2.6:

8.2.6 When a dispute has not been resolved through negotiation or mediation, within 10 *Working Days* after the date of termination of the mediated negotiations under paragraph 8.2.5, either party may give a *Notice in Writing* to the other party and to the *Consultant* inviting the other party to agree to submit the dispute to be finally resolved by arbitration, pursuant to provisions of the *Arbitration Act, 1991*. If the other party wishes to accept the invitation to submit the dispute to arbitration, it shall so indicate by the delivery of a responding *Notice in Writing* within 10 *Working Days* of receipt of the invitation. If, within the required times, no invitation is made or, if made, is not accepted, either party may refer the dispute to the courts or to any other form of dispute resolution, including arbitration, which the parties may agree to use.

GC 9.1 PROTECTION OF WORK AND PROPERTY

.1 Delete subparagraph 9.1.1.1 in its entirety and substitute new subparagraph 9.1.1.1:

9.1.1.1 errors in the *Contract Documents* which the *Contractor* could not have discovered applying the standard of care described in paragraph 3.14.1;

.2 Delete paragraph 9.1.2 in its entirety and substitute the following new paragraph 9.1.2:

9.1.2 Before commencing any *Work*, the *Contractor* shall determine the locations of all underground 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.

.3 Add new paragraph 9.1.5:

9.1.5.1 With respect to any damage to which paragraph 9.1.4 applies, the *Contractor* shall neither undertake to repair or replace any damage whatsoever to the work of other contractors, or to adjoining property of the *Owner* or any third party, 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.

.4 Add new paragraph 9.1.6:

9.1.5.2 The *Contractor* shall be responsible for securing the *Place of Work* at all times and shall take all reasonable precautions necessary to protect the *Place of Work*, its contents, materials (including *Owner*-supplied materials) and the public from loss or damage during and after working hours. Where the Consultant or the *Owner* deems the provision of security guard services to be necessary, the *Contractor* shall provide those services at the *Contractor's* expense.

GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

.1 Add new subparagraph 9.2.5.5

9.2.5.5 take all reasonable steps to mitigate the impact on Contract Time and Contract Price

.2 Delete subparagraph 9.2.7.4 in its entirety.

.3 Add to subparagraph 9.2.8.3 immediately before the comma, the following new words:

"and as a result of the delay"

GC 9.4 CONSTRUCTION SAFETY

.1 Delete paragraph 9.4.1 in its entirety and substitute new paragraph 9.4.1

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 applicable construction health and safety legislation and shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the *Work*.

.2 Add new paragraphs 9.4.2, 9.4.3 and 9.4.4:

9.4.2 Prior to the commencement of the *Work*, the *Contractor* shall submit to the *Owner*:

.1 a current Workplace Safety & Insurance Board 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 *Occupational Health and Safety Act*.

9.4.3 The *Contractor* shall indemnify and save harmless the *Owner*, its agents, officers, directors, employees, consultants, successors, appointees, and assigns from and against the consequences of any and all safety infractions committed by the *Contractor* under the *Occupational Health and Safety Act*, 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, provided that the indemnity contained in this paragraph shall be limited to costs and damages resulting directly from such infractions and shall not extend to any consequential, indirect or special damages.

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. Prior to admission to the *Place of the Work*, the *Contractor* may, as a condition of admission, require any other contractor or the *Owner's* own forces to sign a written acknowledgement in the following form:

Acknowledgement

The undersigned acknowledges that the *Work* it will perform on behalf of the *Owner* requires it to enter a *Place of the Work* which is under the total control of a *Contractor* that has a *Contract* with the *Owner*, pursuant to which the *Contractor* has assumed overall responsibility for compliance with all aspects of the applicable health and safety legislation, including all the responsibilities of the "constructor" under the *Occupational Health and Safety Act*, as well as responsibility to co-ordinate and schedule the activities of our *Work* with the *Work* of the *Contractor*

under its *Contract*. The undersigned agrees to comply with the *Contractor*'s directions and instructions with respect to health, safety, co-ordination, and scheduling and acknowledges that its failure to do so will be cause for termination of employment or of the undersigned's *Contract* with the *Owner,* as the case may be. The undersigned also agrees to have the *Contractor* named as an additional insured on any comprehensive liability insurance policy, where such insurance is required.

_____

Name:
Title:
Date:

GC 9.5 MOULD

.1 Add to subparagraph 9.5.2.3 immediately before the comma, the following new words:

"and as a result of the delay"

.2 Delete subparagraph 9.5.3.4 in its entirety.

GC 10.1 TAXES AND DUTIES

.1 Add new paragraph 10.1.3:

10.1.3 Where the *Owner* is entitled to an exemption, reduction 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 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

.1 Add to the end of paragraph 10.2.4 the following words:

"The *Contractor* shall notify the Chief Building Official or the registered code agency, where applicable, of the readiness, substantial completion, and completion of the

stages of construction set out in the *Ontario Building Code*. The *Contractor* shall be present at each site inspection by an inspector or registered code agency. If any laws, ordinances, rules, regulations, or codes conflict, the more stringent shall govern."

.2 Delete from the first line of paragraph 10.2.5 the word, “The” and substitute the words:

“Subject to paragraph 3.4.1, the”.

GC 10.3 PATENT FEES

.1 Delete paragraph 10.3.2 in its entirety.

GC 10.4 WORKERS’ COMPENSATION

.1 Add to subparagraph 10.4.1 immediately after the first comma, the following new words:

"again with each application for progress payment, and"

.2 Add to the beginning of subparagraph 10.4.2 the following new words:

"The *Contractor* shall ensure that each *Subcontractor* complies with the workers' compensation legislation at the *Place of the Work.*

.3 Add new paragraph 10.4.3:

10.4.3 Where a *Subcontractor* is not required to participate in the insurance plan provided for under the workers’ compensation legislation, the *Contractor* shall require the *Subcontractor* to provide a sworn declaration of its exemption as a condition of the *Subcontractor’s* admission to the *Place of Work*. When requested by the *Owner,* the *Contractor* shall require the *Subcontractor* to provide a letter of exemption under the workers’ compensation legislation.

GC 11.1 INSURANCE

.1 Add new paragraphs 11.1.1(a), (b), (c), (d) and (e)

11.1.1(a) The *Owner* will require the successful candidate to obtain and submit Comprehensive General Liability Insurance in the amount of no less than $5,000,000 for each occurrence or accident and covering all sums which the

Proponent may become legally obligate to pay for damages a result of bodily injury (including death at any time resulting there from) sustained by any person or persons or because of damage to, destruction of, or loss of use of property caused by an occurrence or accident arising out of any operations carried out in connection with this RFP or RFP Process.

11.1.1(b) Vehicle Public Liability and Property Damage insurance, in the amount of $2,000,000 per occurrence, for vehicle used by Proponents or Proponent Team Members (or their respective directors, officers, employees, consultants, Advisors and agents) while on or at the Site.

11.1.1(c) To satisfy this requirement the *Contractor* must provide proof of coverage, by way of a Certificate of Insurance, naming the Roman Catholic Episcopal Corporation of the Diocese of Hamilton in Ontario as the insured, prior to commencement of the project.

11.1.1(d) As a condition of allowing access to the Site, Existing Facilities or any facilities or premises, the Owner reserves the right to require Proponents to provide evidence that the insurance required is in place.

11.1.1(e) If a Proponent proposes to perform any site investigations at the Site or Existing Facilities, the risk related to which may not be fully insure under the above policies, the *Owner* may, in its sole discretion, require the Proponent at its own cost, to obtain insurance additional to that already specified.

.2 Delete paragraph 11.1.2 in its entirety and substitute new paragraph 11.1.2:

11.1.2 In all instances in paragraph 11.1.1 where the *Contractor* is required to obtain insurance coverages naming or jointly naming the *Owner.* Each of the policies of insurance shall also contain a provision requiring not less than 60 days written notice to each named insured prior to cancellation or any change that would reduce coverage. At least 10 calendar days prior to commencement of the *Work* and upon any 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 applicable to the *Work*.

.3 Add new subparagraph 11.1.9:

11.1.9 The parenthetical reference in CCDC 41 - INSURANCE REQUIREMENTS, paragraph 4 which reads: "(excluding flood and earthquake)" is deleted and replaced with the following: "(including flood, earthquake, testing, and commissioning)".

GC 11.2 CONTRACT SECURITY

.1 Delete paragraph 11.2.1 in its entirety.

.2 Delete paragraph 11.2.2 in its entirety.

GC 12.1 INDEMNIFICATION

.1 Delete General Condition 12.1 – INDEMNIFICATION in its entirety and substitute:

12.1 The *Contractor* shall indemnify and hold harmless the *Owner*, the *Consultant*, and their respective agents, appointees, directors, trustees, officers, Project Managers, and employees from and against all claims, demands, losses, expenses, costs, damages, actions, suits or proceedings that arise out of or are attributable to the *Contractor's* performance of the *Contract*. Nothing in this paragraph 12.1, shall limit any claim that the *Owner* may have under the insurance coverage to be provided under General Condition 11.1 - INSURANCE.

.2 Add new paragraph 12.2:

12.2 The indemnity given in paragraph 12.1 shall be honoured by the Contractor and may be asserted and claimed by the parties seeking the benefit of same for a period of six years following the date of Substantial Performance of the Work, as permitted under the Limitations Act, 2004.

GC 12.2 WAIVER OF CLAIMS

.1 Delete the reference to "395 calendar days" in the last line of paragraph 12.2.2 and substitute "120 calendar days".

.2 Delete the last sentence of subparagraph 12.2.3.4 and substitute:

"Substantial defects or deficiencies" mean those defects or deficiencies in the *Work* where the reasonable cost of repair of such defects or deficiencies exceeds:

.1 if the *Contract Price* is $2 million or less, the sum of $50,000, before *Value Added Taxes*;

.2 if the *Contract Price* exceeds $2 million, the sum of $100,000, before *Value Added Taxes*;

but, in any event, a defect or deficiency in the *Work* which affects the *Work* to such an extent or in such a manner that a significant part or the whole of the *Work* is unfit for the purpose intended by the *Contract Documents* shall be deemed to be a "substantial defects or deficiencies" regardless of the cost of repair.

.3 Amend paragraph 12.2.5 by adding ",12.2.3.4" immediately after the reference to paragraph 12.2.3.3.

GC 12.3 WARRANTY

.1 Delete from the first line of paragraph 12.3.2 the word, "The" and substitute the words:

"Subject to paragraph 3.4.1, the…".

Add new PART 13 as follows:

PART 13 OTHER PROVISIONS

GC 13.1 OWNERSHIP OF MATERIALS

13.1.1 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 when notified in writing to do so by the *Consultant*. Notwithstanding that ownership of the *Work* and *Products* may vest in the *Owner*, the risk of all *Work* and *Products* shall remain with the *Contractor* until the *Work* and *Products* are accepted and assumed by the *Owner* as otherwise set out in the *Contract*.

GC 13.2 CONSTRUCTION LIENS

13.2.1 In the event that a claim for lien is registered against the *Project* by a *Subcontractor* or *Supplier*, and provided the *Owner* has paid all amounts properly owing under the *Contract*, then the *Contractor* shall, at its own expense within 10 calendar days, ensure that any and all claims for lien and certificates of action are

discharged, released, or vacated by the posting of security or otherwise.

13.2.2 In the event that the *Contractor* fails to comply with the requirements of paragraph 13.2.1, the *Owner* may fulfil those requirements without *Notice in Writing* to the *Contractor* and set off and deduct from any amount owing to the *Contractor*, all costs and associated expenses, including the costs of posting security and all legal fees and disbursements associated with discharging or vacating the claim for lien or certificate of action and defending the action on a substantial indemnity basis. If there is no amount owing by the *Owner* to the *Contractor*, then the *Contractor* shall reimburse the *Owner* for all of the said costs and associated expenses.

GC 13.3 CONTRACTOR DISCHARGE OF LIABILITIES

13.3.1 In addition to the obligations assumed by the *Contractor* pursuant to General Condition 3.7 – SUBCONTRACTORS AND SUPPLIERS, the *Contractor* agrees to discharge all liabilities incurred by it for labour, materials, services, *Subcontractors* and *Products*, used or reasonably required for use in the performance of the *Work*, except for amounts withheld by reason of legitimate dispute which have been identified to the party or parties, from whom payment has been withheld.

GC 13.4 RECORDS/DAILY REPORTS/DAILY LOGS

13.4.1 The *Contractor* shall maintain and keep accurate *Project* records (which means all tangible records, documents, computer printouts, electronic information, books, plans, *Drawings*, *Specifications*, accounts or other information relating to the *Work*) in its office in accordance with requirements of law, but in any event for not less than 6 years from *Substantial Performance of the Work* or until all claims have been settled. During this time, the *Contractor* shall allow the *Owner* and the *Consultant* access to the *Project* records during normal business hours upon the giving of reasonable notice. The *Contractor* shall ensure that equivalent provisions to those provided herein are made in each subcontract and shall require the *Subcontractor*s and *Suppliers* to incorporate them into every level of contract thereunder for any part of the *Work*.

END OF DOCUMENT

1. Definitions

1. The following Section of this Specification are of the abbreviated type and include incomplete sentences. Definite and indefinite articles have often been omitted and sentences are written in the form of direct instructions to the Contractor without using the phrase `the Contractor shall.' Standard specifications and other quality references inserted govern materials and workmanship without using phrases `conform with,' `conformity therewith,' etc. Omitted words and phrases to be supplied in the same manner as they are when a note appears on the Drawings.

2. The Specifications are separated into Sections for reference convenience only. Such separation must in no instance make Owner or his Consultants arbiter to establish subcontract limits between Contractor and Subcontractor.

3. Provide all items, articles, materials, operations or methods listed, mentioned or scheduled on Drawings and/or in Specifications, including all labour, materials, equipment, tools, services, and incidentals necessary and required to complete the work. Responsibility for breakdown into and extension of subcontracts, including co-ordination of same, rests entirely with the Contractor.

4. Standard Specifications referred to are editions in force at Tender Closing Date.

2. Terminology

1. Consultants are the team of Architects, Engineers and other experts commissioned by the Owner, directly or indirectly, to execute design, contract documents and supervision for the project, including any of their agents or employees.

2. Prime Consultant is the Architect.

3. Contractor is the Firm or Corporation who, having signed the Agreement, has the sole legal responsibility to carry out the work shown or described in the Contract Documents for the Owner, whether contractually assigned to a Subcontractor or supplier, or not.

3. Minimum Standards

1. Unless otherwise specified, work and material to conform or exceed the minimum standards set out in the editions of the Canadian Government Specification Board, Canadian Standards Associations, the Ontario Building Code, Underwriters' Laboratories of Canada, the Canadian Electrical Code, the Local Building Code in force, whichever is applicable.

2. Copies of Standard Specifications referred to in this Specification to be kept on the site.

3. The use of the name (or its abbreviation) of any of the following bodies, accompanied by the reference number of a specification of that body to mean that the entire specification of the body to apply as noted:

AISC: American Institute of Steel Construction;
ASTM: American Society for Testing Materials;
CEC: Canadian Electric Code;
CGSB: Canadian Government Specification Board;
CISC: Canadian Institute of Steel Construction;
CRCA: Canadian Roofing Contractors' Association;
CSA: Canadian Standards Association;
OBC: Ontario Building Code;
ULC: Underwriters' Laboratories of Canada;
CLA: Canadian Lumbermen's Association.

4. Cooperation

1. Each trade to cooperate with the trades of adjacent or affected work. Supply in good time requirements effecting adjacent and underlying work in writing and items to be set or built in. Similarly, heed requirements and build-in items provided by other trades.

2. Take necessary precautions to protect work of other trades from contamination, marring or other damage due to application or installation processes, methods and activities.

3. General Contractor and each trade to cooperate with Contractors which may be assigned or selected by the Owner to perform work under Cash Allowances. Owner reserves the right to assign nonunionized labour to perform work under Cash Allowances, at Owners discretion.

5. Coordination

1. Coordinate the work of all trades in such a manner that each trade co-operates with the trade of adjacent work.

2. Organize weekly job site meetings and send out notices stating time and place to Consultants, subcontractors, Suppliers and all others whose presence is required at the meetings.

3. Take note of all persons attending these meetings and submit to Consultants and Owner, Minutes of these Meetings showing any major decisions made and instructions or information required.

4. Coordinate the Work in this Contract with the work of others awarded work under Cash Allowances.

6. Building Dimensions and Co-ordination

1. Ensure that all necessary job dimensions are taken and all trades are coordinated for the proper execution of the work. Assume complete responsibility for the accuracy and completeness of such dimensions, and for coordination.

2. Verify that all work, as it proceeds, is executed in accordance with dimensions and positions indicated which maintain levels and clearances to adjacent work, as set out by

requirements of the drawings, and ensure that work installed in error is rectified before construction resumes.

3. Check and verify all dimensions referring to the work and the interfacing of all services. Verify all dimensions, with the trade concerned when pertaining to the work of other trades. Be responsible to see that Subcontractors for various trades co-operate for the proper performance of the Work.

4. Avoid scaling directly from the drawings. If there is ambiguity or lack of information, immediately inform the Consultant. Be responsible for any change through the disregarding of this clause.

5. All details and measurements of any work which is to fit or to conform with work installed shall be taken at the building.

6. Advise Consultant of discrepancies and if there are omissions on drawings, particularly reflected ceiling plans and jointing patterns for paving, ceramic tile, or carpet tile layouts, which affect aesthetics, or which interfere with services, equipment or surfaces. DO NOT PROCEED without direction from the Consultant.

7. Ensure that each Subcontractor communicates requirements for site conditions and surfaces necessary for the execution of the Subcontractor's work, and that he provides setting drawings, templates and all other information necessary for the location and installation of material, holes, sleeves, insets, anchors, accessories, fastenings, connections and access panels. Inform other Subcontractors whose work is affected by these requirements and preparatory work.

8. Prepare interference drawings to properly co-ordinate the work where necessitated. Refer to Section 01340.

7. Use of Premises Before Substantial Performance

1. The Owner shall have the right to enter and occupy the building, in whole or in part, for the purpose of placing fittings and equipment, or for other use, before completion of the Contract if, in the opinion of the Consultant, such entry and occupancy does not prevent or interfere with the Contractor in the performance of the Contract. Such entry shall in no way be considered as an acceptance of the Work in whole, or in part, nor shall it imply acknowledgment that terms of the Agreement are fulfilled.

8. Layout of Work

1. Layout work with respect to the work of all trades. Arrange mechanical and electrical work such as piping, ducts, conduits, panels, equipment and the like to suit the architectural and structural details.

2. Alterations necessary due to conflict and interference between trades, to be executed at no cost to the Owner unless notification is given in writing before Tender Closing Date.

9. By-Laws and Regulations

1. Nothing contained in the Drawings and Specifications are to be so construed as to be knowingly in conflict with any law, by-law or regulation of municipal, provincial or other authorities having jurisdiction.

2. Perform work in conformity with such laws, by-laws and regulations and make any necessary changes or deviations from the Drawings and Specifications subsequently required as directed and at no cost to the Owner unless notification is given in writing before Tender Closing Date.

3. Furnish inspection certificates and/or permits as may be applicable as evidence, that installed work conforms with laws, by-laws, and regulations of authorities having jurisdiction.

10. Protection

1. Take necessary precautions and provide and install required coverings to protect material, work and finishes from contamination, damage, the elements, water and frost.

2. Make good any damage or replace damaged materials, as directed. Repairs to be made by the trade having originally installed or fabricated the damaged material, finish or item. Protect electrical equipment from water and the elements.

3. Protect adjacent private and public property from damage and contamination.

4. Protect curbs and sidewalks from damage from trucking by means of boards and the like. Repair, or pay or repair of damage to existing roads and sidewalks.

5. Mark glass after glazing in an acceptable manner, and leave in place until final clean-up.

6. Protect floor finishes from construction traffic and transport of construction materials and equipment by means of 6 mm plywood panels.

11. Delivery, Handling and Storage of Materials

1. Schedule material delivery so as to keep storage at site to the absolute minimum, but without causing delays due to late delivery.

2. Store materials which will be damaged by weather in suitable dry accommodation. Provide heat, as required, to maintain temperatures recommended by material manufacturer.

3. Store highly combustible or volatile materials separately from other materials, and under no circumstances, within the building. Protect against open flame and other fire hazards. Limit volume of supply on the site to minimum required for one day's operations.

4. Handle and store material so as to prevent damage to material, structure and finishes. Avoid undue loading stresses in materials or overloading of floors.

5. Do not store material and equipment detrimental to finished surfaces within areas of the building where finishing has commenced or has been completed. All material storage within the building is subject to relocation, as directed.

6. Deliver package material in original, and Storage of unopened and undamaged containers with manufacturer's labels and seals intact.

12. Debris

1. Assign clean-up duties to a crew with own Foremen which will be of sufficient size to prevent accumulation of debris and dirt in any part of the structure or on the site.

2. Remove construction debris on a daily basis and legally dispose of same.

3. Under no circumstances, should debris, rubbish or trash be burned or buried on the site.

13. Cutting, Fitting and Patching

1. Required cutting to be done by General Contractor. Patching and painting of work to be executed by the General Contractor.

2. All sub-trades are to notify the General Contractors bidding as to the extent of the cutting, patching, and painting of their respective trades.

3. Drilling, cutting, fitting and patching necessary due to failure to deliver items to be built-in time, or installation in wrong location to be executed, as directed, at no cost to the Owner.

4. Give written notification prior to commencement of drilling and cutting of load bearing structural members and finished surfaces.

5. Cut holes with smooth, true, clean edges, after they are approved by applicable trade. Size holes and openings for hot water and steam pipes, so as to allow for expansion and contraction of such pipes.

14. Fastenings

1. Supply all fastenings, anchors and accessories required for fabrication and erection or work.

2. Metal fastenings to be of the same material as the metal component they are anchoring, or of a metal which will not set up an electrolysis action which would cause damage to the fastening or metal component under moist conditions.

3. Exposed metal fastenings and accessories to be of the same texture, color, and finish as base metal on which they occur. Keep to a minimum; evenly space and lay out.

4. Fastenings to be permanent, of such a type and size and installed in such a manner to provide positive anchorage of the unit to be secured. Wood plugs are not acceptable. Install anchors at required spacing to provide required load bearing or shear capacity.

5. Power actuated fastenings not to be used without prior written approval for specific use.

15. Surplus Materials

1. Surplus materials specifically so specified, to remain property of the Owner and be neatly stockpiled or stored, as directed.

2. All other surplus materials to become property of the Contractor; to be removed from the site and legally disposed of.

16. Documents Required and General Duties

1. **At Commencement of Contract**

   .1 Supply Public Liability and Property Damage Insurance Certificates.
   .2 Supply Certificates of good standing from Workers' Compensation Board for the General Contractor and all Subcontractors.
   .3 Supply Contract Sum Breakdown of all sub-trades or parts of work and general expense items.
   .4 Supply Construction Schedule.
   .5 Supply Schedule of Shop Drawing Submissions.
   .6 The Owner has paid for the cost of the Building Permit. Mechanical Subcontractor will pay the cost of other Fees related to the Work Specified under Division 15. Electrical Subcontractor will pay the cost of all permits and fees related to the Work Specified under Division 16.
   .7 The General Contractor is to pay all other fees and refundable deposits if applicable.

2. **During Construction**

   .1 Adjust Allowances, as required.
   .2 Organize Job Meetings.
   .3 Supply Monthly Progress Reports and Construction Schedule.
   .4 Confirm that payments are being made to subcontractors and suppliers by submission of receipts with the second and subsequent Progress Payment Application. No payment will be made for unincorporated material on the site, unless Bill of Sale in proper format is provided.

3. **Upon Completion**

   .1 Upon completion of work before the Final Certificate of Payment is issued, the following to be observed, executed and submitted:
      .1 All deficiencies to have been completed in a satisfactory manner.
      .2 All final clean-up to have been executed.
      .3 Finishing Hardware, Inspection and Verification.
      .4 Organize a Final Inspection tour at which to be present:
         - the Owner's authorized representative;
         - the Architectural, Structural, Mechanical and Electrical Consultants, and their supervisory personnel, if any;
         - the Contractor and his superintendent.

.5 Where the above procedure is impossible or where any deficiencies remain outstanding, the Owner's representative and the Consultant concerned, to inspect and accept the affected work and/or material upon notification by the Contractor, that all deficiencies involving this Consultant have been made good.
.6 A complete release of all liens arising out of this Contract, other than his own. If a subcontractor or supplier refuses to furnish a release of such a lien, furnish a bond satisfactory to the Owner to indemnify him against any claim under such a lien.
.7 Certificates of good standing from the Workers' Compensation board, for the General Contractor and all Subcontractors.
.8 Certificate of Inspection from Mechanical and Electrical Engineers.
.9 Copies of all Lists of Deficiencies with each Deficiency verified when complete by only this project's job Superintendent. The Final List of Deficiencies to be signed, completed by all concerned, if accepted.
.10 Statement of Completion from General Contractor.
.11 Final adjustment of all Allowances.
.12 H.E.P.C. Inspection Certificate and all other Inspection Certificates required by Provincial, Municipal and other authorities having jurisdiction.
.13 Balancing Reports.
.14 As-Built Drawings - Hardcopy mark ups and digital pdf.
.15 Two hard copies of Operation and Maintenance Manuals. A digital copy (pdf file) of all closeout documents to be provided on a CD or USB memory stick format.

17. Progress Reports

1. Submit to the Architect, Monthly Progress Reports consisting of a concise narrative and a marked-up summary schedule showing physical percentage complete by item and in total. These progress calculations must agree with the Progress Payment Claims.

2. Keep permanent written daily records on the site on the progress of work. Record to be open to inspection at reasonable times and copies to be furnished upon request. Records to show notes of commencement and completion of different trades and parts of work; daily high and low temperatures and other weather particulars; number of men engaged on the site (including sub-trades) broken down in groups for each type of construction work, and particulars about excavation and shoring; erection and removal of form work; pouring and curing of concrete; floor finishing; placing and compaction of backfill, masonry work; roofing;

3. Daily progress to give particulars on commencement and completion of each trade or part of work; form work erections and removal; concrete pouring and curing; floor finishing; masonry work; roofing; waterproofing; finishing trades, tests and inspection and the like.

18. Inspection and Testing

1. The Owner will retain the services of Inspection and Testing Companies. The cost of inspection and testing will be deducted from the Inspection and Testing Allowance specified under Section 01020, “Allowances”.

2. Where tests or inspections reveal work not in accordance with Contract requirements, the Contractor shall pay costs for additional tests or inspections as the Architect may require to verify acceptability of corrected work.

3. The Inspection and Testing by the Owner's Testing Company does not relieve the Contractor of his responsibility to provide his own quality control in order to meet or exceed the requirements of specified standards, codes, design criteria and referenced documents.

End of Section

1. Selection of Products

1. If requested by the Consultant, provide the following services and/or information:

   .1Assist the Consultant in determining qualified suppliers.
   .2Obtain proposals from suppliers.
   .3Make appropriate recommendations for consideration of Consultant.
   .4Notify Consultant of any effect anticipated by selection of product or supplier under consideration, on construction schedule and contract sum.

2. On notification of selection, enter into purchase agreement with designated supplier.

2. Cash Allowance

1. Expend cash allowance only on the Consultant's written instructions.

2. Include in Contract price the Contractor's charges for handling at site, including uncrating and storage, protection from elements and damage, labour, installation and finishing, testing, adjusting and balancing, and other expenses including overhead and profit on account of Cash Allowance in accordance with HDSB general conditions.

3. Credit the Owner with any unused portion of Cash Allowances in the statement for final payment.

4. If a test made under payment by a specific allowance proves that the material or system is not in accordance with the Documents, then the subsequent testing including Owner's testing of replacement materials or systems shall be Contractor's expense and not taken from Cash Allowance.

5. Add or deduct any variation in cost from the Cash Allowance. No adjustment will be made to Contractor's expense.

6. The amount of each allowance includes the net cost of the product or service, delivery and unloading at the site.

7. All refunds, trade and/or quantity discounts which the Contractor may receive in the purchase of goods under allowances, to be extended to the Owner.

8. Receipted invoices covering all disbursements made by the Contractor under Allowances, to be submitted to the Consultant for audit.

9. Where the Cash Allowance stipulates "Supply Only," the Contract Price and not the Cash Allowances include the installation and hook-up costs. The installation and hook-up of some equipment and materials are specified under other Sections of the Specifications. The General Contract includes the installation and hook-up not specified elsewhere.

10. Contractor's profit and overhead on all Cash Allowances to be carried in his lump sum amount, not in the Cash Allowances.

11. All Cash Allowances will be dealt with in accordance with HDSB General Conditions. All expenditures under Cash Allowances, must be approved by the Owner.

12. Include in the Stipulated Price quoted, a Cash Allowance in the amount of **Ten Thousand dollars** (**$10,000.00**).

    To be allocated as follows:

    .1 For supply only of Finish Hardware.

    .2 Steel and Welding Inspections.

13. H.S.T. Goods and Services tax is not included in Cash Allowance amount and is to be carried in the General Contractor's Stipulated Sum Amount.

14. Refer to Section 01005 for co-operation with others assigned to this Section.

End of Section

1. Project Meetings for Coordination

1. In consultation with the Consultant during the second week of construction, arrange for site meetings weekly or every 2 weeks as appropriate to the stage of construction, for project coordination. Such meetings shall fall at the same time each week the meeting is scheduled.

2. Responsible representatives of the Contractor's and Subcontractor's office and field forces and suppliers shall be obliged to attend.

3. Inform the Owner, Consultant, and those others whose attendance is obligatory, of the date of each meeting, in sufficient time to ensure their attendance.

4. Provide physical space for meetings, prepare an agenda, chair and record the minutes of each meeting. Relevant information must be made available to all concerned, in order that problems to be discussed may be expeditiously resolved. Identify "action by: _____".

5. Within three days after each meeting, distribute two copies of the minutes to each invited person.

2. Pre-construction Meeting

1. Within 5 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

2. Include in the agenda the following:

    .1 Appointment of official representative of participants in the Work.
    .2 Scheduling of Work. Schedule to include a detailed breakdown of mechanical and electrical works.
    .3 Interference with ongoing business.
    .4 Work by other Contractors.
    .5 Schedule of submission of shop drawings and samples.
    .6 Requirements for temporary facilities, site sign, offices, storage sheds, utilities.
    .7 Delivery schedule of specified equipment.
    .8 Site security.
    .9 Contemplated change notices, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
    .10 Record drawings.
    .11 Maintenance manuals.
    .12 Take-over procedures, acceptance, warranties.
    .13 Monthly progress claims, administrative procedures, photographs, holdbacks.
    .14 Appointments of inspection and testing agencies or firms.
    .15 Insurance, transcript of policies.
    .16 Schedule for progress meetings.

3. Project Meetings for Progress of Work

1. Conduct progress meetings in accordance with the schedule and/or decisions made at Pre-construction meeting.

2. Inform the Owner, Consultant, project consultants, Subcontractors and suppliers and those whose attendance is obligatory, of the date of the meeting, in sufficient time to ensure their attendance.

3. Include in the agenda the 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 Revisions to construction schedule.
   .8 Progress during succeeding work period.
   .9 Review submittal schedules: expedite as required.
   .10 Maintenance of quality standards.
   .11 Pending changes and substitutions.
   .12 Review proposed changes for effect on construction schedule and on completion date.
   .13 Other business.

4. Progress Records

1. Maintain a permanent written record on the site of the progress of the work using standard OGCA form. This record shall be available to the Consultant at the site, and a copy shall be furnished to same on request. The record shall contain:

   .1 Daily weather conditions, including maximum and minimum temperatures.
   .2 Dates of the commencement and completion of stage or portion of the work of each trade in each area of the project.
   .3 Conditions encountered during excavation.
   .4 Dates of erection and removal of formwork, in each area of the project.
   .5 Dates of pouring the concrete in each area of the project, with quantity and particulars of the concrete.
   .6 Work force on project daily per trade.
   .7 Visits to site by personnel of Consultant, Jurisdictional Authorities and testing companies.

End of Section

1. General

1. Submit to Architect, for review, shop drawings, product data and samples specified.

2. Until submission is reviewed, work involving relevant product must not proceed.

2. Shop Drawings

1. Drawings to be originals prepared by Contractor, Subcontractor, Supplier or Distributor, which illustrate appropriate portion of work; showing fabrication, layout, setting or erection details as specified in appropriate Sections.

2. Identify details by reference to sheet and detail numbers shown on Contract Drawings.

3. Maximum sheet size 24” x 36” as PDF.

3. Project Data

1. Certain specification Sections specify that manufacturer's standard schematic drawings, catalogue sheets, diagrams schedules, performance charts, illustrations and other standard descriptive data will be accepted in lieu of shop drawings.

2. Above will only be accepted if they conform to following:
   .1 Delete information which is not applicable to project.
   .2 Supplement standard information to provide additional information applicable to project.
   .3 Show dimensions and clearances required.
   .4 Show performance characteristics and capacities.
   .5 Show wiring diagrams (when requested) and controls.

4. Coordination of Submissions

1. Review shop drawings, product data and samples prior to submission.

2. Verify:
   .1 Field measurements.
   .2 Field construction criteria.
   .3 Catalogue numbers and similar data.

3. Coordinate each submission with requirement of work and Contract documents. Individual shop drawings will not be reviewed until all related drawings are available.

4. Contractor's responsibility for errors and omissions in submission is not relieved by Architect's review of submittals.

5. Contractor's responsibility for deviations in submission from requirements of Contract documents is not relieved by Architect's review of submission, unless Architect gives written acceptance of specified deviations.

6. Notify Architect, in writing at time of submission, of deviations from requirements of Contract documents.

7. After Architect's review, distribute copies.

5. Submission Requirements

1. Schedule submissions at least fourteen (14) days before dates that reviewed submissions will be required to be returned.

2. Submit a digital copy (PDF) of shop drawings, product data to Architect for review.

3. Accompany submissions with transmittal letter, containing:
   .1 Date.
   .2 Project title and number.
   .3 Contractor's name and address.
   .4 Number of each shop drawing, product data and sample submitted.
   .5 Other pertinent data.

4. Submissions must include:
   .1 Date and revision dates.
   .2 Project title and number.
   .3 Name of:
      .1 Contractor.
      .2 Subcontractor.
      .3 Supplier.
      .4 Manufacturer.
      .5 Separate detailer when pertinent.

5. Identification of product or material.
   .1 Relation to adjacent structure or materials.
   .2 Field dimensions, clearly identified as such.
   .3 Specification Section number.
   .4 Applicable standards, such as CSA or CGSB numbers.
   .5 Contractor's stamp, initialled or signed, certifying review of submission, verification of field measurements and compliance with Contract documents.

6. Interference Drawings
   .1 Prepare interference drawings for all work in confined space ie: ceiling space.

End of Section

1. Construction Safety Measures

1. Observe and enforce construction safety measures required by the National Building Code; the O.B.C.; The Provincial Government; Workers' Compensation Board; and, Municipal authorities.

2. In particular, the Occupational Health and Safety Act (Ont. Re. 213/91), the Occupational Health and Safety Act, the regulations of the Ontario Ministry of Labour and Ontario Hydro Safety requirements shall be strictly enforced.

3. Contractor shall ensure that copies of all applicable construction safety regulations, codes and standards are available on the jobsite throughout the period of construction. All workers are to be informed that these documents are available for reference at any time.

4. The Contractor shall ensure that all supervisory personnel on the job-site are fully aware of the contents of the Occupational Health and safety Act (Ontario Regulation 213/91 - Construction Projects) the Workers' Compensation Act" and, Bill 208 (Chapter 7, Standards of Ontario) “An Act to Amend the Occupational Health & Safety Act and the Workers’ Compensation Act”, and, that they comply with all requirements and procedures prescribed therein. These documents include, but are not limited to, the following construction safety requirements:

    .1 Contractor to register with the Director of the Occupational Health and Safety Division before or within 30 days of the commencement of the project, (O.Reg. 213/91, sec 5).
    .2 File a notice of project with a Director before beginning work on the project, (O.Reg 313/91, sec 6).
    .3 Notification prior to trenching deeper than 1.2m, (O.Reg. 213/91, sec 7).
    .4 Accident Notices and Reports, (O.Reg. 213/91, sec 8 through sec 12).
    .5 General Safety Requirements, (O.Reg. 213/91, sec 13 through sec 19).
    .6 General Construction Requirements, e.g. protective clothing, hygiene practices, housekeeping, temporary heat, fire safety, access to the job-site, machine and equipment guarding and coverings, scaffolds and platforms, electrical hazards, roofing, et al, (O.Reg. 213/91, sec 20 through sec 221).
    .7 Establish a Joint Health and Safety Committee where more than 19 workers are employed for more than 3 months, (Bill 208, S.8(2) to S.8(14).
    .8 Establish a Worker Trades Committee for all projects employing more than 49 workers for more than 3 months, (Bill 208, S-8a(1) to S.8b(4).
    .9 Ensure that all activities arising out of (.07) and (.08) above are recorded and that minutes are available to an inspector of the Ontario Ministry of Labour.

5. The Contractor shall be considered as the "Constructor" in consideration of the rights and responsibilities for all construction safety requirements, procedures, facilities and inspection of all work performed by the Contractor, Subcontractors/Sub-trades and other Contractors engaged on this project.

6. In the event of a conflict between any of the provisions of the above authorities the most stringent provisions are to be applied.

2. Material Safety Data Sheet

1. Material safety Data Sheets (MSDS) must be available at the jobsite for any product listed on the Hazardous Ingredients List prior to being used, installed or applied inside of the building.

2. A Material Safety Data Sheet is to be submitted to the Architect for any product which is known to create, or suspected of creating, a health hazard or discomfort during construction or upon commissioning of the project including, but not limited to, the following:
   .1 adhesives
   .2 solvents
   .3 sealants, (caulking, vapour seals, etc.)
   .4 sprayed-on fireproofing
   .5 resilient flooring
   .6 carpet, paint, varnish or other coatings
   .7 exposed membrane waterproofing
   .8 special coatings, (terrazo sealants, chafing coatings, etc.)
   .9 solder, brazing and welding and other filler metal
   .10 other products whose particles or vapours may become air borne after installation.
   .11 any other product as directed by the Consultant.

3. Comply with WHMIS regulation, Workplace Hazardous Material Information System.

3. Fire Safety Requirements

1. Comply with requirements for Building Construction, the Ontario Building Code, the Ontario Fire Code, the requirements of Local Fire Authorities and of the requirements of the Office of the Fire Marshal.

4. Overloading

1. Ensure no part of Work is subjected to a load which will endanger its safety or will cause permanent deformation.

5. Falsework

1. Design and construct falsework in accordance with CSA S269.1-1975.

6. Scaffolding

1. Design and construct scaffolding in accordance with CSA S269.2-M1980.

2. Scaffolding to be designed by a Professional Engineer when required under the Occupational Health and Safety Act.

7. Materials Specifically Excluded

1. Asbestos and/or asbestos-containing products are not permitted. Submit Material Safety Data Sheets for any product suspected of containing asbestos if so requested by Consultant. Examples of some materials requiring close scrutiny and/or confirmation include:
   .1 Transite drainage pipe - whether buried or above grade - not permitted.
   .2 Composite floor tile containing asbestos - not permitted.
   .3 Lay-in ceiling tiles containing asbestos - not permitted.
   .4 Insulation and/or jacketing for pies, ducts, motors, pumps, etc. - not permitted if any asbestos is present.

2. Solder for all piping is to be lead-free.
   .1 "Lead Free" shall mean solder which contains less than 0.030% of lead when dissolved in fluoroboric and nitric acids and tested by inductively coupled argon plasma atomic emission spectroscopy. "Steelbond 281" and "Silverbrite" are acceptable solder products.
   .2 The mechanical contractor shall provide an affidavit signed by the Principal of the company, on company letterhead, that all of the solder used on the project was either one of the two acceptable products or that the solder used (identified by brand name) meets or exceeds the testing criteria.
   .3 The Owner shall undertake random testing of the soldered joints. Should testing prove that the solder used was not as specified, the Owner shall take action against the contractor to the full extent of the law.

3. All paint and finish coatings are to be lead and mercury-free. Submit Material Safety Data Sheets confirming that these products are free of all lead and/or mercury compounds.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. These specifications apply to all 16 divisions of the project specification. It is the responsibility of the contractor to apply these provisions wherever practical within specification limits to all products and services used on this project.

2. It is recognized that currently specified materials and methods may conflict with the basic intention of this section. Where reasonable alternate materials and methods exist that are not specified here, and that do not compromise quality or create additional cost for the owner, notify the Architect of such alternate materials or methods. Do not proceed to use alternate materials or methods to those specified without the express approval of the Architect.

3. Elsewhere, apply the provisions of this section to all work. Exceptions can only be made when signed off by the Architect. Suitability of all products used is the responsibility of the contractor.

1.2 Compliance Specifications

1. The contractor must comply with all applicable health, safety and environmental regulations.

1.3 Beyond Compliance Specifications

1. These specifications apply in addition to all applicable health, safety and environmental compliance regulations. They are incorporated here to reflect the Owner's intention to develop a specification which maximizes environmentally "friendly" materials and methods wherever possible within current technical and budget limitations.

2. Beyond compliance specifications recognize that performance well beyond the minimum regulatory standard is often desirable, possible and affordable, often with no cost or low cost options. It also recognizes that application methods or protocols may be as important as the material specified. Therefore, these specifications cover both material and methods.

3. The primary goal of beyond compliance specification is to reduce the use of products or methods which have negative health and environmental impacts both during and after construction. These considerations may include full life cycle impacts, associated with raw materials, manufacturing, transport, deconstruction and their eventual fate.

4. These specifications will specifically address primary categories of readily identifiable products, ingredients and methods.

5. These provisions apply to both indoor and outdoor applications equally.

1.4 Exceptions

1. These specifications recognize that not all substitutes are equal and therefore exceptions can be made based on substantive evidence of necessary and superior performance. Special considerations may be given to restricted substances when secondary provisions are made such as sealed in place (contained) applications. All such exceptions must be approved in writing by the Architect.

PART 2 - MATERIALS

2.1 Products or Substances to be Avoided or Limited in Use

1. No product containing the following substances may be used on this project when an equivalent product without or with a lower concentration of this substance is suitable and available. All products containing substances which are known to cause health effects including but not limited to cancer, mutagenic, neurological, or behavioral effects should be avoided if suitable substitutes not containing or containing lower concentrations are available. This provision shall be limited to information contained on Material Safety Data Sheets, therefore MSDS sheets must be reviewed for all products for which such sheets are required. Applications for exceptions must be accompanied by related MSDS and product application and performance sheets, clearly showing a need for the exception.

2.2 Volatile Organic Compounds

1. No product containing volatile organic compounds (in over simplified terms volatile petro chemical or similar plant derived solvents) may be used on this project when a suitable non-VOC or failing that a low VOC substitute is available. Manufacturers may refer to the U.S. EPA definition of VOC's for guidance or alternatively use the low molecular weight organic compound descriptor.

   Example: Paints, Coatings, Primer, Adhesives, Chalks, Firestops, etc.

2. Waterborne equivalents are available for most of the solvent borne products used in construction and in most cases would be the preferred alternative. Waterborne products may in some instances have high VOC contents, therefore the fact that a product is waterborne does not automatically make it acceptable.

2.3 Chlorinated Substances

1. Poly Vinyl Chloride (vinyl) and other chlorinated products should be avoided if suitable substitutes are available.

2.4 Plasticizers

1. Plasticisers which offgass (low molecular weight) should be avoided.

2.5 Man Made Mineral Fibres

1. Products containing mineral fibres which can be emitted or abraded should be avoided.

   Examples: duct liner, mineral fibre ceiling tiles, etc.

2.6 Radiation

1. Products or methods which result in the lowest emission of Electro Magnetic Fields are preferred.

2.7 Biocides

1. Products containing biocides (pesticides, miticides, mildeweides. fungicides, rodenticides, etc.) are not to be used if suitable alternatives are available. Highly stable, low human toxicity biocides such as Portercept may be acceptable substitutes. Biocide formulas which break down, emit powders of offgass should be avoided.

2.8 Heavy Metals

1. Heavy metals such as lead, cadmium, mercury etc. should be avoided.

2.9 Aluminum

1. Raw aluminum should be avoided, anodized or factory painted aluminum is acceptable. This is particularly applicable to surfaces which people can touch.

2.10 Ozone Depleting Substances

1. Products which contain, or which use Ozone Depleting Substances such as Bromide, Chlorofluorocarbons (CFC) or Hydrofluorocarbons (HFC) etc. should be avoided if suitable substitutes are available.

2.11 Greenhouse Gasses

1. Products which contain, use or generate Greenhouse gasses such as CO2 should be avoided if suitable substitutes are available.

2.12 Bituminous (tar) Products

1. Products containing tar compounds should not be used if suitable substitutes are available.

2.13 Chemical Compounds

1. Products containing the following chemical compounds should not be used if suitable substitutes are available: Neoprene, Latex, Butyl, ABS, Formaldehyde.

2.14 Adhesives

1. Adhesives containing solvents or other non preferred ingredients should be avoided if suitable substitutes are available, including systems designs which do not need adhesives or can use mechanical etc. fastening alternatives

2.15 Composite Products

1. Some composite products contain adhesives such as formaldehyde which are not preferred, and some composites such as Fibre Reinforced Plastics are not practical for recycling. These products should be avoided if suitable substitutes are available.

2.16 Cleaners and Solvents

1. Products, equipment, and methods which require the use of cleaners and solvents are not preferred if suitable substitutes are available. Examples of preferred products would include No Wax floors, or primerless caulks and adhesives, or products not requiring caulks and adhesives.

End of Section

1. General

1. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

2. Store volatile wastes in covered metal containers and remove from premises daily.

3. Prevent accumulation of wastes which create hazardous conditions.

4. Provide adequate ventilation during use of volatile or noxious substances.

2. Materials

1. Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

2. Provide on-site dump containers for collection of waste materials, and rubbish.

3. Cleaning During Construction

1. Maintain project grounds, and public properties free from accumulations of waste materials and rubbish.

2. Remove waste materials, and rubbish from site.

3. Vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as-needed basis until building is ready for substantial completion or occupancy.

4. Schedule cleaning operations so that resulting dust and other contaminants will not fall on wet, newly painted surfaces.

4. Final Cleaning

1. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all surfaces exposed to view; leave project clean and ready for occupancy.

2. Employ experienced workers, or professional cleaners, for final cleaning.

3. In preparation for Substantial Performance or Fitness for Occupancy status, whichever occurs first, conduct final inspection of interior and exterior surfaces exposed to view, and of concealed spaces.

4. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from all sight-exposed interior and exterior finished surfaces; polish resilient and ceramic surfaces so designated to shine finish. Vacuum carpet.

5. Clean and polish glass and mirrors.

6. Repair, patch and touch-up marred surfaces to specified finish, to match adjacent surfaces.

7. Broom-clean paved surfaces; rake clean other surfaces of grounds.

8. Clean exposed ductwork and structure.

9. Replace filters.

10. Clean bulbs and lamps and replace those burned out.

11. Clean diffusers and grilles.

12. Clean sinks, faucets, and water closets and controls.

13. Maintain cleaning until project, or portion thereof, is occupied by Owner.

End of Section

1. Requirements Included

1. Record documents, samples, and specifications.

2. Equipment and systems.

3. Product data, materials and finishes, and related information.

2. Quality Assurance

1. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

3. Format

1. Organize data in the form of an instructional manual.

2. Binders: commercial quality, 8½" x 11" maximum 2½" ring size.

3. When multiple binders are used, correlate data into related consistent groupings.

4. Cover: Identify each binder with type or printed title "Project Record Documents", list title of Project, identify subject matter of contents.

5. Arrange content under Section numbers and sequence of Table of Contents.

6. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

7. Drawings: provide with reinforced punched binder tab. Bind in with text, fold larger drawings to size of text pages.

4. Contents, Each Volume

1. Table of Contents: Provide title of project; names, addresses, and telephone numbers of Consultant and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

2. For each Product or System: list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

3. Product Data: mark sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

4. Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

5. Typed Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

5. Submission

1. Submit one copy of completed volumes in final form 15 days prior to substantial performance. For equipment put into use with Owner's permission during construction, submit Operating and Maintenance Manuals within 10 days after start-up. For items of Work delayed materially beyond date of Substantial Performance, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

2. Copy will be returned after inspection, with Consultant comments.

3. Revise content of documents as required prior to final submittal.

4. Submit two copies of revised volumes of data in final form within ten days after final inspection.

5. For contract drawings (architectural, landscaping, structural, mechanical, electrical), transfer neatly as-built notations onto second set and submit both sets.

6. Prepare digital pdf file for submission on CD of USB of completed closeout documents.

6. Record Documents and Samples

1. In addition to requirements in General Conditions, maintain at the site for Owner one record copy of:
   .1 Contract Drawings.
   .2 Specifications.
   .3 Addenda
   .4 Change Orders and other modifications to the Contract.
   .5 Reviewed shop drawings, product data and samples.
   .6 Field test records.
   .7 Inspection certificates.
   .8 Manufacturer's certificates.

2. Store Record Documents and Samples in Field Office apart from documents used for construction. Provide files, racks, and secure storage.

3. Label and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "Project Record" in neat, large, printed letters.

4. Maintain Record Documents in a clean, dry, and legible condition. Do not use Record Documents for construction purposes.

5. Keep Record Documents and samples available for inspection by Consultant.

7. Recording As-Built Conditions

1. Consultant will issue digital copy of project drawings for the purpose of recording as-built conditions. Mark and record changes on an on-going basis as construction proceeds. **Near**

the end of the construction period transfer all marks neatly to a hard copy set for submission as project record documents.

2. Refer to drawings/specifications for additional mechanical and electrical requirements.

3. Record information concurrently with construction progress. Do not conceal work until required information is recorded.

4. Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
   .1 Measure depths of elements of foundation in relation to finish first floor datum.
   .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
   .4 Field changes of dimension and detail.
   .5 Changes made by change orders.
   .6 Details not on original Contract Drawings.
   .7 References to related shop drawings and modifications.

5. Specifications: legibly mark each item to record actual construction, including:
   .1 Manufacturer, trade name, and catalog number of each project actually installed, particularly optional items and substitute items.
   .2 Changes made by Addenda and Change Orders.

6. Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

7. After the consultant has found the Redlined As-Built drawings to be acceptable, prepare digital pdf file of redlined Asbuilts Drawings to be included on CD or USB with other closeout documents.

8. Equipment and Systems

1. Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

2. Panelboard Circuit Directories: provide electrical service characteristics, controls, and communications.

3. Include installed colour coded wiring diagrams.

4. Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instruction. Include summer, winter, and any special operating instructions.

5. Maintain Requirements: include routine procedures and guide for troubleshooting; disassembly, repair and reassemble 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 lists, illustrations, assembly drawings, and diagrams required for maintenance.

10. Provide installed control diagrams by controls manufacturer.

11. Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.

12. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

13. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

14. Include test balancing reports as specified in mechanical specifications.

15. Additional Requirements: As specified in individual specification sections.

9. Materials and Finishes

1. Building Products, Applied Materials, and Finishes: include product data, with catalog number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

2. Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

3. Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommend schedule for cleaning and maintenance.

4. Additional Requirements: as specified in individual specifications sections.

10. Guarantees, Warranties and Bonds

1. Separate each warranty or bond with index tab sheets keyed to the List of Contents listing.

2. List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principals. Use Guarantee/Warranty Form as provided in Section 01721 whenever standard preprinted trade or manufacturer's Guarantee/Warranty forms are not available.

3. Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.

4. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.

5. Verify that documents are in proper form, contain full information, and are notarized.

6. Co-execute submittals when required.

7. Retain warranties and bonds until time specified for submittal.

End of Section

1. Maintenance Manual

1. On completion of project, submit to Architect one (1) copy of Operations Data and Maintenance Manual in English, made up as follows:

    .1 Bind data in vinyl hard covered, 3 ring loose leaf binder for 8½" x 11" size paper.
    .2 Enclose title sheet, labeled "Operation Data and Maintenance Manual", project name, date and list of contents.
    .3 Organize contents into applicable sections of work to parallel project specification break-down. Mark each section by labeled tabs protected with celluloid covers fastened to hard paper dividing sheets.
    .4 A digital copy of all documents in the operations and manuals must be provided on a CD or memory stick format to be PDF.

2. Include following information, plus data specified.

    .1 Maintenance instructions for finished surface and materials.
    .2 Copy of hardware and paint schedules.
    .3 Description, operation and maintenance instructions for equipment and systems, including complete list of equipment and parts list. Indicate nameplate information such as make, size, capacity, serial number.
    .4 Names, addresses and phone numbers of sub-contractors and suppliers.
    .5 Guarantees, Warranties and bonds showing:
        .1 Name and address of project.
        .2 Guarantee commencement date (date of Final Certificate of Completion).
        .3 Duration of guarantee.
        .4 Clear indication of what is being guaranteed and what remedial action will be taken under guarantee.
        .5 Signature and seal of Contractor.
        .6 Additional material used in project listed under various Sections showing name of manufacturer and source of supply.

3. Neatly type lists and notes. Use clear drawings, diagrams or manufacturers' literature.

4. Include in the Manuals a complete set of final shop drawings indicating corrections and changes made during fabrication and installation.

End of Section

1. Standard Warranty

1. Refer to Supplementary Conditions and to Standard Contract Document CCDC No. 2, 2008 for warranty requirements and conditions for the standard warranty which is required for the work of this contract.

2. Extended Warranties

1. Refer to individual specifications sections for requirements of extended warranties required for particular sections or items of work.

2. Extended warranties are required to be issued by manufacturers, fabricators, suppliers and/or installers, sometimes jointly, due to their unique position in the construction process and their ability to guarantee a particular section of work. Refer to individual requirements of extended warranties requested.

3. Unless specifically noted otherwise, all extended warranties shall commence on the date of Substantial Performance of the Work as certified by the Consultant.

4. Listed below is a summary of extended warranties required for individual Sections. This list, if inconsistent with the specified requirements of individual extended warranties, shall be deemed correct with respect to length of extended warranties. Extended warranties required shall include, but not be limited to, the following:

   Extended warranties (total warranty period listed, including entire building warranty)

Caulking (Section 07900)	5 years
Architectural Woodworking (Section 06400)	2 years
Commercial Steel Doors and Frames (Section 08100)	refer to section
Wood Doors (Section 08211)	3 years
Wall Ceramic Tile (Section 09310)	3 years
Floor Porcelain Tile (Section 09330)	3 years
Acoustic Unit Ceiling (09510)	2 years
Painting (Section 09900)	2 years

End of Section

PART 1 - GENERAL

1.1 Related Work Specified Elsewhere

1. Not applicable

1.2 Existing Conditions

1. Take over structures to be demolished based on their conditions (on date that tender is accepted).

1.3 Demolition Drawings

1. Where required by authorities having jurisdiction, submit for approval drawings, diagrams or details clearly showing sequence of disassembly work or supporting structures.

1.4 Protection

1. Prevent movement, settlement or damage of adjacent grades. Provide bracing, shoring as required.

2. Prevent debris from blocking surface drainage inlets which must remain in operation.

3. Protect existing items designated to remain and materials designated for salvage. In the event of damage to such items, immediately replace or make repairs to approval of Owner and at not cost to Owner.

PART 2 - PRODUCTS

1. Not applicable.

PART 3 - EXECUTION

3.1 Work

1. Dispose of demolished materials except where noted otherwise.

3.2 Safety Code

1. Unless otherwise specified, carry out demolition work in accordance with Canadian Construction Safety Code 1980.

2. Should material resembling spray or trowel-applied asbestos be encountered, notify Architect. Any asbestos encountered will be removed by the Owner's Contractor.

3.3 Preparation

1. Disconnect electrical and telephone service lines entering areas to be demolished as per rules and regulations of authorities having jurisdiction. Post warning signs on electrical lines and equipment which must remain energized to serve other areas during period of demolition.

2. Inspect site and rectify with Architect items designated for removal and items to remain.

3. Disconnect and cap mechanical services in accordance with requirements of local authority having jurisdiction.

4. Natural gas supply lines to be removed by gas company or by qualified tradesman in accordance with gas company instructions.

3.4 Demolition & Field Work

1. Demolish areas as indicated on the drawings.

2. Remove existing equipment, services and obstacles, where required, for refinishing or making good of existing surfaces, and replace same as work progresses.

3. At end of each day's work, leave work in safe condition so that no part is in danger of toppling or falling. Protect interiors of parts not to be demolished from exterior elements at all times).

4. Demolish in a manner to minimize dusting. Keep dusty materials wetted.

5. Demolish masonry and concrete walls in small sections. Carefully remove and lower structural framing and other heavy or large objects.

6. Burning materials on site is not permitted.

7. Remove contaminated or dangerous materials from site and dispose of in safe manner.

8. Employ rodent and vermin exterminators to comply with health regulations.

3.5 Salvage

1. Carefully dismantle items containing materials for salvage and stock pile salvaged materials at locations as directed by Architect.

3.6 Restoration

1. Upon completion of work, remove debris, trim services and leave work site clean.

2. Reinstall areas and existing works outside areas of demolition to match condition of adjacent, undisturbed areas.

3.7 Scheduling

1. Demolition of areas adjacent to occupied spaces may not occur during occupancy of these spaces. Contractor to schedule the demolition of these areas to occur after school hours or weekends.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Miscellaneous Metal Fabrication: Section 05500
2. Mineral Fibre Insulation: Section 07213

1.2 Reference Standards

1.	CSA-S304.1-04	Design of Masonry Structures
2.	CSA- A370-04 (R2009)	Connectors to Masonry.
3.	CAN/CSA-A371-04 (R2009)	Masonry Construction for Buildings.
4.	CSA A179-04 (R2009)	Mortar and Grout for Unit Masonry
5.	CSA-A82-06	Fired Masonry Brick From Clay or Shale
6.	CSA A165 Series-04	CSA Standards for Concrete Masonry Units.
7.	CSA G30.18-09	Carbon Steel Bars for Concrete Reinforcement
8.	CAN/CSA-A3000-08	Cementitious Materials Compendium
9.	ASTM A951/A951M-06	Standard Specification for Steel Wire for Masonry Joint Reinforcement
10.	ASTM C216-07a	Standard Specification for Facing Brick (Solid Masonry Units Made from Clay of Shale)
11.	ASTM C568-08a	Standard Specification for Limestone Dimension Stone
12.	ASTM A1064/A1064	Standard Specification for Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
13.	ASTM C331-05	Standard Specification for Lightweight Aggregates for Concrete Masonry Units
14.	ASTM A153/A153M-09	Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

1.3 Source Quality Control

1. Submit laboratory test reports certifying compliance of masonry units (and mortar ingredients) with specification requirements.

2. For clay units, in addition to requirements set out in referenced CSA and ASTM Standards include data indicating initial rate of absorption for units proposed for use.

3. All masonry: mortar and grout is to be tested in accordance with CSA-S304.

1.4 Product Delivery, Storage and Handling

1. Ensure that materials are delivered to job site in dry condition.

2. Except where wetting of bricks is specified, keep materials dry until use.

3. Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

4. Store cement under cover. Keep dry and unfrozen.

5. Pile sand on platforms. Exclude foreign matter.

6. Materials stacked on floors of building shall not exceed structural design loads.

1.5 Cold Weather Requirements

1. Comply with Clause 6.7.2 of CSA-A371.

1.6 Hot Weather Requirements

1. Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.

1.7 Protection

1. Until completed and protected by flashings or other permanent construction, keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain.

2. Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.

3. Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.

4. When air temperature has dropped below 0 degrees C (eg. Overnight), ensure that materials are above freezing and free from ice when installed.

5. Prevent work from freezing for at least 48 hours by enclosure, artificial heat, or other acceptable method.

6. Provide adequate bracing to walls during erection to prevent damage due to winds or other lateral loads.

7. Make good any damage to masonry work until completion of the work.

8. Build masonry in enclosures heated by approved smokeless means, when temperature remains below 0 degrees C. All materials shall be above 4 degrees when installed.

9. Demolish and replace masonry work damaged by freezing.

10. Supplement CSA-A371 as follows:

    .1 Maintain temperature of mortar between 5° C and 50° C until used.

1.8 Job Mock-up

1. Construct mock-up panel of exterior and interior masonry wall construction 2 m x 2 m showing masonry colours and textures, use of reinforcement, ties, through-wall flashing, weep holes, jointing, coursing, mortar, application of membrane air vapour barrier, insulation and workmanship. Mock-up may be part of construction.

1.9 Submittals

1. Make submittals in accordance with Section 01340.

2. Submit samples of:

    .1 Masonry units (each type).
    .2 Veneer anchors.
    .3 Masonry reinforcement.
    .4 Mortar Colours.
    .5 Each masonry accessory.

PART 2 - PRODUCTS

2.1 Materials

1. **Concrete Masonry Units:**

   Must be "Bubble Cure" or autoclave process, modular metric size conforming to CSA Standard A165 series.
   Normal Weight - H/20/A/M, S/20/A/M.
   Lightweight - H/20/C/M, S/20/C/M.
   Use normal weight in below ground floor elevation. Use light weight for all above grade walls. All exposed corners to have bullnose units. All block to be uniform in color, shade and texture. Special shapes as required.

2. **Acoustical Concrete Masonry Units:**
   N/A

3. **Architectural Concrete Masonry Units:**
   N/A

4. **Manufactured Stone:**
   N/A

5. **Clay Brick Masonry Units:**
   N/A

6. **Precast Stone Caps**:
   N/A

7. **Portland Cement:**

   .1 Type 10, in accordance with CSA A3001.

8. **Masonry Cement:**

   .1 Type “S” and shall comply with CSA A3002.

9. **Hydrated Lime**:

   .1 Type “S”, in accordance with CSA A179.

10. **Aggregate:**

   .1 Fine grain aggregate, grading in accordance with CSA A179. When 6mm joints are specified, grain shall pass through a 1.18 mm sieve.

11. **Water:**

   .1 Ensure that water contains no salts which may cause efflorescence.

12. **Horizontal Masonry Reinforcing:**
   Welded truss type or ladder type, as specified from wire to ASTM A951, hot dipped galvanized after fabrication to ASTM A153-05, Class B2, minimum coating 457 G/m2, wire size 4.76 mm diameter. Reinforcing as per the following:
   - Single wythe walls Dur-O-Wal DW 100;
   - Double wythe walls (up to 390 in width) Dur-O-Wal DW 120;
   - Double wythe walls (greater than 390) Dur-O-Wal DW 220;
   - Cavity Walls Blok-Lok- Blok truss II - BL37 to accommodate 95 mm cavity with 64 mm thick insulation. Use Blok-truss BL 30- or DW 100 if using Ferro slotted block ties.

   Similar reinforcing by Dur-O-Wal, Blok-Lok, and Hohmann & Barnard Inc. is acceptable.

13**. Reinforcing Bars:** billet steel to grade 400, deformed bars to CSA-G30.18.

14**. Brick Ties:**

   .1 Hook type box ties, 4.76 mm galvanized steel wire, to be used in conjunction with Block-Lok Block-Truss II BL 37 at concrete block back-up wall.
   .2 Ferro Slotted Rap-Ties 16 gauge sheet metal, hot tipped galvanized, with 4.76 mm hot tipped galvanized V-Ties – Use at concrete wall back-up, at wood parapet and where other ties are not practical.
   .3 Ferro slotted block ties, 16 gauge sheet metal, hot-dipped galvanized, with 4.76mm hot-dipped galvanized V-ties to accommodate 95 mm cavity with 64 mm thick insulation. To be used in conjunction with horizontal reinforcing as specified under paragraph 2.10.

15. **Dampproof Course:** Modified bitumen flashing membrane, Blueskin SA manufactured by Bakor, or approved equal.

16. **Lateral Support Anchors:**

    .1 **Vertical:**
        .1 At intersection and abutting load bearing walls, use prefabricated corners and tees to match horizontal reinforcing.
        .2 At intersection of non-load bearing walls with load bearing or non-load bearing walls, use corrugated galvanized ties.
        .3 At wood parapet and similar conditions, use slotted Rap ties by Fero. Ensure ties extend a minimum of 50 mm into the brick or block outer wythe.
        .4 At connection with existing masonry, use joint stabilization anchors by Dur-O-Wall D/A 2200.
        .5 At control joints, use joint stabilization anchors by DUR-O-WALL D/A 2200.
        .6 At connection with steel structure use weld-on column assembly D/A 709 and D/A 701 by DUR-O-WALL. Supply welded anchor to steel trade for installation.

    .2 **Horizontal:** At underside of building structure use steel angles on both sides of partitions as specified in Section 05121 and detailed on structural drawings. Where not practical, use D/A 2200 joint stabilization anchors by DUR-O-WALL. Fasten to structure. Install at 800 mm O.C.

17. **Bolts and Anchors:** To CSA-A370.

18. **Natural Mortar:**

    .1 **Generally:** Use materials only as specified in CSA A179. Ensure that weather and aggregate used in mortar, other than in walls buried in earth, will not cause efflorescence.
    .2 **Mixes:** Mix mortars as specified in CSA A179 using the Proportion Specification.
    .3 **Mortar Types:**
        .1 For masonry walls in contact with earth and bedding forbearing plates and lintels: Mortar Type “S”.
        .2 For load-bearing walls: Mortar Type “S”.
        .3 For brick: Mortar Type “N” (1:1:6) premixed “Betomix 1-1-6”, portland cement, “S” type, hydrated lime as supplied by Daubois Inc., Jiffy Mortar Systems; Maxi-Mix 1-1-6 silo mortar; or approved equivalent. Mix on site with sand, water, and colour pigment.
        .4 For all other masonry walls, use regular Type “N” mortar.
    .4 **Grout:** To CSA A179 Table 5.

19. **Colour Pigments:** Pigments constituted of ground colored natural aggregates or metallic oxide pigments, color by architect, the ratio of coloring agent/density of portland/lime shall not exceed 10%.

20. **Mortar Dropping Control Device**: “Mor-Control” manufactured by Dur-O-Wal or Mortar-Net.

21. **Weepholes**: 90 mm x 90 mm x 10 mm purpose made PVC, designed to drain cavities to prevent insects from entering. Colour to be chosen by Architect from manufacturer's full range.

22. **Metal flashing at top of foundation wall and at exterior lintels**: 24 gauge prefinished sheet metal with Stelco or Dofasco series 8000 finish – color to match brick. With self adhering membrane flashing at underside (Blue Skin SA).

PART 3 - EXECUTION

3.1 Workmanship

1. Build masonry plumb, level, and true to line, with joints in proper alignment.

2. Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

3. Set out and build masonry work to the respective dimensions called for on the drawings. Build and lay the block true to line, and level, align vertical joints. Keep angles, reveals, etc. square and plumb.

4. Assume complete responsibility for dimensions of this work.

5. Construct masonry fire rated assemblies in accordance with tested design specifications.

6. Make all joints uniform, in line, square and plumb, with mortar compressed to form joints as specified.

7. Course units to bring wall to required elevations using even, uniform, horizontal and vertical joints of maximum 10mm thickness. Horizontal joints brick soldier coursing to suit adjacent running bond.

8. Check and co-ordinate location of all anchors, connections and built-in items.

9. Bond units at intersection of walls by horizontal prefabricated "tee" or corner reinforcing units.

10. Lay each solid unit in full bed or mortar. Fill vertical joints. Slushing of joints not permitted.

11. Base course to be solid concrete masonry units laid in full mortar bed.

12. Lay each hollow unit in full bed or mortar for face shells. Butter vertical joints full. When laying closure units, butter vertical units already in place instead of units being placed.

13. Lay exposed masonry units using blocks having square, unbroken edges and corners.

14. Tolerances:

    .1 Variation from mean plane: 6 mm when measured with 3000 mm straight edge.
    .2 Variation from plumb: 6 mm on any vertical line up to 6000 mm high.

.3 Variation in wall opening sizes: 6 mm maximum.
.4 Variation of building lines from plan: in any bay or 6000 mm maximum – 12 mm or in 1200 mm or more, 20 mm.

15. Lay out masonry units carefully so as to run as often as possible in full and half unit dimensions. All exposed ends shall match the finish of the faces.

16. All units cut around pipes, ducts, openings, etc. shall be accurately and neatly cut with a power carborundum wheel, and remaining voids shall be slushed full with mortar.

17. Make joints flush and smooth on both sides excepts where they are to be exposed to view. When exposed to view, tool the joints concave, unless otherwise noted.

18. Lay and set up all units carefully so that both faces of the walls are true and even. Do not use chipped or cracked units where exposed to view, even where the defect would not impair strength or durability.

19. Take particular care to keep cavities, weep holes, vents and exposed faces of all units free of mortar.

3.2 Tolerances

1. Clause 6.2 of CAN3-A371 applies except as follows: Walls to receive thinset ceramic tile: plumb within 1:600.

3.3 Exposed Masonry

1. Remove chipped, cracked, and otherwise damaged units in exposed masonry and replace with undamaged units.

3.4 Jointing

1. Concave joints, allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, compressed, uniformly concave joints.

2. Raked joints, where split rib blocks are used, allow joints to set just enough to remove excess water, then rake joints uniformly to depth of rib and compress with square tool to provide smooth, compressed, raked joints of uniform depth.

3. Where joints are concealed in walls and where walls are to receive plaster, tile insulation, or other applied material, except paint or similar thin finish coating, strike flush.

3.5 Joining of Work

1. Where necessary to temporarily stop horizontal runs of masonry, and in building corner, Step-back masonry diagonally to lowest course previously laid. Do not "tooth" new masonry. Fill in adjacent course before heights of stepped masonry reach 1200 mm.

3.6 Cutting

1. Cut out neatly for electrical switches, outlet boxes, and other recessed or built-in objects.

2. Make cuts straight, clean, and free from uneven edges. Use masonry saw where necessary.

3.7 Building-In

1. Build in items required to be built into masonry by other trades.

2. Prevent displacement of built-in items during construction. Check for plumbness, alignment, and correctness of position, as work progresses.

3. Brace door jambs to maintain plumbness. Fill door frame with concrete.

3.8 Support of Loads

1. Where concrete fill is used in lieu of solid units, use 20 MPa concrete to Section 03300.

2. Install building paper below voids to be filled with concrete; keep paper 25 mm back from faces of units.

3.9 Provision for Movement

1. Leave 5 mm space below shelf angles.

2. Leave 6 mm space and do not use wedges between tops of non-load bearing walls and partitions and structural elements.

3.10 Loose Steel Lintels

1. Install loose steel lintels. Centre over opening width.

3.11 Control Joints

1. Except as noted following, control joints required at maximum of 6000 mm o.c. in continuous walls having no openings, intersections or column locations. Refer to elevations for locations on exterior walls and advise Consultant of variances prior to executing the work. Control joints are not shown for clarity on the drawings for interior walls. If in doubt, request assistance from the Consultant.
2. At doorway locations, unless indicated otherwise on elevation drawings, use one side of doorway beyond lintel. Use building paper to prevent that end of lintel to bond.

3. Use standard block with concrete filled end core to form key. Line one side of core with building paper before filling core to prevent bonding. Complete vertical separation, full height and thickness of wall are required.

4. Stop masonry reinforcing at each side of the joints. Caulking specified in Section 07900.

5. At expansion joints in brick and veneer, install Rapid Expansion joint DA 2015, to leave vertical joint free of mortar to allow for horizontal expansion.

3.12 Horizontal Reinforcing

1. Horizontal reinforcing at 400 mm o.c. (every 2nd course), except solid walls greater than, or equal to 340 mm in width. At 340 mm, or greater, horizontal reinforcing at 200 mm o.c. (every course). Use prefabricated corners and tees at all intersecting load bearing walls.

3.13 Vertical Reinforcing

1. Install vertical reinforcing to size and spacing as shown on Drawings. Fill voids with 20MPa concrete.

3.14 Sound and Fire Separation

1. All load bearing and non-load bearing partitions shall carry to the underside of structure above, except for allowing for deflection of structure.

2. All openings in partitions, even above ceilings shall be patched to maintain sound and fire separation.

3. In fire separations and sound separations, spaces between partition and structures to be firestopped or sound sealed under Section 07270.

4. Use U.L.C. labeled mortar for all patching in fire separations.

3.15 Testing

1. Masonry units to be tested in accordance with S304.1, Clause 15.1, for engineered masonry design, and in conformance with clause 15.1.2.

2. Mortar testing to be in accordance with S304.1, clause 15.2.

3. Grout testing to be in accordance with S304.1, clause 15.3.

3.16 Blockwork - General

1. Do not wet concrete block before laying.

2. Lay block with thicker end of face shell upward.

3. Lay interior block in running board, concave tooled joints.

4. Use solid block or hollow block filled with concrete for top 2 courses under point bearing loads extending minimum 200 mm each side of bearing and where indicated.

5. Install special shaped units where indicated.

6. In block walls install continuous trussed wire reinforcement, as noted.

7. Where resilient base is indicated, tool the joints to within 100 mm of the floor. Cut joints flush behind the base.

8. Extend all walls/partitions to underside of steel/concrete deck unless shown otherwise on drawings and as required. Co-ordinate wall locations with structure above and prior to commencing work, advise Consultant of interference.

9. When masonry walls are not built at once, the ends of the walls are to be raked back at an angle, or terminated at a control joint. Toothing will not be permitted.

3.17 Mortar

1. Measure loose damp ingredients accurately by volume. Place water in mixer, add half volume of sand, add cement, add remainder of sand, add water for plasticity. Mix for at least four minutes. Keep mixer clean.

2. Incorporate colour into mixes in accordance with manufacturer's instructions.

3. Use clean mixer for coloured mortar.

4. Prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into a ball. Allow to stand for not less than 1 hour nor more than 2 hours then remix with sufficient to produce mortar of proper consistency for pointing.

3.18 Concrete Core Fill

1. All concrete block walls shall have vertical grout core fill each side of openings and where shown and as detailed on the drawings.

2. Core fill in walls shall extend from bottom bearing surface to underside of bond beams or structure.

3. Grout core fill shall be placed with a trunk or chute in maximum lifts 2000 mm. Compaction shall be by interior mechanical vibrator. All fill shall be placed in accordance with CSA A23.1.

4. Fill minimum ½ block core each side of frame from foundation to underside of lintels of all door openings over 1 metre wide.

5. Provide inspection openings in base of walls to be grouted. Make good to match adjacent block work after inspection and approval by Engineer.

3.19 Reinforced Block Lintels

1. Install reinforced concrete block lintels at all openings where steel lintels are not indicated in accordance with structural details.

2. Install shoring and bracing as required to openings prior to placing lintel units and concrete fill.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Finish painting: Section 09900

1.2 Scope

1. Provide all miscellaneous metal items except those listed above Under Article 1.1.

1.3 Reference Standards

1. ASTM A167-87	Specification for Stainless and Heat-Resisting Chromium - Nickel Steel Plate, Sheet and Strip.
2. ASTM A325-90	Specification for High Strength Bolts for Structural Steel Joints.
3. ASTM A143-74(1989)	Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.
4. ASTM A307-90	Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
5. ASTM A563M-90	Specification for carbon and Alloy Steel Nuts.
6. ASTM A780-90	Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized coatings.
7. CAN/CSA-S16.1-M89	Limit States Design of Steel Structures.
8. CSA W59-M1989	Welded Steel Construction (Metal Arc Welding)
9. CAN/CSA-G40.20-M92	General Requirements for Rolled or Welded Structural Quality Steel.
10. CAN/CSA-G40.21-M92	Structural Quality Steels.
11. CAN/CSA-G164-M92	Hot-Dip Galvanizing of Irregularly Shaped Articles
12. CISC/CPMA 2-75	Canadian Institute of Steel Construction/Canadian Paint Manufacturers Association-A Quick Drying Primer for Use on Structural Steel.
13. CAN/CGSB-1.40-M89	Primer, Structural Steel, Oil Alkyd Type.
14. CAN/CGSB-1.108-M89	Bituminous Solvent Type Paint.

1.4 Shop Drawings

1. Submit shop drawings in accordance with Section 01340 prepared and stamped by a Professional Engineer licensed to design structures in the Province of Ontario.

2. Clearly indicate materials, core thickness, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details and accessories.

PART 2 - PRODUCTS

2.1 Materials

1. Metals

    .1 **Steel sections and plates:** to CAN3 G40.21-M81, Grade 50W for tubes and Grade 44W for plates and flat shapes.
    .2 **Welding Materials:** to CSA W59-M1989.
    .3 **Bolts and anchor bolts:** to ASTM A307, A325, and A563 as applicable.
    .4 **Stainless Steel:** Type 302 or 304 alloy conforming to ASTM A167, No. 4 finish.

2. Primers, Coatings and Shop Painting

    .1 **Interior Steel in Dry Areas:** Quick drying oil alkyd conforming to CISC/CPMA 2.75.
    .2 **Exterior Steel, Interior Steel in Unheated Areas, Steel Embedded in Concrete:** Hot dip galvanized conforming to CSA G164, minimum Z275 coating.
    .3 **Galvanizing** of structural steel components and loose lintels: refer to Section 5120.
    .4 **Galvanized Coating Touch-Up:** W.R. Meadows “Galvafroid” or Kerry Industries “Z.R.C.” zinc rich coating or similar manufacturer containing minimum 90% zinc by weight.
    .5 Apply one shop coat(s) of primer or coating as indicated above and according to manufacturer’s recommendations. Do not prime aluminum, stainless steel or those components to be galvanized or encased in concrete.
    .6 Use primer unadulterated, as provided by manufacturer. Paint on dry surfaces free from rust scale and grease. Do not paint when temperature is lower than 10 deg. Celsius and rising.
    .7 Clean surfaces to be field welded; do not paint.

3. Fastenings

    .1 Use nuts and bolts conforming to ASTM A307, A325, and A563 as applicable.

        .1 For interior work, use cadmium-plated fastenings where other protection is not specified.
        .2 For exterior work, use Type 300 or 400 stainless steel.

4. Anchors and Shims

    .1 For exposed anchorage of aluminum, if applicable, use stainless steel and otherwise to match metal anchored. For non-exposed work, anchors and shims may be galvanized steel.

5. Pipe

    .1 To ASTM A53, extra strong steel pipe for bollards.

6. Bituminous Paint

    .1 Alkali-resisting to meet specified requirements of CAN/CGSB-1.108, Type 2. Use to insulate contact between dissimilar metals.

2.2 Fabrication

1. Build work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

2. Weld all connections where possible, and bolt where not possible unless indicated otherwise on drawings.

3. Use self-tapping shake-proof countersunk flat headed screws on items required to be assembled by screws or as indicated.

4. Where possible, work to be fitted and shop assembled, ready for erection.

5. Exposed welds to be continuous for length of each joint. File or grind exposed welds smooth and flush.

6. Weld all stainless steel by the Argon Arc Process. Grind smooth and polish joints, crence-free, and flush without seams.

2.3 List of Miscellaneous Metal Fabrications

1. This Section includes but is not limited to the following list. Note: **Galvanize all exterior items** and other items noted. Prime paint all interior items.

    .1 Anchors, Bolts, Inserts, Sleeves for work in this Section.
    .2 Hangers and Supports (for work in this Section).
    .3 Lintels.

PART 3 - EXECUTION

3.1 General

1. Supply and install all miscellaneous metal work indicated on the Drawings and not indicated in work of other Sections in addition to items listed below.

3.2 Fabrication & Erection

1. Erect metal work square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

2. Insulate metals, where necessary, to prevent corrosion due to contact between dissimilar metals and between metals and masonry or plaster. Use bituminous paint, butyl tape, building paper or other approved means.

3. Provide suitable and acceptable means of anchorage, such as dowels, anchor clips, bar anchors, expansion bolts and shields, toggles.

4. Make field connections with items specified in Articles 2.1.4 and 2.1.5 and 2.1.8 or weld to CSA S16-1969 and CSA S16S1-1975.

5. Hand items to be cast into concrete or built into masonry over to appropriate trades together with setting templates.

6. Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection.

7. Touch-up galvanized surfaces with zinc primer where burned by field welding. Spray or brush apply a minimum of three (3) coats of zinc-rich paint to achieve a dry film thickness of 8 mils. Apply a finish coat of aluminum paint to provide a colour blend with the surround galvanizing.

3.4 Galvanized Steel

1. Galvanize steel members, fabrications, and assemblies after fabrication by the hot dip process in accordance with CSA G164, minimum Z275 coating.
2. Galvanize bolts, nuts and washers and iron and steel hardware components in accordance with CSA G164.

3. Safeguard products against steel embrittlement in conformance with ASTM A143.

4. Design features which may lead to difficulties during galvanizing shall be pointed out prior to dipping.

5. The composition of metal in the galvanizing bath shall be not less than 98.0% zinc.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Not applicable.

1.2 Source Quality Control

1. Identify lumber by grade stamp of an agency certified by Canadian Lumber Standards Administration Board.

PART 2 - PRODUCTS

2.1 Materials

1. **Wood Materials:** Material, straight, sawn square, true, dressed four (4) sides properly sized, shaped to correct dimensions from nominal sizes indicated or specified.

2. **Lumber: Use only grade marked lumber. Where left exposed, use best brand of lumber available.** Lumber and moisture content to conform to official grading rules of NLGA, for particular lumber and grade, and structurally conform to latest requirements of Ontario Building Code. Conform to Grading Standards, CSA Standard Softwood Lumber 2005. Moist content not greater than 19% at time of installation.

3. **Blocking, Cants, Bucks, Grounds and Nailing Strips:** Douglas fir Graded 122-C, construction or No. 2 Pine, pressure treated in accordance with CSA 080 Series - 08.

4. **Plywood:** Douglas fir plywood to CSA 0121-08, good one side with waterproof adhesive.

5. **Rough Hardware:** Nails, screws, bolts, lag screws, anchors, special fastening devices and supports required for erection of all carpentry components. Use galvanized components where exposed to exterior atmosphere.

PART 3 - EXECUTION

3.1 General

1. Do all wood framing in accordance with the Ontario Building Code, CSA 086-01 and Engineering Design in Wood.

2. Machine dressed work shall be slow fed using sharp cutters and finished members shall be free from drag, feathers, slivers or roughness of any kind.

3. Frame materials with tight joints rigidly held in place.

4. Design construction methods for expansion and contraction of the materials.

5. Erect work plumb, level, square and to required lines.

6. Be responsible for methods of construction for ensuring that materials are rigidly and securely attached and will not be loosened by the work of other trades.

3.2 Furring and Blocking

1. Supply and install furring and blocking, required.

2. Align and plumb faces of furring and blocking to tolerance of 1:600.

3.3 Rough Bucks, Nailers

1. Install wood bucks and nailers, as indicated, including wood bucks and linings around frames for doors and windows.

2. Except where indicated, otherwise, use material at least 1½" thick secured with 3/8" bolts located within 12" from ends of members and uniformly spaced at 48" between.

3. Countersink bolts where necessary to provide clearance for other work.

3.4 Pressure Treated Wood

1. Use wood pressure treated in accordance with CSA 080 for all wood members in contact with exterior walls and roofs.

2. Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

3.5 Installation of Hollow Metal Frames

1. Set frames plumb and square in their exact location and at correct elevation. Firmly block and brace to prevent shifting. Shim up where required to ensure proper alignment dimensions from finished floor to head of frame. Install temporary wood spreaders at mid-height.

2. Where pressed steel frames are installed in concrete walls, secure frames to concrete using lead expansion shields and anchor bolts through pipe sleeves. Perform drilling of concrete as required. Fill recessed bolt heads flush to frame face with approved metal filler and sand smooth.

3. Install fire rated doorframes in accordance with requirements of National Fire Code Volume 4, produced by The National Fire Protection Association (NFPA 80).

3.6 Wood blocking for steel stud partitions

1. Supply and install ¾" plywood fastened to 2" x 4" wood studs (fastened to steel studs) to provide solid backing for fastening of toilet partitions, grab bars, millwork etc.

3.7 General

1. Supply and install all other carpentry shown on drawings or as required for completion of work. Co-operate with other trades in installing items supplied by other sections, cut openings in woodwork when so required and make good disturbed surfaces.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Rough carpentry: Section 06100

2. Painting: Section 09900

1.2 Reference Standards

1. Do millwork to Millwork Standards of the Architectural Woodwork Manufacturers' Association of Canada (AWMAC) Premium Grade.

1.3 Samples

1. Submit duplicate 300 x 300 mm samples of each type of paneling laminate, melamine and each type of solid wood or plywood to receive stain or natural finish.

2. Submit sample of each type of hardware specified in accordance with Section 01340.

3. Submit a typical prototype unit representative of the work of this section.

1.4 Shop Drawings

1. Submit shop drawings in accordance with Section 01340.

2. Clearly indicate details of construction, profiles, jointing, fastening and other related details.

1.5 Qualification

1. Millwork manufacturer to have not less than 5 years proven first class experience in institutional millwork.

1.6 Warranty

1. Submit a two (2) year warranty for the work of this section against defects in material and workmanship.

PART 2 - PRODUCTS

2.1 Materials

1. Softwood lumber: to CSA 0121-M1978 and National Lumber Grades Authority (NLGA) requirements, with maximum moisture content of 10% for interior work. Yard lumber select for natural finish of species, indicated to AWMAC premium grade.

2. Hardwood lumber: to National Hardwood Lumber Association (NHLA) requirements, moisture content of maximum 10% for interior work, of species indicated to AWMAC premium grade.

3. Hardwood plywood: to CSA 0115-1967 of thickness indicated, rotary cut face veneer, birch plywood, veneer core. Select veneers to provide book match veneer strips to be 240 mm wide minimum. Grade: Select White.

4. Nails and staples: to CSA B111-1974 galvanized for exterior work, interior high-humidity areas and for treated lumber; plain finish elsewhere. Use spiral thread nails except where specified elsewhere.

5. Particle Board core: to CAN3-0188.1-M, Grade R, 720 kg/m3 density in thicknesses indicated.

6. Book Match Veneer: strips to be 240 mm wide minimum.

2.2 Plastic Laminate

1. 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. Balance all panels with 0.5 mm backing sheet (BK) by same manufacturer as face panel. Use waterproof adhesive capable of holding materials together without failure. Provide acid resistant grade where shown. Finish shall be “Velvatex” or “Suede” by Arborite, or equivalent manufactured by Formica, Durolam Ltd., “Wilson Art” as distributed by Meteor Plywoods Ltd., “Micarta” distributed by Montego Forest Products Ltd., “Nevamar” distributed by Ceratec Inc., or approved equivalent by Octopus Products Limited. Selections to be confirmed by Consultant.

2.3 Edge Banding

1. Solid polyvinyl chloride (PVC), 3 mm thickness x full width of panel edge, colour/pattern to match finished face of melamine panel or as selected by Consultant. All exposed edges of banding to be radiused to 2 mm radius after installation on panels. Submit sample of edge-banded panel with radiused edges to Consultant for approval prior to fabrication of architectural woodwork.

    .1 Acceptable Material: Solid PVC edging as manufactured by “Woodtape” Edge-Banding.
    .2 Acceptable Material: Solid PVC edging as manufactured by “Complast Inc.”

2.4 Cabinet Hardware

1. Furnish and install all hardware to custom casework as follows:
    .1 **Cupboard Doors - 19 mm thick:**

Hinges	200 Series 110° Salice	
Roller Catches	807N	2G (SgDr) Onward
Elbow Catches	T03222	C15 (DhDr)

Door Pulls	CBH235-3 1/2" C32D
Cupboard Locks	8703/8704 14a National

.2 **Drawers - 19 mm thick.:**

Drawer Slides	KV1300X length to suit
Drawer Pulls	CBH235-3 1/2" C32D
Drawer Locks	8703 - 14a National

.3 **Shelving:**

Plaster strips	KV255 Zinc Knape & Vogt
Shelf Clips	KV256 Zinc Knape & Vogt

.4 **Cupboard Doors - 35 mm thick:**

Hinges	F179 76x76 Stanley C15
Roller Catches	504N Onward C26
Surface bolt	043-4 X Angle Strike C15
Door Pulls	CBH245-4 1/2" C32D
Cupboard Locks	44F73-44FS3-626 Best Lock

2. This section shall also include accessories such as rubber door silencers (2 per drawer or door), and other items necessary for the completion of the millwork.

3. Cabinet Keying: Key all cabinet and drawer locks alike in each room, and different from other rooms.

2.5 Melamine Clad Cabinetwork

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. Gables and panels shall be fabricated from 19 mm thick melamine surfaced panels with a P.V.C. edging applied to exposed edges.

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 plywood attached to

melamine cabinet separately, insuring the melamine OSB centre core gables do not come in contact with the floor.

7. Backs in base cupboards shall be fabricated from a 6 mm thick melamine surfaced panel.

8. Backs in wall and tall cabinets shall be fabricated from 6 mm thick melamine surfaced panels securely glued and screw nailed into the check out provided in the backs of gables, tops, and bottoms.

9. 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.

10. Doors shall be fabricated from 19 mm thick melamine surfaced panels. All four edges shall be P.V.C. edging.

11. 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.

12. Drawer bodies shall consist of box construction fabricated from 13 mm birch plywood with solid birch edge, front, sides and back with a 6 mm hardboard bottom dadoed and glued into box members. Joint front, sides and back with carefully fitted glued and tenoned joints. Alternately, Blum Metabox drawer body and side can be used.

13. 35 mm thick doors shall be solid core with plastic laminate both sides and on all four edges, color and grain to match melamine.

14. Solid hardwood glazed door fronts and frames shall receive lacquer finish. Glazing shall be 3mm tempered clear glass. Benches are millwork only, no glazing.

15. **Finish:**

    .1 Melamine surfaced panels shall be finished both sides in the same colours, patterns, and grain as selected by the Consultant.
    .2 Solid hardwood glazed doors and drawer bodies shall be sanded, then sealer coated, and sanded with two finish coats of catalytic type acid resistant varnish.
    .3 Colour of all Melamine Cabinets to be from standard melamine colours.

2.6 Shop Fabrication

1. Shop install cabinet hardware.

2. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.

3. Shop assemble work for delivery to site in size easily handled and to insure passage through building openings.

2.7 Plastic Laminated Tops

1. 19 mm thick particle board core with post-forming grade plastic laminate finish bonded with resorginal formaldehyde resin glue to a particleboard core. All countertop front face to return vertically 35 mm ± . All front and backsplash edges to be rounded.

2. Underside to receive a backing sheet, sanded one side and bonded same as surfacing material.

3. Exposed edges to be finished with same material as used for the top.

4. Drip grooves to be cut into underside of the top where exposed edges occur.

5. Splash backs, curbs and curb shelves are to be of similar construction as the tops.

6. Use acid resistant post-forming grade laminate, where indicated on drawings. Colour: black.

7. At all wall termination, provide backsplash return.

2.8 Solid Surface Window Sills

1. To be 19mm solid phenolic sills from solid surfaces series, Corian manufactured by the DuPont Company. Solid surface to be nonporous, homogeneous material. Acceptable alternate: Formica

2. Covering panels should be 1/2 inch thick cast, nonporous, filled polymer, not coated, composite construction with through body colours, as indicated on drawings. Bullnose edge treatment to have 13 mm full bullnose.

3. Joint adhesive: Manufacturer’s standard one or two-part adhesive kit to create inconspicuous, nonporous joints.

4. Sealant: Manufacturer’s standard mildew-resistant, UL-listed silicone sealant in colours matching components.

5. Colour by Architect from standard colour palette.

6. Location: All renovated washrooms.

2.9 Moulding and Trims

1. Fabricate mouldings in maximum practical lengths to profile shown. Solid birch to receive varnish finish unless noted otherwise. Install with concealed fasteners.

PART 3 - EXECUTION

3.1 Installation

1. Set and secure all material and components in place, rigid, plumb and square.

2. Provide heavy duty fixture attachments for wall mounted cabinets.

3. Use draw bolts in countertop joints.

4. At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant.

5. Apply water resistant building paper over wood framing members in contract with masonry or cementitious construction.

6. After installation, fit and adjust operating hardware for wood and laminated plastic cabinet doors, drawers and shelves.

End of Section

PART 1 - GENERAL

1.1 Related Work Specified Elsewhere

1. Metal Stud System: Section 09111

1.2 Samples

1. Submit duplicate 300 x 300 mm size representative samples of insulation materials in accordance with Section 01340.

PART 2 - PRODUCTS

2.1 Insulation

1. Mineral Fibre: to CSA A101-M83, Roxul AFB Stud Sound Insulation - thickness as indicated on drawings.

2. Approved Equal: Dow Corning sound batt.

2.2 Vapour Barrier Film

1. Polyethylene film to CAN2-51.33-M77, 6 mil thick. Tape for sealing as recommended by manufacturer.

2.3 Accessories

1. Sealant: to CGSB 19-GP-21M.

2. Adhesive: compatible with Vapour Barrier Film.

PART 3 - EXECUTION

3.1 Insulation Installation

1. Install insulation to maintain continuity of thermal protection to building elements and spaces.

2. Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.

3. Do not compress insulation to fit into spaces.

3.2 Vapour Barrier Installation

1. Place polyethylene on warm side of insulation and tight to insulation.

2. Glue vapour barrier to framing members. Lap joints 150 mm minimum and tape seal. Ensure joints occur over framing members.

3. Tape seal areas where nails or staples penetrate vapour barrier.

4. Extend vapour barrier tight to perimeter of windows, door frames and other items interrupting continuity of membrane. Tape seal and seal with sealant.

5. Seal vapour barrier at points of penetration.

6. Vapour barrier to be continuous and pass in front of shear walls and precast concrete slabs.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Masonry: Section 04200
2. Rough Carpentry: Section 06100
3. Gypsum Board: Section 09250
4. Firestopping and Smoke Seals for Mechanical and Electrical Work: refer to drawings

1.2 Reference

1. ASTM E814 - Test Method of fire tests of through-penetration firestops, factory mutual.
2. CAN4-S101M - Standard Methods of Fire Endurance Tests of Building Construction and Materials.
3. CAN4-S115M - Standard Method of Fire Tests of Firestop Systems.
4. ULC - List of Equipment and Materials.

1.3 System Description

1. Firestopping Materials: CAN4-S115M ASTM E814 to achieve a fire protection rating as noted on Drawings.
2. It is the intent of this Section that in conjunction with Divisions 15 and 16 a competent, single source be responsible for the firestopping and smoke seals of the entire project.

1.4 Submittals

1. Submit a product data to requirements of Section 01340.
2. Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job site. Include manufacturer's printed instructions for installation, ULC design references.
3. Submit proposed type of fireproofing system for each location for approval by Architect. Fireproofing System must be appropriate to achieve expected appearance and finish.

1.5 Quality Assurance

1. Manufacturer: Company specializing in manufacturing products of this Section with minimum five years documented experience.
2. Applicator: Approved, licensed and supervised by the manufacturer of firestopping materials. Company with minimum five years documented experience.
3. Product: Manufactured under ULC Follow-up Program. Each container or package shall bear ULC label.

1.6 Regulatory Requirements

1. Conform to applicable code for fire protection ratings.

2. Provide certificate of compliance for authority having jurisdiction indicating approval.

1.7 Delivery, Storage & 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.

1.8 Project & Site Conditions

1. Application temperature and ventilation as per Manufacturer's instructions.

1.9 Sequencing & Scheduling

1. Sequence work to permit installation of firestopping and smoke seal materials to be installed after adjacent work is complete and before closure of spaces.

PART 2 - PRODUCTS

2.1 Materials

1. A/D Fire-barrier Firestop Systems, by A/D Fire Protection Systems Inc., capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of CAN4-S115 and not to exceed opening sizes for which they are intended.

2. Mineral Wool Backing Insulation: ULC labeled, preformed non-combustible material (A/D Fire-barrier Mineral Wool) by A/D Fire Protection Systems Inc.

3. Retainers: Clips to support mineral wool.

4. Firestopping Sealant: ULC labelled, single component silicone bases, A/D Silicone Firebarrier Sealant by A/D Fire Protection Systems Inc.

5. Firestopping Seal: ULC labelled, single component water-bases seal, A/D Firebarrier Seal by A/D Fire Protection Systems Inc.

6. Firestopping Foam: ULC labelled, two components silicone foam, A/D Firebarrier RTV Foam by A/D Fire Protection Systems Inc.

7. Firestopping Mortar: ULC labelled, non-combustible fibre reinforced, foamed cement mortar, A/D Firebarrier Mortar by A/D Fire Protection Systems Inc.

8. Damming Material: In accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

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 existing surfaces and substrate.

3.2 Preparation

1. Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.

2. Prepare surfaces in contact with firestopping materials and smoke seals to manufacturer's instruction.

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 are maintained.

3. Apply in sufficient thickness to achieve rating to uniform density and texture.

4. Provide temporary forming if required.

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 Cleaning

1. Clean adjacent surfaces of firestopping and smoke seal materials.

3.5 Field Quality Control

1. Notify Consultant when ready for inspection and prior to concealing or enclosing firestopping materials and service penetration assemblies.

3.6 Scheduling

1. Firestop and smoke seal at:

    .1 Penetrations through fire-separations: masonry, concrete, and gypsum board partitions and walls.

    .2 Edge of floor slabs at curtain wall and precast concrete panels.

    .3 Top of fire-separations: masonry and gypsum board partitions.

    .4 Intersection of fire-separations: masonry and gypsum board partitions.

    .5 Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.

    .6 Penetrations through fire-separations: floor slabs, ceilings and roofs.

    .7 Openings and sleeves installed for future use through fire separations.

End of Section

PART 1 - GENERAL

1.1 Related Work Specified Elsewhere

1. Not applicable.

1.2 Environmental Conditions

1. Sealant and substrata materials to be minimum 5 deg. C.

2. Should it become necessary to apply sealants below 5 deg. C, consult sealant manufacturer and follow their recommendations.

1.3 Warranty

1. Contractor hereby warrants that caulking work will not leak, crack, crumble, melt, shrink, run lose adhesion or stain adjacent surfaces in accordance with General Conditions, but for five (5) years total.

PART 2 - PRODUCTS

2.1 Materials

1. Primers: type recommended by sealant manufacturer.

2. Joint Fillers:

    .1 General: compatible with primers and sealants, outsized 30 to 50%.
    .2 Polyethylene, urethane, neoprene or vinyl: extruded closed cell foam, Shore A hardness 20, tensile strength 140 to 200 kPa.
    .3 Neoprene or butyl rubber: round solid rod, Shore A hardness 70.
    .4 Polyvinyl chloride or neoprene: extruded tubing with 6 mm minimum thick walls.
    .5 Bond breaker: pressure sensitive plastic tape which will not bond to sealants.
    .6 Sealant Type A: One component, chemical curing, conforming to CAN2-19.13-M82, Class C-2-25-B-N; multi-component, chemical curing, conforming to CAN2-19.24-M80, Type 2, Class B.
    .7 Sealant Type B: Multi-component, chemical curing mildew resistant conforming to CGSB 19-GP-22M.
    .8 Sealant type C: Multi-component, acrylic emulsion base, conforming to CGSB 19-GP-17M.
    .9 Sealant type D: One component, polyurethane base, chemical curing, conforming to CAN2-19.13-M82, Class C-1-25-B-N; or multi-component, chemical curing, conforming to CAN2-19.24-M80, type 1.

3. Color of Sealants: to be selected by Consultant. Allow for a total of three (3) colours for Type A, two colours for Type B, two colours for Type C and one colour for Type D. Locations as directed on site by Consultant.

4. Joint cleaner: xylol, methylethyl-ketone or non-corrosive type recommended by sealant manufacturer and compatible with joint forming materials.

5. Vent tubing: 6 mm inside diameter extruded polyvinyl chloride tubing.

PART 3 - EXECUTION

3.1 New Work

1. Caulk where specified and everywhere required.

2. Remove dust, paint, loose mortar and other foreign matter. Dry joint surfaces.

3. Remove rust, mill scale and coatings from ferrous metals by wire brush, grinding or sandblasting.

4. Remove oil, grease and other coatings from non-ferrous metals with joint cleaner.

5. Prepare concrete, masonry, glazed and vitreous surfaces to sealant manufacturer's instructions.

6. Examine joint sizes and correct to achieve depth ratio 1/2 of joint width with minimum width and depth of 6 mm, maximum width 25mm.

7. Install joint filler to achieve correct joint depth.

8. Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

9. Apply bond breaker tape where required to manufacturer's instructions.

10. Prime sides of joints to sealant manufacturer's instructions immediately prior to caulking.

3.2 Application

1. Apply sealants, primers, joint fillers, bond breakers, to manufacturer's instructions. Apply sealant, using gun with proper size nozzle. Use sufficient pressure to fill voids and joints solid. Superficial pointing with skin bead is not acceptable.

2. Form surface of sealant with full bead, smooth, and free from ridges, wrinkles, sags, air pockets, and embedded impurities. Neatly tool surface to a slight concave joint.

3. In masonry cavity construction, vent caulked joints from cavity to 3 mm beyond external face of wall by inserting vent tubing at bottom of each joint and maximum to 1500 mm o.c. vertically. Position tube to drain to exterior.

4. Clean adjacent surfaces immediately and leave work neat and clean. Remove excess sealant and droppings using recommended cleaners as work progresses. Remove masking after tooling of joints.

5. Use sealants specified in the following locations:

Type A: Joints between windows or door frames and adjacent building components; control and expansion joints and all other locations where sealing is required, except in locations designated for Type B, C and D. Ensure that sealant chosen (from the several specified under "MATERIALS") for each location is recommended by manufacturer for use on surfaces encountered.

Type B: Joints between splash backs and walls.

Type C: Joints between interior metal doorframes and partitions.

3.3 Work Included

1. Work shall include but not limited to the following areas:

   .1 Interior hollow metal frames; both sides;
   .2 Exposed control and expansion joints in masonry walls, masonry corners, joints in front of steel lintels bearing on exterior brick jambs;
   .3 Joints between masonry and concrete surfaces.
   .4 Joints between gypsum board and masonry, or other materials. At all other locations on drawings, except as noted below.

2. Sealing of joints to the underside of exposed precast slab to be by precast installer.

3. Sealing of all joints at top of walls meeting exposed flat or sloped precast ceilings to be included in this section.

End of Section

PART 1 - GENERAL

1.1 Work Included

1. A single manufacturer shall fabricate products included within the scope of this Section.

2. Manufacturer shall be a member in good standing of the Canadian Steel Door Manufacturers Association (CSDMA).

3. Supply only of steel frame products including frames, transom frames, sidelight and window assemblies with provision for glazed, paneled or louvered openings, fire labeled and non-labeled, as scheduled or detailed by the Architect.

4. Supply only of flush steel doors with provision for glazed, paneled or louvered openings, insulated and un-insulated, fire labeled, with or without temperature rise ratings and non-labeled, as scheduled or detailed by the Architect.

5. Supply only of steel panels, similar in construction to steel doors, with flush or abetted bottoms for steel frames, transom frames, sidelight and window assemblies, fire labeled and non-labeled, as scheduled or detailed by the Architect.

6. Doors and frames shall be prepared for, but not limited to, preparation for continuous hinges, heavy weight hinges, cylindrical locks, rim and concealed vertical rod/ mortise lock case exit devices, surface door closers and concealed overhead stops.

1.2 Related Work

1. Building-in of frame product into unit masonry, previously placed concrete, structural or steel or wood stud walls.

2. Supply and installation of wood, plastic or composite core doors.

3. Supply and installation of builders' hardware except as specified for acoustic assemblies.

4. Drilling and tapping for surface mounted or non-templated builders' hardware.

5. Caulking of joints between frame product and other building components.

6. Supply and installation of gaskets or weather-strip.

7. Supply and installation of louvers or vents.

8. Supply and installation of glazing materials.

9. Site touch-up and painting.

10. Wiring for electronic or electric hardware.

11. Field measurements.

12. Fasteners for frame product in previously placed concrete, masonry or structural steel.

13. Steel lintels, posts, columns or other load-bearing elements.

14. Field welding.

1.3 Requirements of regulatory agencies

1. Install fire labeled steel door and frame product in accordance with NFPA-80, current edition, unless specified otherwise.

1.4 References

1.	ANSI A115.IG-1994	Installation Guide for Doors and Hardware
2.	ANSI A250.4-1994	Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings.
3.	ASTM A653-M97	Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
4.	ASTM A924-M97	Standard Specification for General Requirements for Sheet, Metallic-Coated by the Hot-Dip Process.
5.	ASTM B117-95	Method of Salt Spray (Fog) Testing.
6.	ASTM C177-97	Test Method for Steady-State heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
7.	ASTM C518-91	Test method for Steady State Heat Flux Measurements and Thermal Transmission properties by means of the heat Flow Meter Apparatus.
8.	ASTM C578-95	Specification for Rigid, Cellular polystyrene Thermal Insulation
9.	ASTM C665-95	Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
10.	ASTM D1735-92	Practice for Testing Water Resistance of Coating Using Water Fog Apparatus
11.	CAN4-S104-M80	Fire Tests of Door Assemblies

12. CAN4-S105-M85	Standard Specification for Fire Door Frames Meeting the performance required by CAN4-S104
13. CAN4-S106-M80	Standard Method for Fire Tests of Window and Glass Block Assemblies
14. CGSB 41-Gp-19Ma	Rigid Vinyl Extrusions for Windows and Doors
15. CGSB 82.5-M88	Insulated Steel Doors
16. CSA A101-M83	Mineral Fiber Thermal insulation for Buildings
17. CSA W59-M89	Welded Steel Construction (Metal Arc Welding)
18. ISO 9001:1994	Quality Systems – Model for Quality Assurance
19. NFPA-80, 1999	Fire Doors and Windows
20. CSDMA	Dimensional Standards for Commercial Steel Doors and Frames

21. Manufacturers Standard and Galvanized Sheet Gauges

22. Fleming Fire Labeling Specifications

23. ULC List of Equipment and Materials, Volume 2

1.5 Testing and Performance

1. Door constructions covered by this specification shall be certified as meeting Level “A” (1,000,000 cycles) and Twist Test Acceptance Criteria (deflection not to exceed 6.4 mm /13.6kg force, total deflection at 136.1kg force not to exceed 63.5 mm and permanent deflection not to exceed 3.2 mm) when tested in strict conformance with ANSI-A250.4-1994. Test shall be conducted by an independent nationally recognized accredited laboratory.

2. Fire labeled product shall be provided for those openings requiring fire protection and temperature rise ratings, as determined and scheduled by the Architect. Doors, frames, transom frames and sidelight assemblies shall be tested in strict accordance with CAN4-S106. Product shall be listed by Underwriters Laboratories of Canada under an active Factory Inspection Program and shall be constructed as detailed in Follow-Up Service procedures issued to the manufacturer.

3. Should any door or frame specified by the Architect to be fire rated, not qualify for labeling due to design, hardware, glazing or any other reason, the Architect shall be so advised before manufacturing commences.

4. Core materials for exterior doors shall attain a thermal resistance rating of RSI 1.06 (R6.0) when tested in accordance with ASTM C177 or ASTM C518.

5. Product shall be manufactured by a firm experienced in the design and production of standard and custom commercial steel door and frame assemblies, the integration of builders' or electronic hardware and glazing materials and their impact on the scope of work.

6. Manufacturer shall be assessed and registered as meeting the requirements of Quality Systems under ISO 9001.

7. Product quality shall meet standards set by the Canadian Steel Door Manufacturers Association.

1.6 Test Reports

1. All alternates to this specification shall be submitted to the Architect for acceptance ten (10) days prior to bid date, complete with test reports from independent, nationally recognized testing authorities, certifying that:

    .1 Steel door and frame assemblies furnished under this section meet the acceptance criteria of ANSI-A250.4-1994, Level "A".
    .2 Insulated door cores furnished in exterior doors under this Section meet the specified thermal resistance rating.

2. All reports shall include name of testing authority, date of test, location of test facility, descriptions of test specimens, procedures used in testing and indicate compliance with acceptance criteria of the test.

1.7 Submittals

1. Submit shop drawings in accordance with the General Conditions of the Contract.

2. Indicate each type of door, frame, steel, core, material thickness, mortises, reinforcements, anchorages, locations of exposed fasteners, openings (glazed, paneled or louvered) and arrangement of standard builders' hardware.

3. Include a schedule identifying each unit, with door marks or numbers referencing the numbering in Architect's schedules or drawings.

4. Provide confirmation in writing that all aspects to reinforcing, construction, and gauge of metal are met as written in this section.

1.8 Warranty

1. All steel door and frame product shall be warranted from defects in workmanship for a period of two (2) years from date of shipment.

2. All steel door and frame product shall be warranted against rust perforation for a period of five (5) years when the installed and finish painted with a commercial quality paint to the manufacturers recommendations.

3. Finish paint adhesion on all door and frame product shall be warranted for a period of five (5) years when the product has been properly cleaned and finish painted with a commercial quality paint applied as recommended by the paint manufacturer. This warranty shall not exceed that provided by the paint manufacturer.

PART 2 - PRODUCTS

2.1 Doors

1. **Materials**

.1 Doors shall be fabricated from tension leveled steel to ASTM A924-M97, galvanized to ASTM A653-M97, Commercial Steel (CS), Type B, coating designation ZF75, known commercially as paintable Galvanneal.

.2 Door Cores:
Honeycomb:
Structural small cell (25.4 mm maximum) kraft paper "honeycomb". Weight: 36.3 kg per ream (minimum), density: 16.5 kg/m^3 (minimum), sanded to the required thickness.
.1 Polystyrene:
Rigid extruded, fire retardant, closed cell board, density 16kg/m^2, thermal values: RSI 1.06 minimum, conforming to ASTM C578.
.2 Temperature Rise Rated (TRR):
Solid slab core of non-combustible, inorganic composite to limit temperature rise on the "unexposed" side of door to 250°C at 30 or 60 minutes, as required by governing building code requirements and determined and scheduled by the Architect.

.3 Adhesives:
.1 Honeycomb Cores and Steel Components:
Heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement or ULC approved equivalent.
.2 Interlocking Edge Seams:
Resin reinforced polychloroprene (RRPC), fire resistant, high viscosity, sealant/adhesive or UL approved equivalent.
.3 Polystyrene Cores:
Heat resistant, epoxy based, low viscosity, contact cement.

.4 Primer:
Rust inhibitive touch-up only.

.5 Exterior Top Caps:
Rigid polyvinylchloride (PVC) extrusion.

2. **Construction**

.1 General:

.1 This section is based on doors and frames as manufactured by Fleming. Doors and frames by other manufacturers are acceptable subject to be similar to the one specified and meeting the terms of this section.
.2 Doors shall be swinging, 44.4 mm thick of the types and sizes indicated on the Architect's schedules or drawings.
.3 Exterior doors shall be lock seam, flush.
.4 Face sheets for exterior doors shall be fabricated from (16) gauge steel.
.5 Longitudinal edges of exterior doors shall be mechanically interlocked, fully welded, ground smooth with no visible seams. Do not fill seams.
.6 Face sheets of interior doors shall be fabricated from 18 gauge steel, except for heavy traffic doors (noted **HT** in Door Schedule) face sheet to be 16 gauge.
.7 Longitudinal edge of heavy traffic doors (noted **HT** in Door Schedule) shall be mechanically interlocked, fully welded, ground smooth with no visible seams. Do not fill seams.
.8 Interior doors shall be stiffened, insulated and sound deadened with honeycomb core laminated under pressure to each face sheet.
.9 Stiffened, insulated and sound deadened with Fleming's propriety core where Temperature Rise Rated (TRR) fire labeled doors are specified on the Architect's schedules.
.10 Longitudinal edges of interior doors shall be mechanically interlocked, adhesive assisted with edge seams visible.
.11 Door faces of all steel doors shall be fabricated without visible seams, free of scale, pitting, coil brakes, buckles and waves.
.12 Formed edges shall be true and straight with a minimum radius for the thickness of steel used.
.13 Lock and hinge edges shall be beveled 3 mm in 50 mm unless builders' hardware or door swing dictates otherwise.
.14 Top and bottom of doors shall be provided with inverted, recessed, 16 gauge steel end channels, welded to each face sheet at 150 mm on center maximum.
.15 Exterior doors shall be provided with factory installed flush PVC top caps. Fire labeled exterior doors shall be provided with factory installed flush steel top caps.
.16 Unless ineligible due to design, size, hardware or glazing specified on the Architects' or hardware Suppliers' schedules or details, fire labeled doors shall be provided for those openings requiring fire protection ratings and temperature rise ratings, as determined and scheduled by the Architect.
.17 Exterior doors shall be internally reinforced with 20 gauge continuous; interlocking steel stiffeners at 150mm O.C. max, with voids between stiffeners filled and insulated with 24kg/m3 density loose batt type fiberglass material to suit fully welded design.

.2 <u>Hardware Preparations:</u>
.1 Doors shall be factory 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 Doors shall be factory blanked and reinforced only for mortised hardware that is not fully templated.

.3 Doors shall be factory reinforced only for surface mounted hardware.
.4 Templated holes 12.7mm diameter and larger shall be factory prepared, except mounting and through bolt holes, which shall be by the contractor responsible for installation on site, at the time of application. Templated holes less than 12.7mm diameter shall be factory prepared only when required for the function of the device (for knobs, levers, cylinders, thumb or turn pieces) or when these holes over-lap function holes.
.5 Drilling and tapping for surface mounted hardware or mortised hardware that is not fully templated shall be by the contractor responsible for installation on site, at the time of application.
.6 Hinge and pivot reinforcements shall be 10 gauge steel minimum high frequency type reinforcing.
.7 Hinge reinforcements for acoustic doors and doors in excess of 2450mm rabbet height shall be 10 gauge minimum with each cutout provided with 114.3mm heavy weight (4.6mm) high frequency type.
.8 Lock, strike and flush bolt reinforcements shall be 12 gauge steel minimum.
.9 Reinforcements for concealed closers and holders shall be 12 gauge steel minimum.
.10 For surface mounted hardware, reinforcements shall be 16 gauge steel minimum.
.11 All pairs of fire labeled doors shall be provided with 12 gauge steel surface mounted flat bar astragal, shipped loose for application on site, by the contractor responsible for installation.
.12 Pairs of doors up to 2450mm x 2450mm, to 1½ hour fire rating maximum shall be provided without astragals. Lock edge seam of such doors shall be tacked-welded and ground smooth. All other fire labeled pairs shall be provided with 12 gauge steel surface mounted flat bar astragal, shipped loose for application on site, by the contractor responsible for installation.
.13 Where electrically or electronically operated hardware is specified on the Architects' schedules or details of the final approved schedule and templates provided by the hardware supplier, hardware enclosures and/or junction boxes, where indicated on the templates, shall be provided and interconnected with CSA Approved 12.7mm diameter conduit and connectors.
.14 Prepare doors to receive security door contacts – refer to electrical drawings for locations. Door contacts to be installed at 100 mm from the latch side door edge.
.15 Doors and Frames shall be prepared for, but not limited to preparations for heavy weight Butt Hinges, Continuous Hinges, Cylindrical Locksets, Rim or Concealed Vertical Rod and Mortise Lock Case Exit Devices, Surface Door Closer and Concealed Overhead Stops.

.3 <u>Glazing:</u>
.1 Where 6mm thick glazing materials are specified on the Architects schedules or details, doors shall be provided with 20 gauge steel glazing trim and snap-in glazing stops.
.2 Where other that 6mm glazing is specified on the Architect's schedules or details, doors shall receive 20 gauge steel trim and screw fixed glazing stops.

Screws shall be #6 x 32mm oval head scrulox (self-drilling) type at 300mm on center maximum.

.3 Glazing trim and stops shall be accurately fitted, butted at corners, with removable glazing stops located on the 'push' side of the door.

.4 Louver Preparations:

.1 Where specified on the Architect's schedules or details, non-labeled doors shall be prepared on accordance with the louver manufacturer's details.

.2 Where specified on the Architect's schedules or details, fire labeled doors shall be prepared for UL listed sight-proof fusible link louvers in accordance with the louver manufacturer's details.

.3 Louvers shall be supplied and installed by others.

.5 Finishing:

.1 Remove weld slag and splatter from exposed surfaces.

.2 All tool marks, abrasions and surface blemishes shall be filled and sanded to present smooth uniform surfaces.

.3 On exposed surfaces where zinc coating has been removed during fabrication, doors shall receive a factory applied touch-up primer.

.4 Primer shall be fully cured prior to shipment.

2.2 Panels

1. Panels shall be fabricated form the same materials, construction and finished in the same manner as doors as specified in Section 2.1.

2.3 Frame Product

1. **Materials**

.1 Steel:

Frame product shall be fabricated from tension leveled steel to ASTM A924-M97, galvanized to ASTM A653-M97, Commercial Steel (CS), Type B, coating designated ZF75, known commercially as paintable Galvanneal.

.2 Primer:

Rust inhibitive touch up only.

.3 Miscellaneous:

.1 Door Silencers:
GJ-64, Single Stud rubber/neoprene type

.2 Thermal Breaks:
Rigid polyvinylchloride (PVC) extrusion

.3 Fiberglass:
Loose batt type, density: 24kg/m^3 (minimum), conforming to ASTM C665

2. **Construction**

.1 General:
- .1 All steel frame product shall be as manufactured by Fleming of the types, sizes and profiles indicated on the Architects' schedules or details.
- .2 Exterior frames shall be thermally broken, Fleming *Therma-Frame* Series, fabricated from 16 gauge steel.
- .3 Exterior frame product shall be supplied profile welded (PW)
- .4 Interior and exterior sections of thermally broken frames shall be separated by a continuous PVC thermal break.
  - .1 Thermally broken sections shall not be assembled by means of screws, grommets or other fasteners and welds shall not cause thermal transfers between interior and exterior surfaces of the frame sections.
  - .2 Closed sections (mullions and center rails) of thermally broken frames shall be factory insulated with 24kg/m^3 loose batt type fiberglass material.
- .5 Insulation of open sections (jambs, heads and sills) on exterior frame product shall be provided and installed by the contractor responsible for installation.
- .6 Interior frames shall be Fleming F-Series, fabricated from 16 gauge steel.
- .7 Interior frame product shall be supplied profile welded (PW)
- .8 Knocked-down and knocked-down drywall frames shall not be acceptable.
- .9 Jambs, heads, mullions, sills and center rails shall be straight and uniform throughout their lengths.
- .10 Frame product shall be square, free of defects, wraps or buckles.
- .11 Corner joints shall be profile welded (PW) (continuously welded on the inside of the profiles' faces, rabbets, returns and soffit intersections with exposed faces filled and ground to a smooth, uniform, seamless surface)"
- .12 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.
- .13 All steel mullions will be fabricated from the same materials as specified for the steel frames. Steel mullions will be fabricated as a fully assembled three piece unit consisting of a front, back and full height one piece attachment clip as per Fleming F Series. The attachment clip will completely fill the stop area of the mullion on both sides and span the void between each side forming a grid channel like structure. Mullions used as hinge mullions or strike mullions between doors will be filled with grout by the general contractor either prior to or following installation of the frame. The head of the frame shall have an opening sufficient for the grout to be poured in to the mullion.
- .14 Mullions shall be fabricated with continuous 20 gauge galvanneal steel internal reinforcing clips.
- .15 Frame product shall be fabricated with integral door stops having a minimum height of 16mm.
- .16 Glazing stops shall be formed 20 gauge steel, 16mm height channel, accurately fitted, butted at corners and fastened to frame sections with #6 x 32mm oval head scrulox (self-drilling) type screws at 300mm on center maximum.

.17 Where required due to site access, as indicated on the Architects' schedules or details, when advised by the contractor responsible for coordination or installation, or when shipping limitations so dictate, frame product shall be fabricated in sections for splicing in the field.
  .1 Field spliced jambs, heads and sills shall be provided with 16 gauge steel splice plates securely welded into one section, extending 100mm minimum each side of splice joint.
  .2 Field splices at closed sections (mullions or center rails) shall be 16 gauge steel splice angles securely welded to the abutting member. Face of splice angle shall extend 100mm minimum into closed sections when assembled.
  .3 Field splice joints shall be welded, filled and ground to present a smooth uniform surface by the contractor responsible for installation after assembly.

.18 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 by the contractor responsible for installation prior to anchoring of frame to floor.

.19 Each door opening shall be prepared for GJ-64 or equivalent, single stud door silencers, three (3) for single door openings, two (2) for double door openings. Silencers shall be shipped loose for installation by the contractor after finish painting.

.20 Unless ineligible due to design, size, hardware or glazing specified on the Architects' or Hardware Suppliers' schedules or details, fire labeled frame product shall be provided for those openings required fire protection ratings as determined and scheduled by the Architect.

.2 <u>Hardware Preparations</u>

.1 Frame product shall be blanked, reinforced, drilled and tapped for fully templated mortised hardware only, in accordance with the final approved schedule and templated 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 that is not fully templated shall be by the contractor responsible for installation on site, at the time of application.

.5 Frames shall be prepared for 114.3mm standard weight hinges (minimum).

.6 Hinge and pivot reinforcements shall be 10 gauge steel minimum reinforcing, high frequency type shall be provided.

.7 Hinge reinforcements for acoustic frames and frames in excess of 2450mm rabbet height shall be 10 gauge minimum with each cutout provided with 114.3mm heavy weight (4.6mm) high frequency type.

.8 Strike reinforcements shall be 16 gauge steel minimum.

.9 Reinforcements for surface mounted hardware, concealed closers and holders and flush bolts shall be 12 gauge steel minimum.

.10 Mortised cutouts shall be protected with 22 gauge steel minimum guard boxes.

.11 Where electrically or electronically operated hardware is specified on the Architects 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 12.7mm diameter conduit and connectors.

.12 Prepare frames to receive security door contacts – refer to electrical drawings for locations. Door contacts to be installed at 100 mm from the latch side door edge.

.3 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, 18 gauge steel adjustable stirrup and strap 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 16 gauge 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.

.5 Floor anchors for thermally broken exterior frames shall be designed so as not to permit thermal transfers from exterior to interior surfaces of the frame sections.

.6 Frame product installed in drywall partitions shall be provided with 20 gauge steel snap-in or “Z” type stud type anchor.

.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 150mm 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 16 gauge anchor bolt guides.

.8 Anchor bolts and expansion shell anchors for the above preparations shall be provided by the contractor responsible for installation.

.9 After sufficient tightening of the anchor bolts, the heads shall be welded do as to provide a non-removable application. Welded bolt head and dimple shall be filled and ground to present a smooth uniform surface by the contractor responsible for installation, prior to finish painting.

.10 Where indicated on the Architects’ 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 12 gauge steel formed channel, mounting angles welded to inside of frame head and adjusting brackets. 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, by contractor responsible for installation.

.4 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.
- .4 Primer shall be fully cured prior to shipment.

2.4 Sizes and Tolerances

1. All sizes and tolerances shall be in accordance with the Canadian Steel Door Manufacturers Association "Recommended Dimensional Standards for Commercial Steel Doors and Frames" as follows:

   .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 rabbet 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 in 2.4.

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 in 2.4.3. 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 1200mm 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 the ANSI A115 series standards.

PART 3 - EXECUTION

3.1 Site and Protection of Materials

1. The contractor responsible for installation shall remove wraps or covers from door and frame product upon delivery at building site.

2. All materials shall be thoroughly inspected upon receipt and all discrepancies, deficiencies and/or damages shall be immediately reported in writing to the supplier. All damage shall be noted on the carriers' Bill of Landing.

3. Contractor responsible for installation shall ensure all materials are properly stored on planks or dunnage in a dry location. Product shall be stored in a vertical position, spaced with blocking to permit air circulation between them. Materials shall be covered to protect them from damage from any cause.

4. Contractor shall notify the supplier in writing of any errors or deficiencies in the product itself before initiating any corrective work.

3.2 Installation

1. Install doors and frames in accordance with the Door and Hardware Institute "Installation guide for doors and hardware".

2. Set frame product plumb, square, aligned, without twist at correct elevation.

3. Frame Product Installation Tolerances:

   .1 Plumbness tolerance, measured through a line from the intersecting corner of vertical members and the head to the floor, shall be $\pm$ 1.6mm.
   .2 Squareness tolerance, measured through a line 90^0 from one jamb at the upper corner of the product, to the opposite jamb, shall be $\pm$ 1.6mm.
   .3 Alignment tolerance, measured on jambs, through a horizontal line parallel to the plane of the wall, shall be $\pm$ 1.6mm.
   .4 Twist tolerance, measured at face corners of jambs, on parallel lines perpendicular to the plane of the wall, shall be $\pm$ 1.6mm.

4. Fire labeled product shall be installed in accordance with NFPA-80.

5. Secure anchorages and connections to adjacent construction.

6. Brace frame product rigidly in position while building-in. Remove temporary steel shipping jamb spreaders. Install wood spreaders at mid points of frame rabbet height and at floor level to maintain frame widths. Provide vertical support at center of head for openings exceeding 1250mm in width. Remove wood spreaders after product has been built-in.

7. Frame product in unit masonry shall be fully grouted in place.

8. Install doors maintaining clearances outlined in Section 2.4.

9. Install louvers and vents.

10. Adjust operable parts for correct clearances and function.

11. Steel surfaces shall be kept free of grout, tar or other bonding materials or sealers.

12. Any grout or other bonding material shall be cleaned from products immediately following installation.

13. Exposed field welds shall be finished to present a smooth uniform surface and shall be touched-up with a rust inhibitive primer.

14. Exposed surfaces that have been scratched or otherwise marred during shipment, installation or handling shall be touched-up with a rust inhibitive primer.

15. Finish paint in accordance with Section 09900.

16. Install glazing materials and door silencers.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Commercial Steel Doors and Frames: Section 08100
2. Glazing: Section 08800
3. Painting: Section 09900

1.2 Samples

1. Submit one (1) 300 x 300 mm corner cutaway sample of each type of wood door and each colour of door facing material.

2. Show door construction, core, glazing detail and faces.

1.3 Shop Drawings

1. Submit shop drawings in accordance with Section 01340.

2. Clearly indicate door types and cutouts for lights.

1.4 Warranty

1. Contractor hereby warrants that wood doors will not warp, twist, show core lines, split, delaminate or sag in accordance with General Conditions, but for three (3) years.

PART 2 - PRODUCTS

2.1 Manufacturers

1. Manufacturers of architectural wood doors having Product acceptable for use:
   .1 Baillargeon.
   .2 Cambridge Door Co.
   .3 Door-Lam.
   .4 Algoma Hardwoods.
   .5 Weyerhaueser.
   .6 Harrison Doors Limited.

2.2 Materials

1. Solid Core Flush Doors – Non-Rated: to CAN/CSA-O132.2; 44 mm thick; constructed as follows:
   .1 Core: AWMAC Particleboard Core Type; 448 kg/m^3 solid lumber stiles and rails bonded to core.
   .2 Face Assembly Adhesive: Type 1 – Waterproof
   .3 Core Assembly Adhesive: Type 11 – Water-resistant.
   .4 Door Faces: Standard decorative laminate to ANSI / NEMA LD 3, Grade VGS;

0.7 mm thick; colours and patterns as selected by Consultant from manufacturer's complete range. Finish to be suede finish by Wilsonart, Formica, Nevemar Arborite or Equivalent.

2. Solid Core Flush Doors – Fire Rated: to CAN/CSA-O132.2; 44 mm thick; fire rated as indicated; constructed as follows:

.1 Core: homogeneous incombustible mineral core; ULC labeled; solid lumber stiles and rails bonded to core with reinforced inner blocking for hardware mounting 140 mm top and bottom, 250 mm at center.
.2 Face Assembly Adhesive: Type 1 – Waterproof
.3 Core Assembly Adhesive: Type 11 – Water-resistant.
.4 Door Faces: Standard decorative laminate to ANSI / NEMA LD 3, Grade VGS; 0.7 mm thick; colours and patterns as selected by Consultant from manufacturer's complete range. Finish to be suede finish by Wilsonart, Formica, Nevemar Arborite or approved Equivalent.

2.3 Fabrication

1. Fabricate doors and panels to CSA 0132.2.

2. Provide 19 mm minimum thick edge strips of wood factory painted or stained and varnished to match plastic laminate.

3. Prepare doors for glass. Provide glazing stops factory painted or stained and varnished to match plastic laminate. Glazing stops to project min 3mm beyond face of laminate finish with 45 degree corners with rounded inside edge.

4. Prepare doors to receive hardware. Provide sufficient blocking and reinforcing to accommodate heavy weight oversize butt hinges, cylindrical locksets, rim and concealed vertical rod / mortise lock case exit devices, magnetic locks, surface door closers and concealed overhead stops. Coordinate with Finish Hardware.

5. Doors to be undercut to accommodate continuous hinges where required.

6. Apply laminate facings in accordance with AWMAC Quality Standards and as specified in Section 06400.

PART 3 - EXECUTION

3.1 Installation

1. Install doors and hardware in accordance with manufacturer's instructions and AWMAC standards.

2. Adjust hardware for correct function.

3.2 Adjustment

1. Re-adjust doors and hardware just prior to completion of building to function freely and properly.

End of Section

PART 1 - GENERAL

1.1 General Finish Notes

1. The Material and Colour Schedule will be issued by the Consultant after tender. It shall be read in conjunction with the Drawings, Specifications, Room Schedule and Door Schedule. Colour and material references named will be based on one manufacturer, as carried by the Contractor or, in the case that no specific manufacturer is carried, based on the Consultant's choice.

2. Approved alternative manufacturers will be acceptable only as indicated in the specifications. However, approved alternate products submitted must match the products named in the Specification to the Consultant's selection. Alternate products other than those named in the specifications will not be allowed unless previously approved by the Consultant.

3. Consult Architect prior to painting any surface not included in the formulae as listed.

4. Final colour for exterior painted surfaces and prominent interior areas shall be approved on the job site by the Architect.

5. Paint samples: Contractor to submit paint samples for all areas required to "Match Adjacent Finish".

6. All similar paint formulations are to be identical when dry. Variations in tone, texture or sheen shall not be accepted.

7. Submit two 300 mm x 300 mm paint samples of each colour required for approval by the Architect.

8. Exact locations of accent paint called for in the Material and Colour Schedule, to be issued after Contract award, not specifically identified on the drawings are to verified on site with the Architect.

1.2 Exterior Finish Notes

1. All exposed metal (doors, frames, lintels, stairs, handrails, mechanical equipment, etc.) to be painted except for prefinished metal louvres, stainless steel, and aluminum. Mechanical equipment is to be painted whether delivered to the site prepainted or not (exhaust fans, goosenecks, exhaust stacks, supports, HVAC units, HRU units, etc.). Colours to match adjacent material-generally either to match brick or tan to match flashing or siding material. Do not paint exposed white PVC pipe covers on interior. Architect will advise on jobsite which other items mentioned above, if any, do not require painting.

1.3 Interior Finish Notes:

1. All heating units, recessed convectors, grilles, pipes, access panels, hangers and miscellaneous exposed metal work (except stainless steel or anodized aluminum) to be painted to match the surfaces on which they occur unless noted otherwise on the colour

schedule, prefinished in suitable colour or directed by the Architect. If prefinished equipment is damaged, it shall be re-painted. Painting to be by formulations specified in Section 09900.

2. All interior fitments, casework, millwork, etc. to be melamine unless otherwise noted. Refer to Sections for specific requirements regarding materials, construction, finishes and hardware. Note that drawer and cupboard interiors are to be considered as exposed surfaces and will therefore be finished.

3. Do not paint over nameplates, identification tags, etc.

4. Make good all existing surfaces and finishes that are damaged during construction.

1.4 Abbreviations Legend

1. Refer to Room Finish Schedule for abbreviations Legend.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Gypsum Board: Section 09250
2. Rough Carpentry Section 06100

1.2 Reference Standards

1. Do work to CSA A82.31-1977, except where specified otherwise.

PART 2 - PRODUCTS

2.1 Materials

1. Metal Studs: non-load bearing channel stud framing to ASTM C645-09a, roll formed from 0.59 mm thickness electro-galvanized steel sheet for screw attachment of gypsum lath and metal lath, and with service access holes.

2. Structural Metal Studs: CSA-S13-01 and hot-dipped galvanized to ASTM A525M-87, minimum 1.22 (18ga.) use thicker materials where required to suit structural requirements. Framing shall be designed by a licensed professional engineer registered in the province of Ontario. Follow fabrication standards ASTM C955.

3. Floor and ceiling tracks: to ASTM C645-09a in width to suit stud sizes, 30 mm legs for floor track, 50 mm for ceiling track.

4. Metal channel stiffener: 38 mm size, 2 mm thick cold rolled galvanized steel.

5. Furring channels (channels, hangers, tie wire, insert, anchor): CGSB 7.1-98-CAN/CGSB.

6. Touch-up Zinc Rich Paint: CAN/CGSB-1.181-92.

PART 3 - EXECUTION

3.1 Stud Partitions

1. Align partition tracks at floor and underside of structure above and secure at 24” o.c. maximum. All partitions to extend to underside of structure above.

2. Place studs vertically at 16” o.c. and not more than 2” from abutting walls and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs, as required, to provide rigid installation to manufacturer's instructions.

3. Erect metal studding to tolerance 1:1000.

4. Attach studs to bottom track using screws.

5. Coordinate simultaneous erection of studs with installation of service lines. When erecting studs, ensure web openings are aligned.

6. Install steel frames and anchor frames securely to studs using minimum of three (3) anchors per jamb for jambs up to 84” high and a minimum of four (4) anchors per jambs for jambs over 84” high.

7. Provide two (2) studs at each side of openings wider than stud centre specified.

8. Install, cut to length, piece of runner horizontally over door frames.

9. Provide 38 mm x 89 mm vertical and horizontal wood studs secured between metal studs for attachments of bathroom fixtures, accessories, cabinet work, and other fixtures, including grab bars, towel rails, attached to steel stud partitions.

10. Install steel stud or furring channel between studs for attaching electrical and other boxes.

11. Extend all partitions to underside of structure above for sound and fire separation.

12. Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs.

3.2 Ceiling Furring

1. Install runners level to tolerance of 1/8” over 11’-8”. Provide runners at interruptions of continuity and change in direction.

2. Frame with furring channels, perimeter of openings to accommodate access panels, light fixtures, diffusers, grilles, etc.

3. Furring for bulkheads within or at termination or ceilings.

4. Install furring channels at 16” o.c. maximum.

3.3 Wall Furring

1. Install steel furring, as indicated.

2. Frame opening and around built-in equipment on four (4) sides with channels.

3. Box-in beads, columns, pipes, and around exposed services.

3.4 Fire-rated Assemblies

1. Where required, install Metal Stud System and Furring in accordance with appropriate ULC Design and with supplement to the National Building Code of Canada 1985.

End of Section

PART 1 - GENERAL

1.1 Related Work

1.	Masonry	Section 04200
2.	Metal Stud System:	Section 09111
3.	Acoustic Unit Ceiling	Section 09510
4.	Painting:	Section 09900
5.	Access Doors:	refer to related mechanical and electrical

1.2 Reference Standards

1. Do work to CSA A82.31-1977, except where specified otherwise.

PART 2 - PRODUCTS

2.1 Gypsum Board

1. Plain: to CSA A82.27-M1977 standard, 5/8” thick or as indicated, tapered edges.

2. Plain: to CSA A82.27-M1977, Fire-rated Type X, 5/8” thick or as indicated, tapered edges.

3. Plain: to CSA A82.27-M1977, Washroom walls 5/8” dens-shield or as indicated, tapered edges.

2.2 Fastenings and Adhesives

1. Screws: to CSA A82.31-1977.

2. Adhesive: to CGSB 71 GP 25M.

3. Laminating Compound: to CSA A82.31-1077.

4. Concrete Anchors: Phillips Red Head TW-614 or equivalent. Do not use powder activated fasteners for ceiling support.

5. Tie Wire: #16 ga. galvanized soft annealed steel wire.

2.3 Accessories

1. Casing Beads and Corner Beads: 0.5 mm base thickness commercial sheet steel with G90 zinc finish to ASTM A 525-78 A.

2. Joint compound: to CSA A82.31-1977, asbestos-free.

3. Caulking: Acoustical sealant.

PART 3 - EXECUTION

3.1 Gypsum Board Application

1. Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.

2. Apply single and double layers gypsum board to metal furring or framing, using screw fasteners and laminating adhesive. Maximum spacing of screw 12” oc.

3. Apply gypsum board to concrete block surfaces, where indicated, using laminating adhesive.

4. Apply type x gypsum board where indicated, in accordance with U.L.C. requirements and with supplement to the National Building Code of Canada to obtain the required fire protection, fire rating and fire separation.

3.2 Accessories

1. Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces, where practical. Make joints tight, accurately aligned and rigidly secure. Mitre and fit corners accurately, free from rough edges.

2. Install casing beads around perimeter of suspended ceilings.

3. Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated.

3.3 Access Doors

1. Install access doors to electrical and mechanical fixtures specified in respective Sections.

2. Rigidly secure frames to furring or framing systems.

3.4 Taping and Filling and Sound Seal

1. Seal with acoustical sealant at ceilings, floors, wall intersections and all penetrations such as electrical outlets.

2. Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

3. Finish corner beads, control joints and trim as required with two (2) coats of joint compound and one (1) coat of taping compound, feathered out onto panel faces.

4. Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after painting is completed.

5. Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

6. Completed installation to be smooth, level or plumb, free from waves and other defects and ready for painting.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Sealants — Section 07900
2. Gypsum Board — Section 09250

1.2 Reference Standards

1. Do tile work to Installation Manual 200-1979, “Ceramic Tile," produced by Terrazzo Tile and Marble Association of Canada (TTMAC).

1.3 Environmental Conditions

1. Main minimum 13 deg. C air temperature at tile installation area for 24 hr. prior to, during and 48 hr. after installation. Do not proceed without the correct tiles or if substrate conditions are not suitable.

1.4 Maintenance Material

1. Provide one full box of each type and color of tile required for project for maintenance use. Store where directed. Clearly identify each box.

2. Maintenance material to be of same production area as installed material.

1.5 Extended Warranty:

1. Submit a warranty for entire wall tile installation, covering materials and labour and the repair or replacement of defective work for a period of three (3) years total.

PART 2 - PRODUCTS

2.1 Thin-Set Mortar

1. Mortarcrete Latex Mortar conforming to ANS1A118.4-1973, manufactured by L & M Ceramo Inc.

2.2 Wall Tile

1. **Ceramic Wall Tile** (**CWT):** to CAN2-75, 1-M77, Type 5, Class MR-4, Colour & Dimension Collection, 75 x 150 x 6 mm size, cushion edges, glazed surface. Colours as selected by consultant up to a maximum of four (4) colours; Olympia Tile.

    .1 Acceptable Materials: Equal as supplied by Daltile – Semi-Gloss Group 1 and American Oleon equal.

2. Tile walls – see drawings for extent. Patterns and accent stripes to be selected by Architect.

3. Tile colors to be selected by Architect from Standard Color List. Total of four (4) colours. Accent stripes colors to be selected separately by Architect from "Accent Color" List. Total of two (2) colours.

2.3 Grout

1. Epoxy Grout: “Latapoxy SP-100” Stainless, chemical resistant epoxy grout by Laticrete International. Colour from manufacturer’s full range.

PART 3 - EXECUTION

3.1 Workmanship

1. Apply tile to clean and sound surfaces.

2. Fit tile around corners, fitments, fixtures, drains and other built-in objects to maintain uniform joint appearance. Cut edges smooth, even and free from chipping. Edges resulting from splitting, not acceptable.

3. Maximum surface tolerance 1:800 for walls, floors.

4. Make joints between tile uniform, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.

5. Lay out tiles so perimeter tiles are minimum 1/2 size.

6. Sound tiles after setting and replace hollow-sounding units to obtain full bond.

7. Make internal angles square, external angles rounded.

8. Use round edged tiles at termination of wall tile panels, except where panel butts projecting surface or differing plane.

9. Install soap dishes into block recess. Fit tiles around soap dishes.

10. Allow minimum 24 h after installation of tiles, before grouting.

11. Clean installed tile surfaces after installation and grouting cured.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Caulking: Section 07900

1.2 Reference Standards

1. Do tile work to Installation Manual 200-1979, "Ceramic Tile," produced by Terrazzo Tile and Marble Association of Canada (TTMAC), except where specified otherwise.

1.3 Maintenance Material

1. Provide maintenance data for tile work for incorporation into Maintenance Manual specified in Section 01720.

2. Provide 12 additional tiles of each type and color of tile required for project for maintenance use. Store where directed. Clearly identify each box.

3. Maintenance material to be of same production area as installed material.

1.4 Environmental Requirements

1. Air temperature and structural base temperature at tile installation area must be above 13 degrees C for 24 hours before, during and 24 hours after installation.

1.5 Extended Warranty:

1. Submit a warranty for entire flooring tile installation, covering materials and labour and the repair or replacement of defective work for a period of three (3) years total.

PART 2 - PRODUCTS

2.1 Tiles

1. Designation **(PT)**: 200 mm x 200 mm porcelain tile to CAN 2-75-1M77.

    .1 Acceptable material: Spectra series, distributed by Olympia Tile. Size 200 mm x 200 mm, plus trim and 200 mm x 100 mm bullnosed base, slate finish. Allow 2 colors from manufacturer's full line.
    .2 Acceptable Alternates: Fiandre Graniti by Savoia Canada
    Cross Colors-porcelain stone by Crossville Group 2

2.2 Accessories

None

2.3 Setting Materials

1. Cement Mortar: Mixture of 1 part Portland cement, 4 parts dry sand and 1/10 hydraulic lime. Materials shall conform to the following:

2. Portland Cement: To CAN3-A, Type 10.

3. Hydrated Lime: To ASTM C-206 or 207, Type 5.

4. Sand: To CSA A82.56, passing 1.6 mm sieve.

5. Water: Potable, containing no contaminants which cause efflorescence.

6. Thin Set Mortar: field mixed, blended sand-Portland cement-latex mortar, “Kerapoxy” by Mapei, distributed by Midgley and West, Hamilton Ontario.

   .1 Acceptable Alternates: “Laticrete 4237 distributed by Ceratec Inc., or Flextile 52 thin set.
   .2 Latex Additive: “Cemtex” by Master Builders, Laticrete 2022” distributed by Ceratec Inc.,

2.4 Grout

1. Sanded, Portland cement based with Plastijoints acrylic additive, Kerncolour / Floor by Mapei or similar by Laticrete. Colour as selected by Architect.

PART 3 - EXECUTION

3.1 Workmanship

1. Apply tile to clean and sound surfaces.

2. Fit tile units around corners, fitments, fixtures, drains and other built-in objects to maintain uniform joint appearance. Make cut edges smooth, even and free from chipping. Edges resulting from splitting not acceptable.

3. Maximum surface tolerance: 1:800.

4. Make joints between tiles uniform and approximately 3 mm wide, (maximum 4 mm) plumb, straight, true, even and with adjacent units flush. Align patterns.

5. Lay out units so perimeter tile are minimum 1/2 size.

6. Install floor tiles as per pattern. Pattern will be supplied by architect at a later date.

7. Sound tiles after setting and replace hollow sounding units to obtain full bond.

8. Make internal angles square, external angles chamfered at 45° with narrow tile strip.

9. Construct base, as indicated on drawings, with rounded top edge.

10. Use bullnose edged tiles at termination of wall tiles, except where tiles abut projecting surface or differing plane.

11. Seal grouted joints with sealer.

12. Clean installed tile surfaces after installation cured.

13. Keep building expansion joints free of mortar or grout.

3.2 Setting System

1. Install porcelain floor tiles in accordance with TTMAC applicable thinset detail.

End of Section

PART 1 - GENERAL

1.1 Reference Standards

1. Fabrication: to ASTM 365-78 and CAN/GSB-92.1-M77.

2. Installation: to ASTM C636-76, except where specified otherwise.

1.2 Design Criteria

1. Maximum deflection 1/360 of span to ASTM 365-78 deflection test.

1.3 Samples

1. Submit two each 305mm x 305mm samples of each individual tile and grid type in accordance with Section 01340.

1.4 Warranty

1. Submit an extended warranty covering materials and labour and the repair or replacement of defective work but for two (2) years total.

PART 2 - PRODUCTS

2.1 Materials

1. **Acoustic Panel Type**

   .1 **ACT-1**: 610 mm x 610 mm x 19mm, fine textured School Zone, angled tegular lay-in, Item # 1356 by Armstrong.
   Suspension system: 15/16” Prelude MX, white, by Armstrong.
   .2 Acceptable equal as manufactured by Celotex and CGC.

   .1 **ACT-2**: 610 mm x 610 mm x 16mm, Ceramaguard fine fissured, square lay-in, Item # 607 by Armstrong.
   Suspension system: 15/16” Prelude MX, white, by Armstrong.
   .2 Acceptable equal as manufactured by Celotex and CGC.

2. **Exposed Tee Bar Grid Components:** Cold rolled steel, zinc coated, shop painted, satin sheen, white, interlocking, main and cross tee of double web with rectangular bulb, depth governed by span, 1” exposed face.

3. **Hangers:** 1/8” galvanized soft annealed steel wire. Maximum spacing 12.0 feet.

4. **Accessories:** splices, clips, retainers, etc., to complement suspension system components.

2.2 Installation

1. Co-ordinate suspension system with related components.

2. Install acoustic units parallel to building lines with edge unit not less than 50% or unit width.

3. Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with moulding.

4. Support suspension system main runners at 48” oc maximum with hangers from structure. Assembly shall support super-imposed loads. Maximum permissible deflection, 1/360 of span.

5. Attach cross member to main runner to provide rigid assembly.

6. Install suspension assembly to manufacturer's written instructions.

7. Install flush edge moulding at junction of acoustic unit ceiling and other materials around entire length of joint. Secure to construction. Butt joints neatly, square and true in alignment.

8. Set acoustic units in place.

9. Set all ceiling levels by the use of transit or laser level.

10. Provide for Owner one (1) complete carton of each type of ceiling tile.

End of Section

PART 1 - GENERAL

1.1 Related Work

Carpet Tile Section 09680

1.2 Maintenance Data

1. Provide data for maintenance of resilient flooring for incorporation into Maintenance Manual.

1.3 Environmental Requirements

1. Maintain minimum 20 deg. C air temperature at flooring installation area for three (3) days before, during and for seven (7) days after installation.

PART 2 - PRODUCTS

2.1 Materials

1. **Vinyl composition tile (VCT):** to ASTM F 1066-1995 a, Type A design, asbestos free, 3 mm thick, 300 mm x 300 mm size Standard Excelon, Imperial Texture for field and Multicolour for accent and pattern by Armstrong. Allow for total of three (3) colours from full line. Allow 90% of area in Imperial texture and 10% in Multicolour.
   Acceptable Alternate: Mannington Commercial: Designer Essentials Series full range.

2. **Resilient Rubber Base (RB):** top set coved, 3 mm thick, rubber, 100 mm high minimum 1200 mm long, including premoulded end stops and external corners. Acceptable materials: non-shrink Rubber Wall Base with toe as manufactured by Johnsonite. Colours: From full Johnsonite "Coloright" colour line.

3. **Primers and adhesives:** waterproof, recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade. Use Johnsonite 990 Solvent Free Environmentally Safe White Acrylic Cove Base Adhesive for rubber base.

4. **Sub-floor filler:** white premix latex requiring water only to produce cementitious paste.

5. **Sealer:** not required

6. **Wax:** not required

7. **Polyethylene sheet:** to CAN2 51.33-M77, Type 2, for protection.

8. **Nose filler:** Epoxy caulking compound Johnsonite 930.

9. **Metal Edge Strip:** Smooth aluminum alloy, with lip extending under tile and shoulder flush to top of resilient tile flooring.

PART 3 - EXECUTION

3.1 Inspection

1. Ensure concrete floors are dry, by using test methods recommended by tile manufacturer, and inspect for negative alkalinity, carbonization or dusting.
2. Commencement of work indicates acceptance of conditions by flooring installer.

3.2 Subfloor Treatment

1. Remove subfloor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with subfloor filler.

2. Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured.

3.3 Tile

1. Apply adhesive uniformly using recommended notched trowel in accordance with Flooring Manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

2. Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles - minimum half tile width or as indicated by drawings and Finish Schedule.

3. Cut tile and fit neatly around fixed or excessively heavy objects.

4. Install flooring in pan type floor access covers and all clean out covers, where applicable. Maintain floor pattern.

5. Terminate flooring at center line of door in openings where adjacent floor finish or color is dissimilar.

6. Install metal edge strips at unprotected or exposed edges where flooring terminates.

7. At doorways to incrapack units, extend tile and base fully into door opening to incrapak classroom.

3.4 Base Application

1. Set base in adhesive tightly against wall and floor surfaces. Use lengths as long as practicable and not less than minimum 500 mm long.

2. **Remove all existing surface defects from concrete pour floors at existing spaces. Install must allow for minimal repairs and priming of existing concrete floors to accept new floor finishes.**

3. Install straight and level to variation of 1:1000.

4. Scribe and fit to door frames and other obstructions. Use premoulded end pieces at flush door frames.

5. Miter internal corners. Use premoulded corner pieces at all external corners and ensure full adhesion through to ends of corner pieces. See detail for termination at door frames.

6. Leave in the building one (1) complete carton of each of two (2) colours of floor tile and twelve (12) tiles of each of the remaining colours. Colours of extra tile to be specified by Architect.

3.5 Initial Maintenance after Installation

1. Broom sweep or vacuum thoroughly.

2. Do not wet mop, wash, scrub, or strip the floor. These procedures will be done by the Owner.

3.6 Protection of Work

1. Following broom sweeping, protect new floors with 0.15 mm thick Polyethylene cover and lay planking in all necessary traffic areas to minimize damage by other trades. Maintain until just before final inspection.

3.7 Preparation for Inspection

1. Only if so notified by Architect, and in the presence of the Owner, scrub the floor using a neutral detergent and a floor machine of 170-250 rpm capability equipped with a scrub brush or a scrubbing pad (3M blue or equal).

2. Lightly rinse and allow to dry. Note: Do not flood the floor with rinse water, scrubbing, or stripping solutions. Final re-washing, if required, and waxing will be done by owner.

End of Section

PART 1 – GENERAL

1.1 Related Work

1. Resilient Tile Flooring and Rubber Base — Section 09660

1.2 Samples

1. Submit duplicate 1 m square pieces of each type of carpet specified, duplicate 125 x 75 mm pieces for each color selected, 150 mm lengths of binder bars, in accordance with Section 01340.

1.3 Maintenance Data

1. Provide maintenance data for carpet maintenance for incorporation into Maintenance Manual specified in Section 01730.

1.4 Warranty

1. Carpet manufacturer lifetime warranties: wear, static protection, delamination, tuftbind failure, edge ravel and zippering and dimensional stability. Provide one full box of carpet tile of each colour to Owner.

PART 2 – MATERIALS

2.1 Modular Carpet (CAR. Tile)

1. Fibre: 100% solution dyed nylon.

2. Construction: textured dense pattern loop

3. Standard Backing System: PVC modular – containing recycled content.

4. Pile Density: 5300 FHA minimum.

5. Gauge: 1/12; 47.2 rows/10 cm, minimum.

6. Stitches: 11.2 spi; 45.3 stitches/10 cm, minimum.

7. Flammability: Radiant Panel ASTM E648 – Class I

8. Protections: anti-microbial, anti-zippering, anti-static and stain protection

9. Modular Size: 610 x 610

10. Manufacturers: Mohawk Group Carpet Tile = Caliber Series - BT282

Size:	600mm x 600mm P with T3 Back
Colours:	Marble – 7568
Manufacturers: Tarkett	Essentialist Collection
Equal Modular Tile by:	Centura Carpet – Venture Carpets – Tapis – Motion

Interface – Retrofit Collection

Colours: Allow for tile pattern from full range of colors. Selection by Consultant TBD.

2.2 Binder Bars

1. As recommended by carpet manufacturer. Color to match carpet.

2. Use binder bars at exposed carpet edges. Install binder bars at doorways centered under doors.

2.3 Adhesive

1. Full spread premium pressure sensitive adhesive as recommended by carpet manufacturer to suit carpet and subfloor conditions, and allow repositioning.

PART 3 - EXECUTION

3.1 Examination

1. New concrete must be fully cured and free of moisture. New concrete requires a curing period of approximately 90 days. Tests for moisture and alkalinity must be performed as detailed under moisture testing.

2. Work of others in areas where carpet is installed has been completed.

3.2 Preparation

1. Dust, dirt, debris, and noncompatible adhesive must be removed before installation begins. Surfaces must be smooth and level with all holes and cracks filled with latex based Portland cement patching compound.

3.3 Installation

1. Establish measurement and layout per manufacturer’s recommendations. Follow manufacturer’s pallet and box sequencing.

2. Install starting in the corner of one quadrant and in a pyramid fashion. Install by butting edges together evenly and do not compress modules compress modules. Fit carpet neatly around architectural, mechanical, electrical and furniture fitments.

3. Cut carpet modules at perimeters, floor electrical outlets, and door openings. Apply adhesive whenever modules are cut. Loop pile modules may require trimming or clipping of tufts.

4. Finish seams level, flat and inconspicuous.

3.4 Protection of Finished Work

1. Vacuum carpets clean. Protect traffic areas of carpeted floor with polyethylene drop sheets. Tape joints to prevent shifting.

2. After installation, and until project completion, coordinate work to ensure that carpeting is not damaged by traffic or by subsequent work.

End of Section

PART 1 - GENERAL

1.1 Related Work

1. Shop painting miscellaneous metals: Section 05500
2. Door Schedule refer to drawings
3. Shop priming of ferrous doors and door frames: Section 08100
4. Room Finish Schedule refer to drawings

1.2 Reference Standard

1. Ontario Painting Contractors Association (OPCA) Architectural Specification Manual - referenced as OPCA Manual, latest Edition. Paint formulations and methods referred to herein refer to this Manual. If contractor is unfamiliar with this reference standard, contact the OPCA.

1.3 Product Data

1. Submit to Architect, for review, product data for all formulas, including manufacturer's trade names.
2. Paint Manufacturer will provide periodic reviews and reports to Architect regarding work in this Section and if Contractor is adhering to manufacturer’s product specifications.

1.4 Environmental Requirements

1. Do not apply paint finish in areas where dust is being generated.
2. Conform to requirements of OPCA Manual.
3. Comply with the requirements of Health and Environmental Specifications.

1.5 Extent of Painting

1. For new construction, for rooms shown in room finish schedule to have painted walls, paint all non prefinished surfaces unless indicated otherwise, and repaint prefinished surfaces where indicated.
2. For existing construction, for rooms shown in room finish schedule to have repainted walls:
    - Paint all non prefinished new surfaces unless indicated otherwise.
    - Repaint prefinished surfaces where indicated.
    - Repaint all previously painted surfaces unless indicated otherwise.

1.6 Finishes and Colours

1. Review the requirements outlined in Finish and Colour Notes.
   A separate colour schedule will be issued after contract award.

1.7 Warranty

1. Provide a two (2) year warranty on completion stating that the work has been performed with respect to the standards and requirements incorporated in the OPCA specification manual latest edition

PART 2 - PRODUCTS

2.1 Materials

1. Acceptable products: Per Chapter 5 OPCA Manual as listed.

2. Paint materials for each paint system to be products of a single manufacturer.

3. Use low-VOC and low-odour paints only.

PART 3 - EXECUTION

3.1 Preparation of Surfaces in new Construction

1. Prepare surfaces to receive paint per Chapter 3 OPCA Manual.

2. Prepare wood surfaces to CGSB 85-GP-1M.
   .1 Use CGSB 1-GP-126M vinyl sealer over knots resinous areas.
   .2 Apply wood paste filler to nail holes and cracks.
   .3 Tint filler to match stains for stained woodwork.

3. Touch up shop paint primer on steel with CGSB 1-GP-40M to CGSB 85-GP-14M.

4. Prepare galvanized steel and zinc coated surface to CGSB 85-GP-16.

5. Prepare wallboard surfaces to CGSB 85-GP-33M. Fill minor cracks with plaster patching compound.

3.2 Preparation of Previously Painted Surfaces

1. Remove screws, bolts, nails, etc. from all surfaces to be painted

2. Remove all peeling and scaling paint by scraping and sanding.

3. Remove loose and broken pieces. Fill all holes, cracks and crevices with appropriate patching compound and match surrounding texture. Touch-up with appropriate primer.

4. Remove all dirt, grease, oil, wax and other contaminants by scrubbing with a detergent solution such as trisodium phosphate. Rinse with clean water.

5. All metal surfaces must be washed with mineral sprits. Change solvent and rags frequently. Remove all rust by sanding. Prime with rust inhibitive paint.

6. Dull all glossy surfaces by sanding.

7. Wash with solvent surfaces that have been subject to writing with marking pens, crayons, or lipsticks. Prime to stop bleeding.
8. For joints within or adjacent to exterior areas to be painted or cleaned, remove old cracked and loose caulking and replace with a high quality caulking compound.

3.3 Application

1. Sand and dust between each coat to remove defects visible from distance up to 60”.

2. Finish closets and alcoves as specified for adjoining rooms.

3. Apply each coat at the proper consistency. Each coat of finish should be fully dry and hard before applying the next coat, unless the manufacturer’s instructions state otherwise.

3.4 Mechanical and Electrical Equipment

1. Paint exposed conduits, pipes, hangers and other mechanical and electrical equipment occurring in finished areas as well as inside cupboards and cabinet work. Colour and texture to match adjacent surfaces, except as noted otherwise. Coordinate with mechanical trades applying banding and labeling after pipes have been painted. Do not paint white PVC covers on exposed mechanical water, drain and other lines

2. Paint gas piping standard yellow where visible on roof or in service spaces.

3. Paint surfaces inside of ductwork and elsewhere behind grilles where visible using primer and one coat of matte black paint.

4. Paint both sides and edges of plywood backboards for equipment before installation.

5. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.5 Paint Systems

1. System references listed are based on Chapters 4A and 4B of OPCA Manual and are OPCA Premium Grade, unless noted otherwise.

3.6 Interior Finishes

1. Wood, where applicable: INT. 1-A, Alkyd Semi-Gloss Finish, Premium Grade.

2. Gypsum board - Ceilings and bulkheads - INT. 4-A, Alkyd Flat Finish, Premium Grade.

3. Gypsum board – walls: JNT4A, Alkyd eggshell, Premium Grade.

4. Concrete Block: INT. 8-B, Alkyd Semi-Gloss Finish, Premium Grade.

5. Galvanized metal: INT. 13-A, Alkyd Semi-Gloss Finish, Premium Grade.

3.7 Refinishing of Previously Painted Surfaces

1. Apply two (2) finishing coats of paint materials listed in Section 3.5 and 3.6 for the type of surface considered.

2. When satisfactory coverage can be achieved by only one (1) coat, the second coat is not required.

3. Apply additional coats if necessary to cover accent colours, graphics, etc.

End of Section

PART 1 - GENERAL

1.1 Shop Drawings

1. Submit shop drawings in accordance with Section 01340.

PART 2 - PRODUCTS

2.1 Fixtures

1. **Corner Guards (SSG 'C' Type)**: Stainless Steel corner guard size 75mm x 75mm and manufactured from type 304 alloy with a #4 satin finish. Height of corner guard is to be 1220mm. Rounded corners at top to be 13mm.Design based on Acrovyn Stainless Steel corner guard model CO-8 by CS Construction Specialties.

PART 3 – EXECUTION

3.1 Installation

1. Install where indicated on drawings and as per manufacturer's instructions.

3.2 Demonstration and Training

1. Provide demonstration of operation to the Owner and his representatives.
2. Provide training for operation, maintenance and repairs.

End of Section

PART 1 - GENERAL

1.1 General Requirements

1. Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2 Related Work

1. Washroom Accessories: Section 10800

1.3 Submittals

1. Shop Drawings: Submit shop drawings in accordance with Section 01340, for Consultant's review before fabrication, indicating material, finish, dimensions, details of connections and fastenings, elevations, plans, sections, thicknesses, hardware and other pertinent information.

2. Samples: Submit samples of finish hardware and powder-coated sample in selected colour and finish in accordance with Section 01340, for approval of consultant.

PART 2 - PRODUCTS

2.1 Material Description

1. **Metal Toilet Partitions (MTP):** Standard series, by Hadrian Manufacturing
   Acceptable alternatives: Bradley Corporation, Global Steel Products Corporation, Shanahan's

   .1 **Divider Panels: 900mm wide x 1500mm high headrail braced**: 25 mm thick and 0.76 mm thick steel sheet faces with honeycomb core and internal reinforcing. Mounted 300mm from finished floor.

   .2 Hardware: .67 institutional extra heavy duty, type 304 satin finish stainless steel, angle brackets, U-channels and spring-loaded, self-closing hinge run full height of panel and door; for emergency access, door lift from outside. All fasteners to be pin-head Torx screws.

PART 3 – EXECUTION

3.1 Installation

1. Install compartments in accordance with reviewed shop drawings and in a neat, rigid manner free of defects.

2. Install units secure, accurately positioned, plumb, level, square and free from sag and distortion.

3. Perform drilling of steel, masonry and concrete necessary to install this work.

4. Ensure spaces between panels and pilasters, between panels and walls and between pilasters and walls are of uniform consistent width and sized to ensure it is not possible to see persons using the compartments.

5. Coordinate installation with the work of trades providing ceilings, wall and floor finishes, shower accessories and other adjacent components and construction.

3.2 Adjustment

1. Upon completion of the work or when directed, remove all traces of protective coating or paper.

2. Clean exposed surfaces and fittings.

3. Test hinges, locks and hatches and where necessary, adjust and lubricate. Set hinges so that doors stand open maximum 30 degrees when compartment is not in use. Ensure that partitions are in working order.

End of Section

PART 1 - GENERAL

1.1 General Requirements

1. Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2 Related Work Specified Elsewhere

1. Electrical conduit and wiring to junction boxes and hand dryers: refer to Electrical

1.3 Referenced Standards

1. ASTM A167-87: Specification for Stainless and Heat Resisting Chromium -Nickel Steel Plate, Sheet and Strip

2. ASTM A525: Standard Specification for General Requirements for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process (Metric)

3. CAN/CSA-G164-M92: Hot Dip Galvanizing of Irregularly Shaped Articles.

1.4 Shop Drawings

1. Submit shop drawings in accordance with Section 01340, for Consultant's review before fabrication. Shop drawings of units for use by the handicapped shall be distinctly marked and cross-referenced to the corresponding article in the specifications.

1.5 Quality Standard

1. This specification section is based generally on Bobrick equipment. Similar equipment and accessories by ASI Group Watrous Inc. and American Specialties Inc. are also acceptable.

PART 2 - PRODUCTS

2.1 Materials - Generally

1. Ferrous Steel: Sheet, cold-rolled furniture steel, double annealed, mill stretched and leveled, and fully pickled. Otherwise, steel shall be hot-rolled or cold-rolled of alloy to suit needs of fabrication, use, and appearance.

2. Stainless Steel: Type 304, conforming to ASTM A167-87, No. 4 finish.

3. Galvanized Steel: For sheet, Z275 zinc coating designation in accordance with ASTM Specification A525. For irregular sections, hot dip galvanized to comply with CSA G164.

4. Anchors and Fastenings: Where exposed, use stainless steel and otherwise to match metal anchored. Where non-exposed, use the same as that specified for exposed, or

use galvanized steel. Anchors and fastenings shall be of the type appropriate for the substrate to which accessory unit is secured.

2.2 Products

1. **Mirrors**
   .1 **(M1)** B-290 series by Bobrick, stainless steel frame, vandal resistant mounting, 6 mm glass mirror with 15 year guarantee against silver spoilage. Size: 1800 x 910 mm. Quantity: refer to drawings

   .2 Handicapped mirror **(M2):** B-293 series by Bobrick (tilt mirror), stainless steel. Size: 600 x 910 mm. Quantity: Refer to drawings. Quantity: refer to drawings.

2. **Handicapped Grab Bars (GB)**: by Bobrick
   .1 GB-1: B-5806 x 600 mm long bar behind water closet. Installed as per drawing.
   GB-2: B-5898 x 750 mm x 750 mm “L” shaped grab bar beside water closet mounted as per OBC requirements.
   GB-3: B-5806 x 600 mm long bar beside urinal. Installed as per drawing.
   .2 All bars to have concealed mounting hardware.
   .3 Quantity: refer to drawings.
   .4 All bars to withstand horizontal and vertical pull of 2.2 kN

3. **Vandal Resistant Clothes Hooks (CH)**: Model B-983
   .1 Stainless steel
   .2 Quantity: 1, Universal and Barrier-free washroom. Mounting height to be 1200 max.

4. **Stainless Steel Shelf (SSS)**: Bobrick B-295 x 400mm
   Location: Universal Washroom.

5. **Toilet Tissue Dispenser (TPD)**: Jumbo single bathroom tissue dispenser R01566 by Flexo Products Ltd.

6. **Soap Dispensers (SD)**: model R0710A by Flexo Products Ltd.

7. **Sanitary Napkin Disposal (ND)**: Model R0620 by Flexo Products Ltd.
   .1 Steel, surface mounted
   .2 Colour: White.
   .3 Quantity: refer to drawings

8. **Hand Dryers (HD)**: refer to Electrical specifications.

2.3 Component Minimum Requirements

1. **Construction:** Fabricate with materials, component sizes, metal gauges, reinforcing, anchors and fasteners of adequate strength to withstand intended use.

2. Where specified as frameless, provide stainless steel accessories with one-piece fronts having 90 degree formed returns at their edges and openings.

3. Where accessory fronts are framed, frame edges, both inside and outside, with 90 degree formed returns continuously welded and ground smooth at the corners. Doors shall also have 90 degree formed returns as specified.

4. Unless otherwise specified, hinges shall be semi-concealed stainless steel piano hinges extending full-length of hinged element. Provide hinged elements with concealed, mechanically-retained rubber bumpers for silent closing, and shall close flush with faces of fronts or frames.

5. Ensure that work will remain free of warping, buckling, opening of joints and seams, distortion and permanent deformation.

8. No exposed fixings permitted. Cut edges and openings square and smooth. Chamfer corners of edges and cut-outs 1.6 mm.

7. **Assembly:** Accurately cut, machine and fit joints, corners, copes and mitres so that junctions between components fit together tightly and in true planes.

8. Fasten work with concealed methods, unless otherwise indicated on Drawings.

9. Weld all connections where possible, bolt where not possible and cut off bolts flush with nuts. Countersunk bolt heads, and provide method to prevent loosening of nuts. Ream holes drilled for fastening.

10. Welded joints shall be tight, flush, and in true planes with base metals. Make welds continuous at joints where entry of water into voids of members or assemblies is possible.

11. Provide for differential movements within assemblies and at junctions of assemblies with surrounding work.

12. Welds in exposed locations shall be ground and polished smooth.

13. **Finish Work**: Provide holes and connections for related work installed under other Sections of this specification, if applicable.

14. Cleanly and smoothly finish exposed edges of materials, including holes.

PART 3 - EXECUTION

3.1 Inspection of Site

1. Take site measurements to ensure that work is fabricated to fit surrounding construction around obstructions and projects in place, or as shown on drawings, and to suit service locations.

3.2 Installation

1. Install all accessories in accordance with manufacturers' instructions at their recommended mounting heights unless noted otherwise on drawings.

2. Securely fasten accessories plumb, true, square, straight, level, and accurately and tightly fitted together and to surrounding work. Install in locations shown and specified herein. Mounting heights as shown or in accordance with the OBC in the case of barrier-free accessories.

3. Work shall include anchor bolts, bolts, washers and nuts, lag screws, expansion shields, toggles, straps, sleeve brackets, clips, and other items necessary for secure installation, as required by loading and by Jurisdictional Authorities.

4. Attach work at wood by screws through countersunk holes in metal.

5. Attach work to masonry with lead plugs and non-corrosive fastenings, to support load with a safety factor of 3. Perform all drilling necessary to install the work.

6. Insulate between dissimilar metals or between metals and masonry or concrete with bituminous paint, to prevent electrolysis.

7. Coordinate installation with the work of other trades adjacent to accessories to achieve the reveals or other edge conditions shown, where their front faces are flush with the finished wall surfaces.

3.3 Cleaning Up and Adjustment

1. Upon completion of the work, or when directed, remove all traces of protective coatings or paper.

2. Test mechanisms, hinges, locks and latches, and where necessary, adjust and lubricate and ensure that accessories are in perfect working order.

End of Section