SPECIFICATIONS

Project Name

Universal Washroom Renovation

For the
Huron Superior Catholic
District School Board

Holy Angels Learning Centre Catholic School

Volume 2 – Specification
Divisions 00-16

Issued for Tender

Project Number	**Date**
26009	**21 May 2026**

IDEA

Integrated Design
Engineering + Architecture
421 Bay Street, Suite 507
Sault Ste. Marie, Ontario P6A 1X3
P (705) 949-5291
www.integrateddesign.ca

Discipline	Company Name, Address and Name of Professional	Professional Seal
Architect Prime Consultant	IDEA Inc. 421 Bay Street Suite 507 Sault Ste. Marie, Ontario Canada P6A 1X3 Architect: Curtis Berkenbosch	
Electrical Engineer	IDEA Inc. 421 Bay Street Suite 507 Sault Ste. Marie, Ontario Canada P6A 1X3 Engineer: Jeanette Biemann	
Mechanical Engineer	IDEA Inc. 421 Bay Street Suite 507 Sault Ste. Marie, Ontario Canada P6A 1X3 Engineer: Alex Camirand	

END OF SECTION

PART 1 - GENERAL

1.1 The Agreement .1 The Canadian Construction Document #2 2008 edition.

1.2 Specification .1 The Specification in its entirety, refer to Section 00 01 11, Table of Contents. This includes the General Conditions and Supplementary Conditions to the CCDC#2 (2008) Document.

1.3 Drawings .1 The following is the list of Drawings for the Project, dated

21 May, 2026

Title	
a 0.00	Title Sheet
Architectural	
a 0.10	Building Information & Building Assemblies
a 0.20	Level 1 Context Plan
a 2.00	Level 01 – Washrooms Existing Removals & New
a 3.00	Level 01 – Reflected Ceiling Plan Existing Removals & New
a 12.00	Door Details
a 13.00	Washroom Specialties
afp 2.00	Level 01 – Floor Patterning Plan & Paint Plan
Structural	
0.00	Structural Work Specifications
1.00	Foundation and Ground Floor Plan and Typical Details
2.00	Second Floor Framing Plan and Lintel Schedule
Mechanical	
m 0.00	Mechanical Notes
m 0.10	Mechanical Notes, Legends & Schedules
m 1.10	Level 1 Plumbing Plan – Washrooms – Existing / Removals & New
m 4.10	Level 1 HVAC Plan – Washrooms – Existing / Removals & New
Electrical	
e 0.00	Electrical Specification
e 0.10	Electrical Legend and Bill of Materials
e 2.00	Level 01 – Overall Electrical Plan
e 2.10	Level 01 – Power and Auxillary Systems Existing / Removals & New
e 3.10	Level 01 – Lighting and Ceiling Devices Existing / Removals & New

1.4 Addenda

.1 All addenda issued to Tenderers prior to tender close.

END OF SECTION

PART 1 - GENERAL

1.1 INVITATION

.1 Tender Call

.1 **Tender Call Submissions**:, Offers signed under seal, executed, and dated will be received on or before:

15:00:00 (3:00:00 p.m.) local time on Thursday June 4, 2026

.2 Address and deliver Tenders to the following location:

Universal Washroom Renovation – Holy Angels Learning Center
For HSCDSB
c/o IDEA Inc.
421 Bay Street
Suite 507
Sault Ste. Marie, Ontario
P6A 1X3

.3 Offers submitted after above time will be returned to bidder unopened.

.4 Include name and address of Tenderer and project name and number on the face of the Tender Envelope

.5 Tender Opening:

.1 **There will be a Public Opening at 15:00:00 (3:00pm) @ IDEA Office**

.6 Where reference to Owner is made in the Contract Documents it shall mean the:
Huron-Superior Catholic District School Board

.7 Where reference to Consultant, Architect or Engineer is made in the Contract Documents it shall mean:
IDEA Inc.

1.2 INTENT

.1 Intent of this Tender call is to obtain an offer to perform work to complete project known as:

Universal Washroom Renovation – Holy Angels Learning Center
for the HSCDSB
Sault Ste. Marie, Ontario

.2 Consultants Project Number: **26009**

.3 The Consultants Project Number and Project Name must appear as a

header to ***ALL*** correspondence related to the project.

.4 Tenders are called for a Stipulated Price contract, in accordance with Contract Documents

.5 Perform Work within time stated in Section 01 11 00 - Summary of Work and as further described and detailed in the Contract Documents

.6 Accept the "Letter of Intent" as the contract award date and initiate work within five (5) days of receipt of said letter.

.7 Work under this contract shall commence immediately upon award of the contract and shall continue to completion without interruption

1.3 MANDATORY PREARRANGED SITE MEETING

.1 Site visits to review the existing facilities and site have been arranged as indicated below.

.2 Pre-Arranged Site Visits:

.1 Location: Holy Angels Learning Centre Catholic School
102 Wellington Street East
Sault Ste. Marie, Ontario

Dates: Monday May 25, 2026
Times: 4:00pm

.3 Site Visits are Highly Recommended for General Contractors and major sub trades wishing to view the premises prior to submitting tenderers for this project. The Consultant shall record attendance.

.4 Representatives from the Design Team and the Owner will be in attendance at the meeting to discuss project scope & schedule and to accept questions that may arise. Information provided at the meeting that may affect the tender will be circulated via addenda following the meeting.

.5 Purpose of this Site Visit is to familiarize general contractors and sub-contractors with existing Site and Building conditions. The project Site shall be accepted by the Contractor in its condition at time of tender.

.6 The Contractor, by attending the meeting will be held to have carefully examined the Site, and all conditions affecting the site and building, the work to be done there on, the location of all services which may have to be protected, removed or relocated. The Contractor shall accept responsibility for review and distribution of same information to all Sub-Contractors and Sub-Trades.

.7 No claims for extra payment will be considered for work, expense or difficulties encountered due to conditions on each site which were visible upon or reasonably inferable from the Site Visit.

.8 Should General Contractors and Sub-trades wish to visit the site in addition to the pre-arranged site meeting date, they may request to schedule additional access through the following contact:

Name: Steve Brown
Phone: (705) 945-5641
Email: steve.brown@hscdsb.on.ca

.9 The Contractor shall accept sole responsibility for any error or neglect on their part in this respect. Submission of Tender shall be deemed confirmation that tenderer has reviewed the Site and is thoroughly conversant with existing conditions as can be observed at the date of the tender close.

1.4 CONTRACT/BID DOCUMENTS

.1 Agreement Form
- .1 Contract Documents: Defined in **CCDC2 – 2020** Edition, Definitions
- .2 And as amended with Supplementary General Conditions as described in Section 00 73 00.

.2 Tender Documents: Contract Documents, including Drawings and Specifications, supplemented with Instructions to Tenders (Addenda), Tender Form, and Tender Supplementary Forms identified herein:
- .1 Tender, Offer, or Bidding: Act of submitting an offer under seal
- .2 Tender Price: Monetary sum identified in Tender Form as an offer to perform work

.3 Availability
- .1 Tender Documents may be obtained through the Sault Ste. Marie Construction Association
- .2 Tender Documents are available in electronic format (PDF)
- .3 Tender documents are not available via hardcopy.
- .4 Tender Documents will be made available to SSM and Sudbury Construction Associations and Plans Rooms. They in turn will share with any and all other plans rooms.
- .5 Tender Documents are made available only for purpose of obtaining offers for this project. Their use does not confer license or grant for other purposes.

.4 Examination
- .1 Upon receipt of Tender Documents verify that documents are complete.
- .2 Immediately notify Consultant upon finding discrepancies or omissions in Tender Documents.
- .3 Contractor shall be held to have carefully examined all drawings, specification, schedules, and site for all trade-work and to be familiar with all conditions, requirements and limitations pertaining to the work.
- .4 Examine the specifications and drawings thoroughly. Report to Architect all ambiguities, discrepancies, omissions, errors, departures from Building By-Laws, or from good practice, discovered during examination as early in the tender period as possible to allow clarification by addenda to be issued to all bidders. No claims for extra payment will be considered for work, expense or difficulties which are reasonably inferable from an examination of the documents prior to the closing of tenders.

.5 The drawings and specifications complement each other and neither is to be considered alone. Hence, any item omitted in one, but mentioned or implied in the other, must be provided.

.6 Bidders finding discrepancies or omissions in the drawings or specifications shall at once notify the Consultant who shall send written instructions to all bidders. Bidders may, during the tender period, be advised by addenda of any additions, alterations or deletions to the specifications and drawings. All such changes shall be covered by the tender and become part of the contract documents.

.7 If any person submitting a bid on this project is in doubt as to the true meaning and intent of any part of the specifications or other documents, he must request an interpretation from the Consultant. If such interpretation is not requested, the bids will be presumed to be based on the interpretation or directions that may be subsequently given by the Consultant after award of the Contract, in accordance with the provisions of the Contract.

1.5 TENDER QUERIES

.1 All Queries, Requests for Clarification and Requests for Approved Alternates by bidders must be provided in writing; verbal queries will not be accepted.

.1 All inquiries shall be made via Email.

.2 Include Project Number and Name in subject line of the email.

Questions pertaining to the content of the contract documents, scope of work, etc. shall be directed to the design Consultants. Queries may be directed to the consultant responsible for the discipline as indicated in the Specification Table of Contents or Drawing Sheet title-block, but a copy must be sent to the Prime Consultant Project Manager and the Owner's Representative

.3 Prime Consultant: IDEA Inc.
Project Manager: Evan Lavallee
Email: elavallee@integrateddesign.ca

.2 All Queries, Requests for Clarification and Requests for Approved Alternates by bidders must be received at the office of the consultant, not less than ***three (3) days*** before time set for receipt of Tenders.

.3 Verbal answers by the Owner or Consultant will not be binding unless confirmed by written addenda.

.4 Reply will be in form of written addendum, a copy of which will be forwarded to registered bidders and construction associations no later than ***two (2) days*** before receipt of Tenders.

1.6 PROPOSED SUBSTITUTIONS

.1 Refer to specification Section 01 34 00 – Substitution Alternate Procedures

.2 Where Tender Documents stipulate a particular product, substitutions

will be considered by Consultant up to ***three (3) days*** before receipt of Tenders. Request made after this deadline, will not be considered, or responded to.

.3 If the request is reviewed and accepted the Consultant will issue notification via Addendum

.4 Submission shall include sufficient information to enable Consultant to compare proposed alternate to specified product and determine acceptability of such products.
- .1 Provide reference to product specified and proposed alternate/substitution.
- .2 Provide specific reference to drawings number and/or specification section and article number.
- .3 Provide comparison chart(s) of features of specified material vs. proposed material.
- .4 Incomplete or illegible proposals may be summarily rejected. No notification will be provided.

.5 In making the application for the proposed substitution, the ***Tenderer*** shall be held to have included for, ***any and all*** changes required in work to accommodate such substitutions.
- .1 It shall be the sole responsibility of the Tenderer to ensure that the substituted material or equipment is fully compatible with available space, location, method of installation, work of other trades, and the like.
- .2 A later claim by Tenderer/Contractor for an addition to contract price or contract time because of changes in work necessitated by use of substitutions shall not be considered.
- .3 The Consultant does not undertake any obligation to revise any portion of the design to accommodate a proposed substitution.

.6 The Consultant reserves the right to accept or reject, without explanation, any or all proposals.

1.7 SUB-DIVISION OF WORK

.1 These Specifications have been divided into Divisions and Sections of work according to the accepted standards of Construction Specifications Canada (CSC) for the Construction Specifications Institute (CSI)

.2 The Contractor shall have sole responsibility for determination of subdivision of the material, labour and services necessary to complete the project to the specified standards of the proposed Contract Documents

.3 The Contractor shall be responsible for distributing all sections and divisions of the work to the Sub-trades bidding the work during tender phase and to the Sub-trades which are retained to perform the work during construction

.4 The Contractor will ensure that all of his/her Sub-trades are completely familiar with all the requirements of the Contract Documents which may affect their price.

.5 Main Divisions as listed in the table of contents are intended to be bid directly to the General Contractor. If major divisions are carried under another major division's contract, mark-up will only be allowed once.

1.8 QUALIFICATIONS

.1 Firms or persons submitting tenders shall be actually engaged in the line of work required by the proposed Contract Documents and shall be able to refer to work of similar nature completed by them.

.2 It is the bidder's responsibility to closely review the qualifications to confirm they meet and can readily demonstrate their ability to meet or exceed the listed qualifications. Any questions or concerns with the qualifications or evaluation process must be identified to the Consultant ten (10) days prior to the tender close.

.3 The Owner has identified a number of Contractor Qualifications that will be used in the Tender Evaluation process to determine the best value for the Owner's project. Bidders are ***not*** required to submit qualifications with their tender submissions but may be requested to submit this information as supplemental to inform the evaluation process, refer to article 1.13 Evaluation. The Owner reserves the right to request additional information as required to evaluate the Contractor against these qualifications. The Owner identified qualifications are as noted below:

.1 **General Intention:** The HSCDSB wishes to obtain a Contractor whom is capable and willing to work continuously throughout the summer months of 2026, including day, evening and weekend shifts as is necessary to complete the work specified within these contract documents, and according to the schedule requirements of section 1.11 Contract Time below.

.2 **Previous Construction Experience**: The Contractor must be able to demonstrate successful completion of at least three (3) previous construction projects of similar size, budget and/or construction type. At least one of the projects must be a renovation or addition to an occupied facility. ***If requested***, submit to the Consultant the relevant project experience for review. For each project include: Project title, year completed, project budget, brief project description, Client and Consultants Contact information

.3 **Superintendents Experience:** The Contractor must be able to demonstrate that the proposed Superintendent has at least ten (10) years' experience in the Construction Industry, has relevant experience as the full time Superintendent on similar Construction projects, specifically managing renovation construction projects. ***If requested***, submit to the Consultant the Superintendents Resume inclusive of education, past project experience and at least two (2) references that can speak to the Superintendents previous project experience and character.

.4 **Contractor References:** The Contractor must be able to provide References (a mix of Client and Consultant) that can validate the Contractors previous project experience and provide an opinion on the Contractors quality of work, ability to coordinate with trades, ability to maintain a project schedule, fairness in addressing changes and unforeseen conditions that arise during construction. *If requested*, submit to the Consultant at least three (3) References complete with Reference Name, Company, Title, Phone Number, Email Address and Project Title for which they are providing a reference on.

.5 **Safety:** The Owner would like to ensure that the successful Contractor understands and their responsibility for health and safety for this project, has comprehensive internal health and safety policies, and is engaging an experienced individual to act as the Health and Safety Coordinator. If requested, submit to the Consultant the Contractors Health and Safety Manual and the Resume for the proposed Health and Safety Coordinator.

.6 **Commitment to Schedule:** The HSCDSB requires the renovations milestones to be completed prior to Key dates described below. The successful Contractor must demonstrate that they are committed to scheduling and performing the work to achieve this deliverable. The successful Contractor will be required to submit a workplan and construction schedule that demonstrates the above and that will form part of the contract. **The Contractor will submit this information within 5 days after having been requested to do so, at the discretion of the Owner.**

.4 Subcontractors

.1 Owner reserves right to reject a proposed subcontractor for reasonable cause.

.2 Refer to CCDC2 - 2020, Article GC 3.7 of General Conditions.

.3 The Owner may request any proposed subcontractor to provide satisfactory evidence that they have the ability, experience, capital and plant to enable them to execute their portion of the work of the contract

.4 Nothing contained in the Contract Documents shall be interpreted as the Owner having any contractual obligations or relationships to a subcontractor.

1.9 BID SUBMISSION

.1 Bid Ineligibility

.1 Tenders that are unsigned, improperly completed, improperly signed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may, at discretion of Owner, be declared informal

.2 Tenders with Tender Forms and enclosures which are

improperly prepared, may, at discretion of Owner, be declared informal

.3 Tenders that fail to include security deposit, bonding or insurance requirements, may, at discretion of Owner, be declared informal

.4 Oral, telegraphed, faxed, or telephoned proposals, or modifications to, submitted proposals will not be accepted or considered.

.2 Submissions:

.1 Tenderers shall be solely responsible for delivery of their Tenders in manner and time prescribed.

.2 Submit one copy of executed offer on Tender Forms provided, signed and with corporate seal together with required security in a sealed opaque envelope, clearly identified with Tenderers name, project name and Owner's name on outside

.3 Fill in all spaces, monetary items shall be filled in with words and figures

.4 Identification: State on Tender Form, Contractor's name, address and contact information in spaces provided

.5 Addenda: Acknowledge all Addenda issued at the time of tender by inserting the number of the final Addenda received in the space allocated on the Tender Form

.6 Offer Amount: State on Tender Form, Tenderer's offer, in the form of a Stipulated Sum, for the labour, material and services required to complete the Work described in the Contract Documents.

.7 Contract Time. State on the Tender Form, time (in weeks) required to complete the Work as described.

.3 Tender Signing

.1 Tender form shall be signed under seal by Tenderer

.2 Sole Proprietorship: Signature of sole proprietor in presence of witness who will also sign. Insert words "Sole Proprietor" under signature. Affix seal

.3 Partnership: Signature of all partners in presence of witness who will also sign. Insert word 'Partner' under each signature. Affix seal to each signature

.4 Limited Company: Signature of duly authorized signing officer(s) in normal signatures. Insert officer's capacity in which signing officer acts, under each signature. Affix corporate seal. If Tender is signed by officials other than President and Secretary of company, or President-Secretary-Treasurer of company, copy of by-law resolution of Board of Directors authorizing them to do so must also be submitted with Tender in Tender envelope.

.5 Joint Venture: Each party of joint venture must execute Tender under respective seals in manner appropriate to such party as described above, similar to requirements of Partnership

.4 An abstract of submitted Tenders may, at the discretion of the Owner, be made available to Tenderers following Tender opening.

1.10 CONTRACT TIME

.1 The contractor/bidder shall carefully evaluate and assign the amount of time required to complete *all Work* as described in their tender. This shall be expressed as the number of Calendar Weeks from contract award to Substantial and Total Performance, (as defined by the Construction Act, current edition and as supplemented in specification section 01 77 00 Closeout Procedures). This shall be expressed in a number of Calendar Weeks on the tender form.

.1 This number will be used by the Consultant to assign the "Contact Completion Date" in the preparation of the formal construction Contracts. This will be calculated from the date of the issuance of the "Letter of Intent" plus the number of calendar weeks stated in the tender..

.2 This declared completion time may be used by the Owner for the purpose of evaluating "best overall value". For the purpose of tender evaluations "best overall value" can be measured by contemplating the lowest overall price against the best overall declared completion time.

.3 The site will be available for construction on a full-time basis starting **July 2nd, 2026**, at which time Contractors will have full (24hr) access until the 2 weeks prior to the commencement of the 2026 school year**.** The Owner requires "Substantial Performance" completion date for this project no later than **August 7th, 2026**, with "Total Performance" to follow by **August 21st, 2026**.The Owner **requires** the school to be operational and without any impact from construction activities beyond August 21st 2026.

.4 Work that is non-consequential to the operation of the school may be completed after **August 21st, 2026.** Construction hours will be after 3:30pm, weekends and holidays. The Contractor shall remove all construction materials, equipment and debris from the areas of work and the areas shall be thoroughly cleaned, so as not to create a hazard or disrupt next school-day activities. The Contractor may provide their own secure onsite storage, to be coordinated with the Owner. The Contractor may be allowed to perform some limited work during regular school hours, if it is deemed to be essential, but this will be on a case-by-case basis and will have to be coordinated and approved in advance by the Owner. **The Contractor cannot rely on this availability.**

.5 The Owner's own forces will require access to this area two weeks prior to school start. Life Safety measures shall be coordinated for Owner access throughout the Summer.

.6 The Tender/Contractor shall declare the amount of time required to complete **all Base Bid** *Work* as described in their tender, excluding all listed Separate Price Options**.** This shall be the date of "Total Performance" of the *Work* as indicated in the Contract Documents.

.1 This shall be expressed in a number of Calendar Weeks.

.7 This declared completion time may be used by the Owner for the purpose of evaluating "best overall value". For the purpose of tender evaluations "best overall value" can be measured by contemplating

the lowest overall price against the best overall declared completion time.

.8 The declared completion time expressed in "number of weeks" as provided with the tender will be used by the Owner to define the Contract Completion Date in the formal Construction Contract (CCDC 2). This date shall be the number of calendar weeks from the date of the "Letter of Intent".

.9 The successful Contractor shall work throughout the 2026 Summer months, **including day and evening shifts, including weekends in order to have the renovations completed by August 21st, 2026**. All new services are to be re-connected to existing to ensure a fully operational school and Occupancy Permit.

1.11 SUB-TRADE LIST

.1 Refer to specification 00 41 13a1 - Tender Form Appendix A List of Subcontractors

.2 Provide the name of the Individual//Subcontractor or Major Supplier, included in the tender for each item indicated in each list.
- .1 Complete all fields in the list
- .2 Provide a single name in each field.

.3 Changes to listed sub-trades/suppliers shall not be made without the express written consent of the Owner.

.4 Listed sub-contractors shall be actually engaged in the line of work required listed and shall be able to refer to work of similar nature completed by them.
- .1 References to projects of similar size and nature must be provided upon request.

.5 Incomplete forms, improperly completed forms or incorrect forms may result in the contractors bid being deemed invalid.

1.12 TENDER SUBMISSION REQUIREMENTS

.1 The **Tender Submission** should contain all of the following information.
- .1 Tender Form
- .2 Tender Form Appendix A - List of Sub-trades
- .3 Performance Bond, agreement to provide. Refer to Section 00 60 00 Bonding Requirements and provide an Agreement to provide the prescribed Security.
- .4 Material Labour Payment Bond, agreement to provide. Refer to Section 00 60 00 Bonding Requirements and provide an Agreement to provide the prescribed Security.

1.13 TENDER SUBMISSION REQUIREMENTS

ADJUSTMENTS

.1 Adjustments to the Primary and/or Supplemental Submissions requirements stated above shall be accepted via e-mail, prior to Tender Close in the following format only:
- .1 State **only the amounts to be added or deducted** from the Tender Submissions required above, to achieve the adjusted final amounts, which shall be calculated at Tender Opening.
- .2 Provide added / deducted amounts in a clear manner, corresponding to Tender Form and Tender Form Appendix

documents, as needed.

.3 Revisions to Tender Form Appendix A - List of Sub-trades shall also be accepted. State the Trade to be replaced and new entry only.

.2 Address to, cberkenbosch@integrateddesign.ca including a read receipt. Arrival time is determined by IDEA Inc. E-mail timestamp. Arrival prior to Tender Close is at the Bidders' risk. This risk extends to include any interruption of Internet Service or Power affecting delivery of these documents.

1.14 OFFER ACCEPTANCE / REJECTION

.1 Duration of Offer Acceptance/Rejection

.1 Tenders shall remain open to acceptance and irrevocable for a period of ***thirty (30) days*** after the Tender closing date. If withdrawn the respective Tenderer shall forfeit his Security Deposit. Telephone calls, email, messaging, facsimiles or telegrams will not be considered.

.2 Acceptance of Offer

.1 Owner reserves right to accept or reject any or all offers

.2 The Owner reserves the power and right to reject tenders received from parties who cannot show a reasonable acquaintance of the class of work herein specified and shown on the drawings.

.1 Evidence of such competency must be furnished by tenderer when requested.

.3 In the reception of tenders for the work, no obligation is incurred to accept the lowest or any proposal provided by a tenderer. The Owner reserves the right to refuse any or all tenders for any sub-division of the work or to decline to proceed with all the work if the Board so determines.

.4 After acceptance by Owner, the Consultant will issue a letter (Letter of Intent) to the successful Tenderer, relating the Owners acceptance of the Tender. This Letter of Intent will form the start date of the Contract. Formal contracts will be prepared for signatures and circulated to required parties by the Consultant.

.5 The Owner reserves the right to request any other additional information he/she may require to evaluate the submission. Failure to provide the information requested in a timely manner may result in the tender being disqualified.

.6 Upon acceptance, the successful Tenderer shall provide, within ten (10) business days the following documentation

.1 Bonding Certificates
.2 Workplace Safety and Insurance Board Certificate
.3 Certificate of Insurance (refer to CCDC 2 and the Supplementary Conditions)
.4 Signed Copy of Owners Contractors Procedure Manual (refer to 01 14 00 Work Restrictions)
.5 Copies of applicable permits
.6 Other(s) as may be reasonable requested
.7 Contractor's Health and Safety Policy Manual

1.15 AWARD OF THE

.1 Other factors affecting the Contract Award

CONTRACT

.1 A Bidder's past performance, organization, proposed subcontractors, equipment, and ability to perform and complete this Contract in the manner and within the time specified, together with the amount of the Tender, will be vital elements considered in the award of the Contract.

.2 Acceptance of Tender

.1 No Bidder shall consider them under Contract after the opening and reading of Tenders until the AGREEMENT is signed and compliance therewith has been made.

1.16 DELETION OF WORK UNDER THE CONTRACT

.1 The Owner reserves the right to delete any or all work from the contract.

1.17 BUILDING CODES AND SAFETY ACT

.1 All work is to be carried out in accordance with the latest edition of the Local, Provincial and Federal Construction and Building Codes, By-laws, including the Occupation Health and Safety Act

.2 Comply with requirements of Workplace Hazardous Materials Information System (WHIMS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material and safety data sheets acceptable to Labour Canada and Health and Welfare Canada.

.1 Deliver copies of WHIMS data sheets to Owner on delivery of materials and provide copies in Maintenance Manuals.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not used.

END OF SECTION

ARCHITECTS PROJECT NUMBER

PROJECT NAME

Universal Washroom Renovation –
Holy Angels Learning Center
for the HSCDSB
Sault Ste. Marie, Ontario

SUBMITTED BY

Contractor Name: _____

_____

Address: _____

_____

_____

Telephone Number: _____

Primary E-Mail: _____

OFFER

The undersigned, represents that he/she has had sufficient opportunity to examine and has carefully examined the Contract Documents, including all addenda, the General Conditions of the Contract, as amended by the Supplementary General Conditions, having become thoroughly familiar with local conditions affecting the performance and costs of the work, and having inspected the site, hereby offer to furnish all the materials, plant and labour necessary for the proper completion of the all Work, including any, applicable taxes, agree to enter into a contract with the Owner, for the sum of:

Contract Documents including Addenda(s) No. ____ through ____ inclusive as prepared by the Consultant for the Stipulated sum of:

_____

_____

_____

_____($_____.___)

Harmonized Sales Tax:

The Harmonized Sales Tax shall be thirteen percent (13%) in addition to the base tender amount. The amount of the Harmonized Sales Tax is:

_____

_____($_____.___)

Completion Date

I/We have reviewed the scope of this project with all of our sub-trades and suppliers and agree to complete the *Work* of the Contract in accordance with the requirements of the Contract Documents on or before the dates indicated below:

Substantial Performance _____ Number of Weeks from tender award

Total Performance _____ Number of Weeks from tender award

Signatures:

Authorized Signatures:

_____
Name and title of person signing

Signature:_____

Witness:_____

Date:_____

Contractor's Corporate Seal:

END OF TENDER FORM

Architect's Project Number **26009**

Project Name: **Universal Washroom Renovation – Holy Angels Learning Center**
for the HSCDSB
Sault Ste. Marie, Ontario

Submitted By: (Contractors Name)

_____

Subcontractors and Major Suppliers

The UNDERSIGNED lists herein the individual Subcontractor and Major Supplier for the trades listed below and who he/she proposes to employ on the project, and upon whose sub-trade or supply quotation he/she based the Stipulated Sum quoted herein, and agrees that no change shall be made in the list, as regards such Subcontractor or Supplier actually employed on the work without the express written consent of the Owner.

Listed sub-contractors shall be actually engaged in the line of work required listed and shall be able to refer to work of similar nature completed by them.

Provide only ***ONE*** name per section

This Appendix forms part of the contract and failure on part of the contractor to **COMPLETE EACH SECTION FULLY** may result in the contractors bid being **REJECTED.**

Trade/Division/Product	Subcontractor/Supplier
Block Masonry	
Metal Partitions	
Flooring	
Doors & Door Hardware	
WR Partitions & Specialties	
Plumbing	
Electrical	
Mechanical HVAC	

End of Section

Architect's Project Number **26009**

Project Name: **Universal Washroom Renovation – Holy Angels Learning Center**
Huron Superior Catholic District School Board
102 Wellington Street East, Sault Ste. Marie, Ontario

Submitted By: (Contractors Name) _____

1.0 UNSOLICITED ALTERNATE PRICES

.1 Contractors may provide Unsolicited Alternate Prices as per Section 00 21 13, Instructions to Bidders. All prices provided shall be provided exclusive of Harmonized Sales Tax.

.2 Provide a reference to the specified materials, means or methods and a complete, detailed description of the proposed alternate materials, means of method with all supporting documentation for review and consideration

1.1 UNSOLICITED ALTERNATE PRICE

Number 1

.1 Specified Materials

_____

.2 Proposed Alternate

Title._____

Brief Description_____

_____

_____

Supporting Documentation No. of Pages_____

Deduct from Tender Price_____($_____.___)

1.2 UNSOLICITED ALTERNATE PRICE

Number 2

.1 Specified Materials

_____

.2 Proposed Alternate

Title._____

Brief Description_____

_____

_____

Supporting Documentation No. of Pages_____

Deduct from Tender Price_____($_____.___)

1.3 UNSOLICITED ALTERNATE PRICE

Number 3

.1 Specified Materials

_____

.2 Proposed Alternate

Title._____

Brief Description_____

_____

_____

Supporting Documentation No. of Pages_____

Deduct from Tender Price_____($_____.___)

1.4 UNSOLICITED ALTERNATE PRICE

Number 4

.1 Specified Materials

_____

.2 Proposed Alternate

Title._____

Brief Description_____

_____

_____

Supporting Documentation No. of Pages_____

Deduct from Tender Price_____($_____.___)

END OF SECTION

PART 1 - GENERAL

1.1 BONDS

.1 The successful Tenderer shall be required to furnish the following Bonds/Surety or provide adequate Security as defined below for the execution of the Contract:

- .1 **Performance Bond 50%.** A Performance Bond, not less than ***Fifty percent (50%)*** of the Tender amount
  - .1 The form of the Bond shall be the CCDC form 221 (2002) Performance Bond, and as may be amended by the Supplementary General Conditions
  - .2 Refer to CCDC Document 2 (Revised 2008) Article GC 11.2
  - .3 The issuing company of the Bond must be approved by the Canadian Construction Association
  - .4 Performance Bond shall remain in place for a period of 12 months from the date of final certificate of payment.
- .2 **Labour Material Payment Bond.** A Labour Material Payment Bond, not less than ***Fifty percent (50%)*** of the Tender amount.
  - .1 The form of the Bond shall be the CCDC form 222 (2002) Labour Material Payment Bond, and as may be amended by the Supplementary General Conditions
  - .2 Refer to CCDC Document 2 (Revised 2008) Article GC 11.2
  - .3 The issuing company of the Bond must be approved by the Canadian Construction Association
- .3 **Other acceptable forms of Security**
  - .1 In lieu of the Bonding described above, the Owner will also consider a certified cheque or an Irrevocable Letter of Credit in an amount no less than ***One Hundred percent (100%)*** of the Tender amount.
    - .1 Certified Cheques used shall be drawn on a member of the Canadian Payments Association or a local cooperative credit society that is a member of a central cooperative credit society having membership in the Canadian Payments Association, payable to the order of the Owner, for no less than the amount stated above.
    - .2 Irrevocable Letters of credit will be considered from reputable Canadian Banks and Credit Unions at the discretion of the Owner, be provided on the financial institutions letter head, be unconditional, allow for multiple partial draws, and automatically renew until the Owner notifies the financial institution in writing that the project obligations have been completed (12 months from the date of final certificate of payment).

.2 Include the cost to provide the Bonds in the Tender Amount

.3 Formalized, sealed, certified copies of the type of security being issued are to be provided within **seven (7)** days of Tender Award, after receiving notification of acceptance of their quotation from the Owner, (Letter of Intent).

.4 Other acceptable forms of security

1.2 CONSENT OF SURETY OR AGREEMENT TO BOND

.1 Tenders shall be accompanied by an agreement to provide the required security in the form of either:

.1 Consent of Surety or Agreement to Bond, signed and sealed by Tender's surety, stating that surety is willing to supply Performance and Labour and Materials Payment Bond as described above.

.2 or a signed letter from the financial institution confirming the Contractors capacity and the financial institutions intent to provide the contractor with the required security as described above along with a copy of the standard security form for review.

.2 Include the cost to provide this Consent or Surety in the Tender Amount.

1.3 BID BOND

.1 Tenders shall be accompanied by a Security Deposit / Bid Bond in the amount of:

.1 Every tender shall be accompanied by a tender deposit (Security Deposit) in the form of a bid bond in the amount equal to **$50,000**.

.2 Endorse Bid Bond in the name of the Owner, as obligee, signed and sealed by the principal Contractor and Surety.

.3 Use the latest edition CCDC approved Bond Forms.

.4 Security deposit will be returned after delivery to Owner of Required Performance, and Labour Material Payment Bond(s) by the accepted tenderer.

.5 If no contract is awarded, all security deposits will be returned.

.2 All costs to provide the Security described above shall be included in the Tender Amount.

.3 Formalized, sealed, certified copies of the type of security being issued are to be provided within seven (7) days of Tender Award, after receiving notification of acceptance of their quotation from the Owner, (Letter of Intent) or forfeit the amount of the Bid Bond enclosed with the tender.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 INTRODUCTION

.1 The following Supplementary Conditions modify, change, delete from or add to the Articles of Agreement, the Definitions, and the General Conditions of the Stipulated Price Contract, **Standard Construction Document CCDC2, 2020**

.2 Where any Article, Definition, General Condition, paragraph, subparagraph or clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Definition, General Condition paragraph, subparagraph or clause shall remain in effect

.3 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

.4 All references within these documents, to the “Ontario Construction Lien Act” or “Construction Lien Act” or the like, refers to the most recent legislation that was passed on July 1, 2018, in which, the Ontario Construction Lien Act has become the Construction Act (the “Act”).

1.2 MODIFICATIONS TO ARTICLES

.1 **ARTICLE A-3 – CONTRACT DOCUMENTS**

.1 Amend paragraph A-3.1 to add the following after the words, “The General Conditions of the Stipulated Price Contract”

“- These Supplementary General Conditions
- The Specific Conditions, if any
- Drawings
- Specifications”

.2 **ARTICLE A-5 -PAYMENT**

.1 Delete paragraph 5.3 – Interest, in its entirety.

.3 **ARTICLE A-6 – RECEIPT AND ADDRESSES FOR NOTICES IN WRITING**

.1 Amend paragraph 6.1, by deleting the words, "or by facsimile" in the second sentence, the words, "facsimile, or other form of" in the fourth sentence, and the words, "facsimile number" wherever they appear:

1.3 MODIFICATIONS TO DEFINITIONS

.1 **DEFINITIONS**

.1 Add a new Definition, “*Act*” as follows:

“***Act***

Act means the *Construction Act* (Ontario), as amended.”

.2 Add a new Definition, "*As-Built Drawings*" as follows:

"***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."

.3 Add a new Definition, "*Confidential Information*" as follows:

"***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*."

.4 Add a new Definition, "*OSHA*" as follows:

"***OSHA***

OSHA means the *Ontario Health and Safety Act* (Ontario), as amended."

.5 Add a new Definition, "*Personal Information*" as follows:

"***Personal Information***

Personal Information means personal information as that term is defined in subsection 2(1) of the *Freedom of Information and Protection of Privacy Act*, and includes personal health information as that term is defined in subsection 2(1) of the *Personal Health Information Protection Act* which definitions extend to individual's name, address, age, date of birth, sex, and religion, and any and all personal health information of an individual, whether recorded in printed form, on film, by electronic means, or otherwise."

.6 Add a new Definition, "*Proper Invoice*" as follows:

"***Proper Invoice***

Proper Invoice means an invoice that complies with the requirements of the Construction Act and also a includes the following"

.1 a breakdown of the invoice amount by trade or division as required by the specifications,

.2 an updated schedule in a form and level of detail acceptable to the owner showing the percentage complete on each task,

.3 a Workplace Safety and Insurance Board clearances showing current coverage.

.4 a Statutory Declaration in the form of CCDC 9A 2018 (for every invoice after the first invoice)"

.7 Add the following definition:

"**Submittals**

Submittals are documents or items required by the *Contract Documents* to be provided by the *Contractor,* such as:

- Shop Drawings, samples, models, mock-ups to indicate details or characteristics, before the portion of the Work that they represent can be incorporated into the Work; and
- Record drawings and manuals to provide instructions to the operation and maintenance of

the *Work*."

.8 Add a new Definition, "*WSIB*" as follows:
"***WSIB***
WSIB means the *Workplace Safety and Insurance Board."*

.9 Add a new Definition, "*Daily Work Records*" as follows:
"***Daily Work Records***
Daily Work Records mean daily records detailing the number and categories of workers and hours worked or on standby, types and quantities of *Construction Equipment*, and descriptions and quantities of *Product* utilized."

1.4 MODIFICATIONS TO GENERAL CONDITIONS

.1 **GC 1.1 CONTRACT DOCUMENTS**

.1 Add to the end of subparagraph 1.1.2.2
"……..Except where the *Consultant* shall be indemnified as a third party beneficiary as provided in subparagraphs 9.2.7.4, 9.2.8.4, 9.5.2.4 and 9.5.3.4 and in 12.1.1*."*

.2 Delete 1.1.6 in its entirety and substitute the following:
"1.1.6 The *Specifications* are divided into divisions and sections for convenience but shall be read as a whole and neither such division nor anything else contained in the *Contract Documents* will be construed to place responsibility on the *Owner* or the *Consultant* to settle disputes among the *Subcontractors* and *Suppliers* with respect to such divisions. The *Drawings* are, in part, diagrammatic and are intended to convey the scope of the *Work* and indicate general and appropriate locations, arrangements and sizes of fixtures, equipment and outlets. The *Contractor* shall obtain more accurate information about the locations, arrangements and sizes from study and coordination of the *Drawings*, including *Shop Drawings* and shall become familiar with conditions and spaces affecting those matters before proceedings with the *Work*. Where site conditions require reasonable minor changes in indicated locations and arrangements, the *Contractor* shall make such changes at no additional cost to the *Owner*. Similarly, where known conditions or existing conditions interfere with new installation and require relocation, the *Contractor* shall include such relocation in the *Work*. The *Contractor* shall arrange and install fixtures and equipment in such a way as to conserve as much headroom and space as possible. The schedules are those portions of the *Contact Documents*, wherever located and whenever issued, which compile information of similar content and may consist of drawings, tables and/or lists.

.3 Delete 1.1.7.1 in its entirety and substitute the following:
"1.1.7.1 If there is a conflict within the Contract Documents, the order of priority of documents, from highest to lowest, shall be.
- any amendment to the Agreement between the Owner and the Contractor.
- The Agreement between the Owner and the Contractor, as amended by these Supplementary General Conditions
- The Definitions
- Specific Conditions
- Supplementary Conditions
- The General Conditions
- Division 1 of the Specifications,
- Technical Specifications,
- Material and finishing Schedules.

.4 Add new subparagraphs 1.1.7.5 thru 1.1.7.10 as follows:
"1.1.7.5 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the *Contract Documents.*
1.1.7.6 Finishes in the room finish schedules shall govern over those shown on the *Drawings*
1.1.7.7 Schedules of Division 01 – General Requirements of the *Specifications* shall form part

of and be read in conjunction with the technical specification section as listed in the table of contents of the *Specifications*

1.1.7.8 Architectural drawings shall have precedence over structural, plumbing, mechanical, electrical and landscape drawings insofar as outlining, determining and interpreting conflicts over the required design intent of all architectural layouts and architectural elements of construction, it being understood that the integrity and installation of the systems designed by the *Consultant* or its sub-*Consultants* are to remain with each of the applicable drawing disciplines.

1.1.7.9 Should reference standards contained in the *Specifications* conflict with the *Specifications,* the *Specifications* shall govern. Should reference standards and *Specifications* conflict with each other or if certain requirements of the *Specifications* conflict with other requirements of the *Specifications*, the more stringent requirements shall govern.

.5 Delete 1.1.8 in its entirety and substitute the following:

"1.1.8 The *Contractor* shall be responsible to provide all printed copies of the *Contract Documents* that may be necessary and or required to perform the *Work,* submit for permit and provide as builts. At the completion of the work the *Contractor* be held responsible to collect and destroy all copies not turned over to the Owner, used for permits or contracts."

.2 **GC 2.2 ROLE OF THE CONSULTANT**

.1 Add new paragraph 2.2.0 as follows:

"2.2.0 The *Consultant* is not signatory to, is not party to, "*the Agreement"* between the *Owner* and the *Contractor*, and as such is not bound by any conditions or requirements as stated therein. The *Owner* and the *Contractor* shall indemnify and save harmless the *Consultant* from any claims arising from a disagreement between the two signatory parties."

.2 Amend paragraph 2.2.3 by deleting the second sentence therof.

.3 Delete paragraph 2.2.4. in its entirety

.4 Add the word "schedules" after the word "techniques" in paragraph 2.2.6.

.5 Add to the end of the second sentence of paragraph 2.2.6. "…..or to adhere to the construction schedule"

.6 Add at the end of paragraph 2.2.9. "The *Owner* and the *Contractor* shall waive any claims against the *Consultant* arising out of the making of such interpretations and findings in accordance with paragraphs 2.2.7., 2.2.8. and 2.2.9".

.7 Add new sentence to end of paragraph 2.2.11 "The Consultant's obligation to make findings on a large claim or large number of claims is subject to the terms and conditions of the Owner/Consultant agreement."

.8 Amend paragraph 2.2.13 by the addition of the following to the end of that paragraph:

"……..If, in the opinion of the *Contractor*, the *Supplemental Instruction* involves an adjustment in the *Contract Price* or in the *Contract Time*, it shall, within ten (10) *Working Days* of receipt of a *Supplemental Instruction*, provide the *Consultant* with a notice in writing to that effect. Failure to provide written notification within the time stipulated in this paragraph 2.2.13 shall be deemed an acceptance of the *Supplemental Instruction* by the *Contractor*, without any adjustment in the *Contract Price* or *Contract Time."*\

.9 Delete the comma after the word "submittals" and add the words "which are provided" before the words "in accordance" in paragraph 2.2.14.

.10 Delete paragraph 2.2.16 in its entirety and replace it with the following:

"2.2.16 The *Contractor* shall complete the deficiency review of the *Work*, and provide detailed results of the review prior to requesting a Substantial Performance Inspection of the *Consultant.* Then the *Consultant* and *Contractor* will jointly conduct reviews of the *Work* to determine *Substantial Performance of the Work* and completion of the *Work* as provided in GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK and GC 5.7 – FINAL PAYMENT. The Consultant will issue a Certificate of Substantial Performance if, in their sole opinion, meets the requirements."

.3 **GC 2.3 REVIEW AND INSPECTION OF THE WORK**

.1 Delete paragraph 2.3.3 in its entirety and replace it with the following:

"2.3.3 The *Contractor* shall furnish copies to the *Consultant* and *Owner* of all certificates and inspection reports relating to the *Work*."

.2 Insert the word "review" after the word "inspections" in the first line of paragraph 2.3.4.

.3 Add a new paragraph 2.3.8 as follows:

"2.3.8 The *Consultant* will conduct periodic reviews of the *Work* in progress, to determine general conformance with the requirements of the *Contract Documents*. Such reviews, or lack thereof, shall not give rise to any claims by the *Contractor* in connection with construction means, methods, techniques, sequences and procedures, nor in connection with construction safety at the *Place of Work*, responsibility for which belongs exclusively to the *Contractor."*

.4 **GC 2.4 DEFECTIVE WORK**

.1 Amend paragraph 2.4.1. by adding the following at the end, "at no additional cost to the *Owner*."

.2 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 *Consultant*."

"2.4.1.2 The *Contractor* shall prioritize the correction of any defective work which, in the sole discretion of the *Owner*, adversely affects the day to day operation of the Owner."

.5 **GC 3.1 CONTROL OF THE WORK**

.1 Add the word "schedules" after the word "techniques" in paragraph 3.1.2.

.2 Add new paragraph 3.1.3:

"3.1.3 Prior to commencing individual procurement, fabrication and construction activities, the Contractor shall verify, at the Place of the Work, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the Work and shall further carefully compare such field measurements and conditions with the requirements of the *Contract Documents*. Where dimensions are not included or exact locations are not apparent, the *Contractor* shall immediately notify the *Consultant* in writing and obtain written instructions from the *Consultant* before proceeding with any part of the affected work."

.6 **GC 3.3 TEMPORARY WORK**

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

.7 **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 comply with the standard of care described in paragraph 3.14.1 of the Contract. Except for its obligation to make such review and report the result, the Contractor does not assume any responsibility to the Owner or to the Consultant for the accuracy of the Contract Documents. 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. I f 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 as follows:

"3.4.2 If the Contractor finds discrepancies in and/or omissions from the *Contract Documents* or has any doubt as to the meaning or intent of any part thereof, the *Contractor* shall

immediately notify the *Consultant*, who will provide written instructions or explanations. Neither the *Owner* nor the *Consultant* will be responsible for oral instructions"

.8 **GC 3.6 SUPERVISION**

.1 Amend paragraph 3.6.1 by adding the following after the words, "competent representative", "who shall be a Competent Person, as that term is defined in the Occupational Health and Safety Act,", and by deleting the last sentence, and replacing it with the following, "The *Contractor* shall not be entitled to change the Competent Person without the prior written authorization of the *Owner*, which shall not be unreasonably withheld."

.9 **GC 3.7 SUBCONTRACTORS AND SUPPLIERS**

.1 Add to paragraph 3.7.1.1 add to the end of the second line
"……..including any warranties and service agreements which extend beyond the term of the *Contract*."

.2 Add to subparagraph 3.7.1.2 after the words "the *Contract Documents*" insert the words "including any required surety bonding"

.10 **GC 3.8 LABOUR AND PRODUCTS**

.1 Delete paragraph 3.8.2 and substitute with the following:
"3.8.2 *Products* provided shall be new and shall conform to all current applicable specifications of the Canadian Standards Association, Canadian Standards Board or General Standards Board, ASTM, National Building Code, provincial and municipal building codes, fire safety standards, and all governmental authorities and regulatory agencies having jurisdiction at the *Place of the Work*, unless otherwise specified. *Products* which are not specified shall be of a quality consistent with those specified and their use acceptable to the *Consultant*. Specified *Products* shall not be substituted with another product without the express written consent of the Consultant."

.2 Amend paragraph 3.8.3 by adding the words, "…, agents, *Subcontractors* and *Suppliers*…" after the word "employees" in the first line

.3 Add new paragraph 3.8.4 and 3.8.5 as follows:
"3.8.4 The Contractor is responsible for the safe on-site storage of Products and their protection (including Products supplied by the Owner and other contractors to be installed under the Contract) in such ways as to avoid dangerous conditions or contamination to the *Products* or other persons or property and in locations at the *Place of the Work* to the satisfaction of the *Owner* and the *Consultant*. The *Owner* shall provide all relevant information on the *Products* to be supplied by the *Owner*."

3.8.5 The cost for overtime required beyond the normal *Working Day* to complete individual construction operations of a continuous nature, such as pouring or finishing of concrete or similar work, or *Work* that the *Contractor* elects to perform at overtime rates without the *Owner* requesting it, shall not be chargeable to the *Owner"*

.11 **GC 3.10 SHOP DRAWINGS**

.1 Add the words "AND OTHER SUBMITTALS" to the Title after SHOP DRAWINGS

.2 Add "and Submittals" after the words "Shop Drawings" in paragraphs 3.10.1, 3.10.2, 3.10.4, 3.10.7, 3.10.8, 3.10.8.2, 3.10.9, 3.10.10, 3.10.11, and 3.10.12.

.3 Delete 3.10.3 in its entirety and substitute new paragraph 3.10.3
"3.10.3 The Contractor shall prepare a schedule of the dates for provision, review and return of Shop Drawings and Submittals and submit it to the Consultant for review."

.4 Delete paragraph 3.10.9 in its entirety and substitute the following:
"3.10.9 At the time of providing *Shop Drawings*, the *Contractor* shall advise the *Consultant* in writing of any deviations in *Shop Drawinsg* from the requirements of the *Contract Documents*. The *Consultant* shall indicate the acceptance of such deviation expressly in writing. Where manufacturers' literature is submitted in lieu of scaled drawings, it shall be clearly marked in ink, to indicate the specific items for which review is requested"

.5 Delete the words "so as to cause no delay in the performance of the Work" in paragraph 3.10.12

.6 Add new paragraphs 3.10.13 as follows

"3.10.13 Reviewed *Shop Drawings* shall not authorize a change in the *Contract Price* and/or the *Contract Time"*

.12 **GC 3.13 CLEAN-UP**

.1 Add new paragraphs 3.13.4 as follows:

"3.13.4 In the event that the *Contractor* fails to remove waste and debris as provided in this GC 3.13, then the *Owner* or the *Consultant* may give the *Contractor* twenty-four (24) hours written notice to meet its obligations respecting clean up. Should the *Contractor* fail to meet its obligations pursuant to this GC 3.13 within the twenty-four (24) hour period next following delivery of the notice, the *Owner* may remove such waste and debris and deduct from payments otherwise due to the *Contractor*, the *Owner's* costs for such clean up, including a reasonable mark-up for administration costs."

.13 **GC 3.14 PERFORMANCE BY CONTRACTOR**

.1 Add new General Condition 3.14 PERFORMANCE BY CONTRACTOR and new paragraphs 3.14.1 and 3.14.2 as follows

"3.14.1 In performing its services and obligations under the *Contract*, the *Contractor* shall exercise a 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 *Contractor's* obligations, duties and responsibilities shall be interpreted in accordance with this standard. The *Contractor* shall exercise the same standard of due care 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 its designated supervisor and project manager, subject to the Owner's approval, in the event of death, incapacity, removal or resignation."

.14 **GC 4.1 CASH ALLOWANCES (if applicable to Contract)**

.1 Delete the second sentence in paragraph 4.1.1

.2 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 *Consultant'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*."

.3 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."

.4 Delete paragraph 4.1.7 in its entirety and substitute new paragraph 4.1.7.

"4.1.7. The *Contractor* shall prepare a schedule that shows when the Owner must authorize ordering of items called for under cash allowances to avoid delaying the progress of the work."

.5 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."

.15 **GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT**

.1 Amend paragraph 5.2.1. by adding the following at the end thereof:
"The *Contractor* shall submit their application, or *Proper Invoice*, to both the *Consultant* and the *Owner*."

.2 Revise article 5.2.3 to read as follows:
"5.2.3 The amount claimed shall be for the value, proportionate to the amount of the *Contract*, of *Work* performed, and *Products* delivered to the *Place of the Work* as of the last day of the payment period. No amount claimed shall include products delivered and incorporated into the work, unless the products are free and clear of all security interests, liens and other claims of third parties."

.3 Amend paragraph 5.2.4 by deleting the words "calendar days" and preplacing them with "Working Days".

.4 Amend paragraph 5.2.7 by adding the following at the end thereof:
"Any *Products* delivered to the *Place of Work* but not yet incorporated into the *Work* shall remain tat the risk of the *Contractor* notwithstanding that tile has passed to the *Owner* pursuant to GC 13.1 OWNERSHIP OF MATERIALS."

.5 Add new article 5.2.8 as follows:
"5.2.8 The second and all subsequent applications for payment shall be accompanied by a *WSIB* clearance certificate and Statutory Declaration, executed by the *Contractor*, in the form acceptable to the *Owner.*"

.6 Add new article 5.2.9 as follows:
"5.2.9 As "as-built" item shall be identified on the cost breakdown with all corresponding fair and reasonable value for the purpose of ensuring that the as-built information drawings are given due diligence."

.16 **GC 5.3 PROGRESS PAYMENT**

.1 Delete sub-paragraph 5.3.1.1 in its entirety.

.2 Revise sub-paragraph 5.3.1.2 as follows: After the words "issue to the *Owner*" delete "and copy to the *Contractor*". After the words "after the receipt of the" add "complete":

.3 Delete paragraph 5.3.1.3 in its entirety and substitute new paragraph 5.3.1.3. as follows:
"5.3.1.3 the Owner shall make payment to the Contractor on account as provided in Article A-5 of the Agreement - PAYMENT on or before 28 calendar days after receipt of a Proper Invoice."

.17 **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 paragraph 5.5.4, 5.5.6, 5.5.7, 5.5.8 and 5.5.9:
"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;
.10 Complete as-built drawings

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 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 documents or materials required described in paragraph 5.4.5 the *Consultant* shall retain from payments otherwise owing to the *Contractor* under this *Contract* the amount described in paragraph 5.4.7 and retain such amount until such documents and materials are delivered

5.4.7 The amount to be retained by the *Consultant* as contemplated in subparagraphs 5.2.10 and 5.4.6 is as follows:
.1 where the Contract Price is less than $100,000 the amount to be retained is $5,000;
.2 where the Contract Price is greater than $100,000 but less than $500,000, the amount to be retained is 5% of the Contract Price; and
.3 where the Contract Price is greater than $500,000 but less than $5,000,000, the amount to be retained is the greater of $25,000 or 3% of the Contract Price.

5.4.8 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 may be used by the *Owner* to defray the cost of preparing or replacing the documents or materials, or *As-Built Drawings* which the contractor failed to deliver

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."

.18 **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 Amend paragraph 5.5.2 by deleting the words "and the statement" from line 1, and adding the following at the end of the paragraph:

"The Substantial Performance Statutory holdback Release Payment Certificate will be a payment certificate releasing the Contractor the statutory holdback due in respect of the Work performed up to the date of the Substantial Performance of he Word. Payment of such statutory holdback shall be due 61 days after the date of publication of the Certificate of Substantial Performance but subject to the provisions of the *Act* and subject to GC 5.5.4."

.19 **GC 5.7 FINAL PAYMENT**

.1 Delete from the first line of paragraph 5.7.2 the words, "calendar days" and substitute the words "*Working Days*".

.2 Delete from the second line of paragraph 5.7.4 the words, "…5 calendar days after the issuance…" and substitute the words "…28 calendar days after receipt of a *Proper Invoice*…"

.3 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 of Certificate."

.20 **GC 6.2 CHANGE ORDER**

.1 Add new paragraph 6.2.3 as follows:

"6.2.3 The following mark-up shall apply to work added to the Contract

In the case of changes in the Work to be paid for by the Owner under the methods described in paragraph 6.2.2, the Contractor and Subcontractor, respectively, may add to the net cost of additional work, a fee, or markup, inclusive of overhead and profit, limited to the following:

- The General Contractor may add to the total net cost of additional work to be carried out by his own forces, a markup of Ten (10%) per cent. General Contractors are not allowed to treat their own forces as Subcontractors.
- The General Contractor may add to the net cost of additional work by a Subcontractor, a markup, of Five (5%) per cent of the net sum quoted by such Subcontractor
- Subcontractor may add to the total net cost of additional work to be carried out by his own forces, a markup of Five (5%) per cent.
- The Subcontractor may add to the net cost of additional work by a Sub-Subcontractor or Supplier, a markup, of Five (5%) per cent of the net sum quoted by such Sub-Subcontractor or Supplier

Such markup, by General Contractor and Subcontractor, respectively, shall be based on net additional cost for any one change in the Work, such net cost being derived by deducting credits for labour and materials involved in deleted work from the cost of labour and materials involved in additional work. When quantities of the same product or material are changed in the same Change in the Work, the change in the Contract Price shall be based on the net difference in quantity between the product(s) or material(s) deleted and the product(s) or material(s) added.

`Overhead' shall include any additional charges and/or premiums for **Supervision,**

Permits, Bonds, Insurance, Office Overhead and the like, which may result from Changes in the Work. The cost for these items shall not be added onto any Cost for Changes prior to applying mark-up."

.2 Add new paragraph 6.2.4 and 6.2.5 as follows:

"6.2.4 All quotations submitted shall be provide with ta detailed breakdown including, but not limited to the following:

1. quantity of each material
2. unit cost of each material
3. man hours involved
4. cost per hour
5. *Subcontractor* quotations submitted listing items 1 to 4 above and item 6 below.
6. mark-up"

6.2.5 The *Owner* and the *Consultant* will not be responsible for delays to the *Work* resulting from late, incomplete or inadequately broken down valuations submitted by the *Contractor."*

.21 **GC 6.3 CHANGE DIRECTIVES**

.1 Add new paragraph 6.3.14 as follows:

"6.3.14 Limits to Overhead and Profit as listed in paragraph 6.2.3 shall apply to Change Directives."

.22 **GC 6.4 CONCEALED OR UNKNOWN CONDITIONS**

.1 Add new subparagraph 6.4.5:

"6.4.5 The Contractor confirms that, prior to bidding the Project, it carefully investigated the Place of the Work and applied to that investigation the degree of care and skill described in paragraph 3.14.1, given the amount of time provided between the issue of the bid documents and the actual closing of bids, the degree of access provided to the Contractor prior to submission of bid, and the sufficiency and completeness of the information provided by the Owner. The Contractor is not entitled to compensation or to an extension of the Contract Time for conditions which could reasonably have been ascertained by the Contractor by such careful investigation undertaken prior to the submission of the bid."

.23 **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 Add new subparagraph 6.5.6.

"6.5.6 If the Contractor is delayed in the performance of the Work by an act or omission of the Contractor or anyone employed or engaged by the Contractor directly or indirectly, 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 all services required by the Owner from the Consultant as a result of such delay by the Contractor and, in particular, the cost of the Consultant's services during the period between the date of Substantial Performance of the Work stated in Article A-1 herein as the same may be extended through the provisions of these General Conditions and any later, actual date of *Substantial Performance of the Work* achieved by the *Contractor*."

.24 **GC 6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE**

.1 Delete paragraph 6.6.5. in its entirety and substitute new paragraph 6.6.5.

"6.6.5. The *Consultant's* findings, with respect to a claim made by either party will be given by *Notice in Writing* by the *Consultant* to both parties within reasonable time after receipt of

the claim information noted in paragraph 6.6.3.*"*

.2 Add new paragraph 6.6.7

"6.6.7 The *Owner* may make claims arising out of the costs incurred for additional services provided by the *Consultant* resulting from the *Contractor's* failure to reasonably perform the Work in accordance with the terms and conditions of the Contract, including the *Contractor's* issuance of unnecessary Requests for Information. The *Consultant* will notify the *Owner* and *Contractor* where it has been determined that additional services will be required or have been provided in order not to cause a delay. The *Owner* shall make claims based on the *Consultant's* invoices."

.25 **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*."

.26 **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 and 8.2.9 as follows:

"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.*"*

"8.2.9 As permitted by the Construction Act (Ontario), the parties hereby agree that an adjudication under the Construction Act (Ontario) may address more than one matter."

.27 **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 reasonably determinable from the Contract Documents, or that are reasonably determinable from an inspection of the *Place of the Work* exercising the degree of care and skill described in paragraph 3.14.1."

.28 **GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES**

.1 Add to paragraph 9.2.6 after the word "responsible", the following new words:

"……..or whether any toxic or hazardous substances or materials already at the Place of the Work (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the Owner or others,"

.2 Add "and the Consultant" after the word "Contractor" in subparagraph 9.2.7.4.

.3 Add to paragraph 9.2.8 after the word "responsible", the following new words:

"……..or that any toxic or hazardous substances or materials already at the Place of the Work

(and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the Owner or others,"

.4 Add "and the Consultant" after the word "*Owner*" in subparagraph 9.2.8.4.

.29 **GC 9.4 CONSTRUCTION SAFETY**

.1 Add new paragraph 9.4.2. as follows:

"9.4.2 The *Contractor* shall indemnify and save harmless the *Owner*, the *Consultant,* their agents, trustees, officers, directors, employees, 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 legislation in force at the *Place of the Work* including the payment of legal fees and disbursements on a substantial indemnity basis."

.30 **GC 9.5 MOULD**

.1 Add "and the Consultant" after "Owner" in subparagraph 9.5.2.4.

.2 Add "and the Consultant" after "Contractor" in subparagraph 9.5.3.4.

.31 **GC 10.1 TAXES AND DUTIES**

.1 Add new paragraph 10.1.3 as follows:

"10.1.3 Where the *Owner* is entitled to an exemption or a recovery of sales taxes, customs duties, excise taxes or *Value Added Taxes* applicable to the *Contract*, the *Contractor* shall, at the request of the *Owner*, assist with the application for any exemption, recovery or refund of all such taxes and duties and all amounts recovered or exemptions obtained shall be for the sole benefit of the *Owner*."

.32 **GC 10.2 LAWS, NOTICES, PERMITS, AND FEES**

.1 Delete from the first line of paragraph 10.2.5 the word, "The" and substitute the words: "……Subject to paragraph 3.14.1, the".

.33 **GC 10.4 WORKERS' COMPENSATION**

.1 Delete paragraph 10.4.1 and replace with the following:

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

.34 **GC 12.1 INDEMNIFICATION**

.1 Add "…and the Consultant, their agents and Sub-Consultants…" after the words "…hold harmless the other…" in paragraph 12.1.1.

.35 **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 3.14.1, the…".

END OF SECTION

PART 1 - GENERAL

1.1 RESPONSIBILITY

.1 The Consultant may issue Addenda up to ***two (2) days*** prior to tender closing to provide revisions to, alterations to, additions to or deletions from the scope of work. Such revisions shall become part of the Contract Documents. Include all costs in Tender Price.

.1 Should the Consultant determine it is necessary to issue an addenda after the deadline for issuing and Addenda, the Consultant may do so, but will extend the Submission Deadline, (Tender Close) an appropriate amount of time.

.2 Addenda will be issued in electronic format only (PDF) to Construction Associations

.1 Contractors shall be responsible for providing printing of documents as may be required.

.3 Tenderers shall be held responsible to ensure that the Work of all issued Addenda is included in their Tender.

.4 Indicate, in the space provided, on the Tender Form the number of Addenda included in the Tender.

.5 Attach addenda following this section.

PART 2 - PRODUCTS

.1 Not Applicable

PART 3 - EXECUTION

.1 Not Applicable

End of Section

1.0 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises generally of the scope described below in text, and specifically as outlined in the foregoing drawings, specifications and contract documents.

1.2 SCOPE OF THE WORK.

.1 The following is an outline of the scope of work for this project. Tenderers are required to review all contract documents for a complete description of the scope of work.

.2 This contract requires a series of Barrier Free upgrades for Holy Angels Learning Center. Work is to be carried out in Public Washrooms and door / door hardware revisions. The scope of project is further described in the balance of the contract documents, including the drawings and specifications.

.3 All construction activities associated with this project must be carefully scheduled with the Owner to allow continued access to the school and for the work to be complete ahead of resuming school operations in September 2026.

1.3 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Consultant.

.2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Consultant, in writing, any defects which may interfere with proper execution of Work.

1.4 CONTRACTOR USE OF PREMISES

.1 General: the Contractor shall have full, but shared use of subject areas at project sites for construction operations during the designated summer construction period. Coordinate construction areas and staging with the Consultant and Owner at Pre-construction meeting.

.2 Provide and maintain temporary construction access to work zone as needed.

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

.4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Consultant.

.6 All adjacent floor areas will continue to be operational during all phases of construction and therefore the Contractor must take special precautions to:

.1 Maintain a clean and safe construction site

.2 Observe strict contamination control standards
.3 Cooperate with the Owner in all respects so that there is as little or no interference to the ongoing operations.
.4 Limit all activities (i.e., demolition, material delivery, material removal) which could disturb the current operation

1.5 OWNER OCCUPANCY

.1 **Holy Angels Learning Centre Catholic School** operates as an elementary school building. The school building will be available on a continuous basis for construction between **July 2nd to August 21st, 2026**. During this time the owner may require access to the school building on an irregular basis for execution of normal summer maintenance and cleaning operations. Teachers will require regular access one week after school ends, and two weeks before it begins.

.2 Construction activities will be carefully coordinated so as to allow the HSCDSB with access to the facilities during the stated summer months construction period and to return as fully operational for the designated 2026/27 Academic School year; beginning September 2nd, 2026. Cooperate with Owner in scheduling operations to minimize conflict and to facilitate Owner operation of surrounding premises. Owner's Care staff will be working within areas of the facilities throughout the summer months.

1.6 GEOTECHNICAL REPORT

.1 Not Applicable.

1.7 HAZARDOUR BUILDING MATERIALS

.1 In case of observations on site advise the Owners Representative in writing prior to proceeding with the work.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.2 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Consultant and Owner to facilitate work as stated.

.2 Maintain existing services to building and provide for personnel and vehicle access.

.3 Where security is reduced by work provide temporary means to maintain security.

.4 Contractor has access to existing washroom facilities within the building. Keep facilities clean.

.5 Closures: protect work temporarily until permanent enclosures are completed.

1.3 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to building operations, occupants, public and normal use of premises. Arrange with Consultant/Owner to facilitate execution of work.

1.4 EXISTING SERVICES

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

.2 Where Work involves breaking into or connecting to existing services, provide Consultant four (4) days' notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions to a minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

.3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.5 SPECIAL REQUIREMENTS

.1 Carry out noise generating Work in accordance with provincial and municipal requirements and by-laws.

.2 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.3 Keep within limits of work and avenues of ingress and egress.

1.6 SECURITY CLEARANCES

.1 All personnel employed for certain aspects of this project, may be

subject to CPIC security check. If requested, obtain and pay for security clearance(s), for each individual requested. This requirement is likely to come into effect in the event that construction activities extend into scheduled occupancy of the facilities during the 2026/2027 school year.

.1 Maintain a master list of all personnel cleared for work no the site.

.2 Remove from site any persons not cleared for work on the site.

.2 Co-Operate with personnel in meeting with the security requirements set out for this project by them and defined during the construction phase.

1.7 BUILDING SMOKING ENVIRONMENT

.1 Comply with Owners smoking restrictions.

.1 Smoking is not permitted on provincially owned school property at any time, including during all phases of construction.

.2 Enforce Owners smoking restrictions.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 Section 00 03 00 – Tender Form

.2 Section 01 11 00 – Summary of Work

1.2 ALLOWANCES

.1 Allowances shall be expended by a written order signed by the Owner or Owner Representative.

.2 Should it be required, the Contract Price will be adjusted, by written order, to provide for a deficit to any allowance.

.3 Include with each progress payments a summary of all allowances. Include the total amount, amount expended to date, amount applied for with new application (include supporting documentation)

.4 If entire allowance is not required to be expended against at the end of the project, the entire residual value will be retained by the owner, or at any time during the project at the owner's discretion.

1.3 CASH ALLOWANCES

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

.2 The Contract Price, and not cash allowance, shall include the Contractor's Overhead and Profit in connection with such cash allowance.

.1 Where costs under an allowance exceed amount of allowance, the Contractor will be compensated for excess incurred, and substantiated, plus allowance for Overhead and Profit.

.3 Include the following amounts in the Contract Price for each respective cash allowance, for Work specified in respective specification Sections, as follows.

.1	**Door Hardware Allowance**	**$ 8,000**
.2	**Patient Lift Track Allowance**	**$ 10,600**
.3	**Fire Alarm System Allowance**	**$ 15,000**
.4	**Interior Signage**	**$ 1,000**

1.4 CONTINGENCY ALLOWANCE

.1 Contingency Allowances, unless otherwise specified, cover total cost to Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage, Installation and other authorized expenses incurred in performing Work.

.2 The Contingency Allowance, and not contract price, shall include the Contractor's Overhead and Profit in connection with such cash

allowance.

.3 Include the following Contingency Allowance in the Contract Price.

.1	**Contingency Allowance**	**$ 15,000.00**

.4 Expenditures under Contingency Allowance will be authorized by issuance of a Change Order only.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS .1 Section 01 77 00 – Closeout Procedures

1.2 APPLICATIONS FOR PROGRESS PAYMENT

.1 Schedule of Values Review. See article 1.3 below

.2 Make applications for payment on account monthly as Work progresses.

.3 Date applications for payment last day of monthly payment period.
- .1 The application for payment from the General Contractor will not be submitted to the Consultant before the 25th of any month

.4 Assemble review and coordinate the applications of all sub-trades and suppliers and ensure that the amount claimed shall be for the value, proportionate to the amount of the *Contract*, of *Work* performed, and *Products* delivered to the *Place of the Work*, that may be incorporated into the work in the following 30 days, as of the last day of the payment period.

.5 The procedure for making an application for payment, or "Proper Invoice" shall be complete with the following documentation
- .1 Summary statement/invoice cover letter listing
  - .1 Contractors name and address
  - .2 Date of Invoice
  - .3 Invoice Period
  - .4 Amount billed.
  - .5 Holdback retained
  - .6 HST
  - .7 Total Amount Owed
  - .8 Name, title, telephone number and mailing address of the person to whom payment is to be sent.
  - .9 Signature of Authorized agent.
  - .10 List of prescribed attachments (including the following as a minimum)
- .2 Schedule of Values with Percentage Work Completed aggregating total amount of value being claimed and indicating percentage of work complete proportionate to the amounts of each division of work.
- .3 Statutory Declaration from the General Contractor that accounts for labour, subcontracts, products, construction machinery and equipment, and other indebtedness which may have been incurred in performance of the work up to and including the date of the Application for Payment, and for which Owner might in be held responsible, have been paid in full, except for amounts properly retained as holdback or as identified amount in dispute.
- .4 Workplace Safety & Insurance Board interim release for the General Contractor

1.3 SCHEDULE OF VALUES .1 Schedule of Value Review

.1 Submit a Sample Schedule of Values to the Consultant, a minimum of fourteen (14) days before first application for payment for review.

.2 Include a breakdown of all work including: material and labour, for each trade, phase, project area, for the Work, in sufficient detail as may be requested by the Consultant, to allow for a proper evaluation of payment applications. Provide additional supporting documentation as the consultant may so request. .

.1 A sample Schedule of Values template has been included in this Section and is an acceptable format that can be used.

.3 Materials not being on site are not eligible for payment under this section.

1.4 PROGRESS PAYMENT

.1 Consultant will issue to Owner, no later than ten (10) working days after receipt of an application.

.1 A Certificate of Payment (COP) in amount applied for. And include a cover letter indicating when the contactor should receive payment in accordance with the Construction Act.
or

.2 A Certificate of Payment (COP) in the amount approved by the Consultant and a “Notice of Non-Payment” indicating the amounts not agreed with in the Contractors application. And include a cover letter indicating when the contactor should receive payment in accordance with the Construction Act.
or

.3 Notify the Contractor that a “Proper Invoice” was not received and request that the outstanding information be submitted

.2 Owner will pay the contractor in accordance with the Certificate of Payment and the Construction Act, not more than Twenty-Eight (28) days from receipt of a Proper Invoice, as will be indicated in the consultants cover letter accompanying the Certificate of Payment.

.1 In the case that Twenty-Eight (28) period falls on a weekend or holiday, payment will be due the working day before the weekend or holiday.

1.5 SUBSTANTIAL PERFORMANCE OF WORK

.1 “Substantial Performance” of the work shall be as legislated by the requirements of the Construction Act, current version, at the date the project Contract was signed, and as supplemented herein.

.2 The Contractor shall review the work and the requirements for substantial performance as indicated here and in section 01 77 00 – Closeout Procedures, and as per the Construction Act and provide all necessary proof and supporting documentation required to apply for Substantial performance.

.3 The Consultant will review the application and determine and indicate the date of Substantial Performance of Work

.1 If approved the Consultant will issue a Certificate of Substantial Performance on behalf of the Owner. This will be circulated to the Contractor and the Owner.

.4 Immediately following issuance of certificate of Substantial Performance of Work, in consultation with Consultant, establish a reasonable date for finishing Work.

.5 Certificates of payment will not be issued past substantial completion until Total Completion is achieved.

.1 The contractor must complete all outstanding work and provide a signed completed deficiency list and a letter from the Contractors Project Manager confirming that the Work of the project has achieved Total Completion.

.2 Only upon receipt of this letter will the Consultant and Owners Representative review the site to confirm the Deficiency are complete.

.3 Cost for additional inspections by the Consultant, Consultant Team and Owner Representative shall be borne by the Contractor.

.6 Refer also to section 01 77 00 – Closeout Procedures for additional instructions/requirements regarding Substantial Performance.

1.6 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK

.1 Payment of Holdback shall follow the requirements of the Construction Act, current version, and as supplemented here.

.2 After issuance of certificate of Substantial Performance of Work:

.1 Submit separate application for payment of holdback amount.

.2 Include a Statutory Declaration that accounts for all labour, subcontracts, products, construction machinery and equipment, and other indebtedness which may have been incurred in Substantial Performance of Work and for which Owner might in be held responsible have been paid in full, except for amounts properly retained as holdback or as identified amount in dispute.

.3 After receipt of application for payment and sworn statement, Consultant will within seven (7) working days, issue certificate for payment of holdback amount to the Owner.

.4 Amount authorized by certificate for payment of holdback amount is due and payable on day following expiration of holdback period stipulated in lien legislation applicable to Place of Work. Where lien legislation does not exist or apply, holdback amount is due and payable in accordance with other legislation, industry practice, or provisions which may be agreed to between parties. Owner may retain out of holdback amount sums required by law to satisfy liens against Work or, if permitted by lien legislation applicable to Place of Work, other third party monetary claims against Contractor which are enforceable against Owner.

1.7 PROGRESSIVE/EARLY RELEASE OF HOLDBACK

.1 Early and or Progressive release of holdback may be provided as the Construction Act permits.

.1 Review the Act and make application for early release of holdback in conformance with the Act.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

.1 Section includes administrative provisions for the coordinating construction operations on the Project including, but not limited to, the following:

.1 General coordination procedures
.2 Construction superintendent
.3 Coordination drawings
.4 Building Permit
.5 Regulatory requirements
.6 Requests for information (RFI's)
.7 Project Meetings - General
.8 Preconstruction Meeting
.9 Project Meetings - OAC
.10 Project Meeting - CRM
.11 Project close-out meeting.

.2 Every contractor and sub-contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to specific contractor(s).

1.2 GENERAL COORDINATION PROCEDURES

.1 Coordination: Coordinate construction operations included in different sections of the specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different sections, that depend on each other for proper installation, connection, and operation.

.1 Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation
.2 Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
.3 Make adequate provisions to accommodate items scheduled for later installation.
.4 Expedite all Section to cooperate with each other to complete the work efficiently, to maintain the construction schedule and correctly to the requirements of the Contract Documents
.5 Examine the work of all trades during construction progress and ensure that all the work in conformance with the Contract Documents.
.6 Be responsible to coordinate all forms, centering, templates, anchors, sleeves, inserts, chases, openings and accessories required to be fixed or inserted in the work of others to accommodate the work of all trades.
.1 Either set in place or give complete instructions as to location, size, and the like, to the related trade for installation on your behalf and at your expense.
.2 Pay the cost of additional work and make up lost time resulting from failure to provide in the necessary time, information and co-operation, in adequate time

for the same to be incorporated in the work of other trades

.2 Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
- .1 Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

1.3 CONSTRUCTION SUPERINTENDANT

.1 Refer to the General Conditions of the Contract, and as augmented herin:

.2 The Contractor shall provide a full-time Construction Superintendent for the project.
- .1 The Construction Superintendent must remain on site for all phases of the construction until "Total Performance" of the Contract has been achieved.
- .2 The Construction Superintendent shall be the individual identified in the tenderer's proposal document submitted during the prequalification phase, or other, as acceptable to the Owner and Consultant.

.3 The Construction Superintendent must be experienced in projects of similar size and nature as this proposed project.
- .1 The Consultant may request references for the proposed superintendent.
  - .1 Should the proposed Construction Superintendent be deemed unsuitable, at the express discretion of the Owner and Consultant, the Contractor shall provide an alternate acceptable Construction Superintendent with no adjustment in the Contract Price or Time.

.4 The Construction Superintendent shall represent the Contractor on site, directions given to him by the Consultant or Owner shall be as given to the Contractor. The Construction Superintendent must have the authority to make binding decisions on behalf of the Contractor.

.5 The Construction Superintendent shall not be changed except for good reason and only then after consultation with, and agreement by, the Owner and Consultant

.6 The Contractor shall request and ensure that all trades employ satisfactory, experienced and qualified supervisors for their sections of work.

1.4 SITE DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:
- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 Shop Drawings submission list.
- .6 Change Master list, and copies of change related paperwork

.1 Change Notice
.2 Change Orders, Change Directive
.7 Other Modifications to Contract.
.8 Field Test Reports.
.9 Work Schedule, Original and all updates
.10 Health and Safety Plan and Other Safety Related Documents.
.11 Other documents as specified, or as may be requested.

1.5 COORDINATION DRAWINGS / INTERFERANCE DRAWINGS

.1 Coordination Drawings, General: The Contractor shall prepare Colour-coded coordination drawings (also known as, interference drawings) to properly co-ordinate the work of all trades. Prepare coordination drawings according to requirements in individual sections, and additionally where installation is not completely shown on Contract Documents, Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

.2 Prepare drawings indicating relationship of new and existing and/or unforeseen conditions, prior to commencement of work in any areas.

.3 For congested locations, before commencing installation, prepare detailed drawings of all trades affected and coordinate installation to fit within existing designed Architectural and Structural parameters.

.4 Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable.
.1 Use applicable drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
.2 Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
.3 Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
.4 Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
.5 Show location and size of access doors required for access to concealed dampers, valves, and other controls.
.6 Indicate required installation sequences.
.7 Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements.
.1 Provide alternate sketches to Architect indicating proposed resolution of such conflicts.

.2 Minor dimension changes and difficult installations will not be considered changes to the Contract.

.3 Allow minimum of fifteen (15) working days to review proposed alternates.

.4 Do not proceed until adjustments are reviewed.

.5 Coordination Drawing Organization: Organize coordination drawings as follows.

.1 Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.

.2 Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components

.3 Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.

.4 Structural Penetrations: Indicate penetrations and openings required for all disciplines.

.5 Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.

.6 Mechanical and Plumbing Work: Show the following:

.1 Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.

.2 Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment

.3 Fire-rated enclosures around ductwork

.7 Electrical Work: Show the following:

.1 Runs of vertical and horizontal conduit 1-1/4 inches (32 mm) in diameter and larger

.2 Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.

.3 Panel board, switch board, switchgear, transformer, bus-way, generator, and motor control center locations

.4 Location of pull boxes and junction boxes, dimensioned from column center lines.

.8 Fire-Protection System: Show the following:

.1 Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.

.6 General Contractor Review: The General Contractor shall review the final coordinated submittal prior to submission to the Consultant. The General Contractor shall stamped, date and signed the submission. Date and signature shall indicate that all trades have reviewed and coordinated the required installation. Submit final drawings to Consultant for record purposes

.7 Architect/Consultant Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If the Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.

.8 Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 01 33 00 "Submittal Procedures."

.9 The contractor shall bear all costs associated for the preparation, copying, distribution, submission, changes and re-submission(s) as may be required of these drawings.

.10 Advise and coordinate with all affected trades of the final Coordination Drawings.

.11 Maintain record set of all changes for Record Drawings

1.6 BUILDING PERMIT

.1 Building Permits

- .1 The Contractor shall be responsible for the application for the Building Permit on behalf of the project.
  - .1 The Building Permit will be paid for by the Contractor.
  - .2 Coordinate and provide to the Authorities Having Jurisdiction, any and all responses required from all parties to satisfy any questions arising out of the building permit application.
- .2 Provide authorities having jurisdiction with any and all information as may be requested throughout the course of the project.
  - .1 Coordinate and provide, any and all information required from all parties to satisfy any questions that may be provided.
- .3 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 as set out in the Ontario Building Code.
  - .1 The Contractor shall be present at each site inspection by an inspector or registered code agency as applicable under the Ontario Building Code.
  - .2 The Contractor shall take minutes of these meetings and distribute copies to any and all persons, companies necessary and required to resolve all

issues.

.3 The contractor shall collect and coordinate the response with the various parties and provide a consolidated response to the authorities having jurisdiction.

.2 Other Permits

.1 Make application for and obtain any and all other permits on behalf of the project.

.1 These permits will be applied for, paid and executed for by the Contractor or his sub-trades.

.2 Include the cost in the Stipulated Sum Tender Price.

.3 Coordinate and provide to the Authorities Having Jurisdiction, any and all responses required from all parties to satisfy any questions arising out of the building permit application.

1.7 REGULATORY REQUIREMENTS

.1 Building Codes

.1 The project work has been documented to comply with the requirements of the Ontario Building Code and all amendments to date.

.2 Modifications to the project must not reduce the requirements of the Ontario Building Code.

.3 Conform to local by-laws which amend or expand upon the requirements of the Ontario Building Code.

.4 Conform to Ontario Fire Code, latest amendment.

.2 Safety Codes

.1 Comply with the requirements of the Ontario Ministry of Labour specifically, and municipal and/or federal authorities as applicable for construction safety on this project

.2 Contractor to include all costs for temporary facilities necessary to comply with safety standards.

.3 Conform to local by-laws which amend or expand upon the requirements of the Ontario Building Code

.3 Ministry of Labour – Constructor Guidelines

.1 Comply with the requirements of the Occupational Health and Safety Branch Ministry of Labour – Constructor Guidelines – March 2009.

1.8 REQUESTS FOR INFORMATION (RFI's)

.1 General: Review Contract Documents ahead of work required for the project and submit RFI's in a timely fashion so as to not delay the work. Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

.1 Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.

.2 Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

.2 Content of the RFI: Include a detailed, legible description of item

needing information or interpretation and the following
- .1 Project name
- .2 Project number
- .3 Date.
- .4 Name of Contractor
- .5 Name of Architect
- .6 RFI number, numbered sequentially
- .7 RFI subject
- .8 Specification: Section Title, Section Number, Article and Item number and related paragraphs, as appropriate
- .9 Drawing: Number, and location reference and photocopy/printed scan of portion of drawing as may be required to fully describe information required.
- .10 Field dimensions and conditions, as appropriate
- .11 Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI
- .12 Contractor's signature
- .13 Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation
  - .1 Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

.3 Architect's Action: Architect will review each RFI, determine action required, and respond. Allow ten (10) working days for Architect's response for each RFI.
- .1 The following Contractor-generated RFIs will be returned without action
  - .1 Requests for approval of submittals
  - .2 Requests for approval of substitutions
  - .3 Requests for approval of Contractor's means and methods.
  - .4 Requests for coordination information already indicated in the Contract Documents.
  - .5 Requests for adjustments in the Contract Time or the Contract Sum.
  - .6 Requests for interpretation of Architect's actions on submittals.
  - .7 Incomplete RFIs or inaccurately prepared RFIs.
- .2 Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information
- .3 Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal.
  - .1 If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within three (3) days of receipt of the RFI response.\
- .4 The Consultant shall endeavor to provide, with reasonable promptness, written responses to requests from the

Contractor for clarification and interpretation of the requirements of the Contract Documents. Such services shall be provided as part of the Consultants Services. However, if the Contractors' requests for information, clarification or interpretation are, in the Consultant's professional opinion, for information readily apparent from reasonable observation of field conditions or a review of the Contract Documents, or are reasonable inferable therefrom, the Consultant ***shall*** be entitled to compensation for Additional Services in accordance with their agreement with the Owner, for time spent responding to such Requests. In turn, the Owner shall deduct these costs, plus a reasonable mark-up, from the Contractors payment applications.

.4 RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit up-to date log bi-weekly at commencement of OAC construction meetings. Log shall include no less than the following:
- .1 Project name
- .2 Name and address of Contractor
- .3 RFI number including RFIs that were returned without action or withdrawn
- .4 RFI description/title
- .5 Date the RFI was submitted
- .6 Date Architect's response was received.

.5 On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within three (3) days if Contractor disagrees with response
- .1 Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate
- .2 Identification of related Site Instruction, Change Order, Change Directive, and Proposal Request, as appropriate

1.9 PROJECT MEETINGS - GENERAL

.1 Schedule and administer project meetings throughout the progress of the work at bi-weekly intervals on a day and time coordinated with the Owner and Consultant.

.2 Prepare agenda for meetings.

.3 Send a re-occurring meeting request to Owner, Tenant, Consultants, Sub-Consultants, Sub-Contractors and other pertinent parties as required by the phase and progress of the work.

.4 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

.5 Preside at meetings.
- .1 Take attendance of each meeting.
- .2 Record the meeting minutes accurately and without bias to

any party.
.3 Include significant proceedings and decisions.
.4 Do not include additional items not discussed at the meeting
.5 Identify actions by parties.
.6 Distribute the meeting minutes within two (2) days of the meeting.

.6 If, in the opinion of the Owner and Consultant, the meeting minutes are not being recorded accurately, or are showing undue bias to any party, the consultant may assume the responsibility of producing the meeting minutes and deduct and bill the Owner for this additional service. The Owner in turn will deduct these costs from the payment applications.

1.10 PRECONSTRUCTION MEETING

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

.2 Senior Representatives of Owner, Consultant, Sub Consultants, Contractor, major Subcontractors, field inspectors and Supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum two (2) days before meeting.

.4 Agenda to include:
.1 Appointment of Official Representative for the project
.1 Include name, title, organization and contact information.
.2 Schedule of Work: provide and review project schedule
.1 Section 01 32 16 - Construction Progress Schedules
.3 Project Submittals: Review initial submissions
.4 Building Permit: Review status
.5 Shop Drawing Submission Schedule: present and review full schedule. Discuss grouped submissions. Submit submittals.
.1 Section 01 33 00 - Submittal Procedures.
.6 Temporary facilities: Site signs, offices, storage sheds, utilities, fences in accordance with contract documents.
.7 Site security: in accordance with contact documents
.8 Office procedures
.1 Change notices
.2 Change Orders, Change Directives - mark-up percentages permitted, time extensions, overtime
.3 Shop Drawings – procedures
.4 Approvals required
.5 Administrative requirements.
.9 Owner provided products.
.10 Record Drawings in accordance with Section 01 33 00 - Submittal Procedures.
.11 Maintenance Manuals in accordance with Section 01 78 00 - Closeout Submittals.
.12 Take-over Procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.

.13 Monthly progress claims, administrative procedures, photographs, hold backs.
.14 Process of Appointment of inspection and testing agencies or firms.
.15 Insurances, transcript of policies.

1.11 PROGRESS MEETINGS **OAC** (Owner/ Architect/Contractor)

.1 During course of Work and schedule progress meetings bi-weekly at a time to be agreed upon by all team participants.

.2 Owner, Tenant, Consultant, General Contractor and Major Subcontractors, Supervisors involved in the work are to be in attendance as a minimum.

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

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

.5 Agenda to include the following:
.1 Previous Minutes - Review, approval of minutes of previous meeting.
.2 Construction Schedule
.1 Review progress since the last meeting.
.2 Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule.
.3 Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so.
.4 Review schedule for next period
.5 Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
.3 RFI (Request For Information) Schedule review
.4 Submittals Schedule review
.5 Review of Work, field observations, problems, conflicts.
.6 Maintenance of quality standards.
.7 Other business.

1.12 PROJECT METING **CRM** (CHANGE REVIEW MEETING)

.1 During course of Work and schedule progress meetings bi-weekly to occur directly after the OAC Meeting.

.2 Project Managers representing The Owner, Consultant, General Contractor (and when requested, Major Subcontractors) involved in the work shall be in attendance. Where Subcontractors have no involvement with active changes, they shall not attend the meeting.

.3 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 2 days after meeting.

.4 Agenda to include the following:
.1 Review, approval of minutes of previous meeting.
.2 Progress on changes since last meeting.

.3 Change issuance or design activities impeding or potentially impeding construction schedule.
.4 Status of Pricing Submissions
.5 Pricing Review and Resolution
.6 New Business

1.13 PROJECT CLOSEOUT MEETING

.1 Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than thirty (30) days prior to the proposed date of Substantial Completion
.1 Conduct the conference to review requirements and responsibilities related to Project closeout
.2 Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work
.3 Agenda: Discuss items of significance that could affect or delay Project closeout, including the following
.1 Preparation of record documents
.2 Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance
.3 Submittal of written warranties
.4 Requirements for preparing operations and maintenance data
.5 Requirements for delivery of material samples, attic stock, and spare parts
.6 Requirements for demonstration and training
.7 Preparation of Contractor's punch list/deficiency list
.8 Procedures for processing Applications for Payment at Substantial Completion and for final payment
.9 Submittal procedures
.10 Owner's partial occupancy requirements
.11 Installation of Owner's furniture, fixtures, and equipment
.12 Responsibility for removing temporary facilities and controls
.4 Minutes: record and distribute meeting minutes

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittals

1.2 DEFINITIONS

.1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal GANTT Chart Schedules for this project shall be created in either Primavera or MS Project.

.3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

.9 Project Planning, Monitoring and Control System: overall system operated by The Consultant to enable monitoring of project work in relation to established milestones.

1.3 REQUIREMENTS

.1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with prescribed milestones and time frame.

.3 Limit activity durations to maximum of approximately 30 working days,

to allow for progress reporting.

.4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.4 START DATE

.1 The work shall be started within 10 days of written orders to commence the same and carried on to completion.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit Master Plan Schedule to Consultant within ten (10) working days of Award of Contract.
- .1 Include all project major milestones for review by consultant and owner representative.
- .2 Review at first OAC meeting.
- .3 Incorporate comments received.

.3 Submit complete Project Schedule to Consultant within ten (10) working days of receipt of reviewed Master Plan Schedule.
- .1 Modify and update project schedule monthly and reissue prior to OAC meetings.

1.6 MASTER PLAN

.1 Develop Master Plan schedule for protect Specific requirements.

.2 Include the following items as minimum requirements.
- .1 Contract Award.
- .2 Mobilization to site
- .3 Construction commencement date
- .4 Building permit received
- .5 Start and finish for each Major trade
- .6 Substantial performance
- .7 Total Performance.
- .8 Critical Delivery items.

.3 Reviewed schedule will become the basis for the creation of the Project Schedule.

1.7 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

.2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
- .1 Contract Award.
- .2 General Contractor Mobilization to site
- .3 Construction commencement date
- .4 Building Trades – Shop Drawings, Start and Finish for each and every trade, or part thereof, including but not limited to the following
  - .1 Building Excavation

.2 Building Backfill.
.3 Foundation footings.
.4 Foundation walls
.5 Shear, Elevator and Stair walls
.6 Slab on grade.
.7 Loadbearing block walls
.8 Precast concrete
.9 Structural Steel.
.10 Steel deck
.11 Parapets
.12 Roofing.
.13 Elevator conveying devices
.14 Air Barrier
.15 Exterior insulation
.16 Windows
.17 Curtainwall
.18 Glazing
.19 Exterior Cladding
    .1 Broken down by material type
.20 Interior Partitions
    .1 Concrete block
    .2 Gypsum board
.21 Doors, Frames and Screens
.22 Hardware
.23 Ceilings
.24 Millwork
.25 Floor finishes
.26 Painting
.27 Architecture (Walls, Floors and Ceiling).
.28 Washroom Specialties
.29 Construction Specialties
.30 Mechanical
    .1 Drainage and Domestic
    .2 Storm
    .3 Water Heating
    .4 HVAC with milestones for
    .5 Sprinkler.
    .6 Controls and BAS
.31 Electrical.
    .1 Main power
    .2 Panels and distribution
    .3 Circuits and receptacles
    .4 Phone and data
    .5 Public Address
    .6 Lighting
    .7 Security
    .8 Fire protection
    .9 Controls and BAS

.5 Civil Works
    .1 Excavation
    .2 Backfill.
    .3 Services
        .1 Sanitary
        .2 Storm

.3 Water
.4 Power
.5 Data and other
.6 Curbs
.7 surfacing

.6 Landscape Works
.1 Excavation
.2 Backfill.
.3 Structures
.4 Fences
.5 Surfacing
.1 Sidewalks
.2 Play areas
.3 Trees and plantings
.4 Sod
.5 Seed

.7 Building Management Manual
.8 Testing and Commissioning
.9 Demonstration and training
.10 Substantial Performance
.11 Total Performance.
.12 Project Critical Path identified with specific Risk Items identified, including but not limited to
.1 Equipment supply, long delivery items.
.2 Owner supplied items.
.3 Specialty items.

1.8 PROJECT SCHEDULE REPORTING

.1 Update the Project Schedule on monthly basis reflecting activity changes and completions, as well as activities in progress.

.2 Provide the consultant and owner a copy of the updated schedule in printed format and digital, (manipulatable .mpp) format with each progress draw.

.3 Include as part of Project Schedule,
.1 Identifying Work status to date
.2 Comparing current progress to baseline
.3 Provide current forecasts
.4 Defining problem areas, anticipated delays and impact
.5 If off schedule, provide proposed mitigation.

.4 The monthly issuance of an updated project schedule shall coincide with the issuance of the Contractor's application for payment and shall form part of the requirement for a Certificate of Payment being issued by the Consultant to the Owner. Failure to provide the schedule, may result in the delay of payment of an application.

1.9 SCHEDULE RESPONSIBILITY

.1 The Owner, and Consultant will use the schedule for budgeting, planning and coordinating activities.

.2 The schedule is the responsibility of the Contractor. Once the initial schedule is reviewed and approved by the consultant, the contractor will implement measures as required to maintain the schedule and or

make up the slippage lost. The owner will not be responsible for the cost required in contractor or subcontractor overtime, expedited material etc. as a result of slippage in the schedule.

1.10 PROJECT MEETINGS .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Division 1 – General Requirements

.2 Section 01 32 16.06 – Construction Progress Schedule

.3 Section 01 45 00 – Quality Control

.4 Section 01 77 00 – Closeout Submittals

.5 All Section and Divisions of the Work

1.2 DEFINITIONS

.1 Action Submittals: Written and graphic information and physical samples that require Consultant's responsive action.

.2 Informational Submittals: Written and graphic information and physical samples that do not require Consultant's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

.1 Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Consultant and additional time for handling and reviewing submittals required by those corrections

- .1 Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule
- .2 Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first sixty (60) days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication
- .3 Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule
  - .1 Submit revised submittal schedule to reflect changes in current status and timing for submittals
- .4 Format: Arrange the following information in a tabular format
  - .1 Scheduled date for first submittal
  - .2 Specification Section number and title
  - .3 Submittal category: Action; Information
  - .4 Name of subcontractor
  - .5 Description of the Work covered

.2 Submission Log: Prepare a SUBMITTAL LOG for the project. Maintain, update and distribute an updated log with each regular construction meetings, throughout the course of the Work. Log shall included the following minimum requirements:

- .1 Submission Number
  - .1 Spec section, article number and submission

reference (042113,2.2.2-01)

.2 General Contractors date submitted to Consultant (date received by consultant)
.3 Consultant Submitted to (Sub-consultant or prime)
.4 Excepted return date (no less that fifteen (15) working days from submission date unless previously agreed to by all parties
.5 Actual return date
.6 Status indicator (pending review, reviewed, revise as noted, revise and resubmit, not reviewed)

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

.1 Consultant's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Consultant for Contractor's use in preparing submittals.

.2 Coordination: Coordinate preparation and processing of submittals with performance of construction activities
.1 Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity
.2 Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule
.3 Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals
.4 Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination
.1 Consultant reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received

1.5 PROCESSING TIME

.1 Processing Time: Unless otherwise noted, allow time for submittal review, including time for re-submittals, as follows. .
.1 Initial Review: Allow **fifteen (15)** working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Consultant will advise Contractor when a submittal being processed must be delayed for coordination
.2 Re-submittal Review: Allow **fifteen (15)** working days for review of each re-submittal

1.6 ADMINISTRATIVE

.1 Time for review shall commence on Consultant's receipt of submittal

.2 Submit to Consultants, submittals listed/schedule for review. Submit promptly and in orderly sequence to not cause delay in Work.

.3 Failure to properly schedule all submissions and/or resubmissions shall not be considered for a modification to the Contract Price or Time. No claim for extension by reason of such default will be considered. Contractor shall coordinate this requirement with all

trades and supplier and the Submission and Construction Schedules.

.4 Do not proceed with Work affected by submittal until review is complete.

.5 Shop Drawing Units: - Present shop drawings, product data, samples and mock-ups in Metric Units or Imperial Units depending on units provided by Consultant. Shop drawings provided in units contrary to this **will** be returned to contractor un-reviewed for conversion to the appropriate units.

.6 General Contractors Review of Shop Drawings: Review ***all*** submittals from all sub-trades and suppliers prior to submission to Consultants. This review will be held to have been a thorough review General Contractor and that all the necessary requirements have been determined, reviewed and coordinated with requirements of Work and Contract Documents.

.1 Submittals not stamped, signed, dated and identified as to specific project **will** be returned without being examined and considered rejected.

.2 If, in the express opinion of the Consultant, the submission has not been properly or thoroughly reviewed by the Contractor, the submission **will** be returned without being examined and considered rejected.

.7 Options: Identify options (highlight, and provide action sticky) requiring selection by Consultant

.8 Coordination: Coordinate preparation and processing of submittals with performance of construction activities

.1 Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity

.2 Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule

.3 Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals

.4 Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination

.9 Verify that field measurements and affected adjacent Work are co-ordinated.

.10 Electronic Submittals: ***Required/Mandatory***. All submissions shall be provide in electronic PDF format, unless otherwise approved. Paper submissions are not permitted, and will be rejected.

.11 Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for re-submittal without review

.12 Submittals not required by the Contract Documents may not be reviewed. Notification will be provided that the submission is not

required.

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

.14 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant's review.

.15 The Consultant will review and return shop drawings and samples with reasonable promptness so as to avoid delay.

.1 This review by the Consultant, or any of its sub-consultants, of shop drawings, samples and data sheets pertains to general design only.

.2 Errors in dimensions, quantities or interference will be marked if noticed, but this will not relieve the Contractor in any way from his responsibilities for the proper fitting, finishing, quality, quantities, erection and coordination of the Work in accordance with the requirements of the Contract Documents.

.3 The Contractor shall be fully responsible in his review for errors on shop drawings and for furnishing materials and labour not specifically indicated or specified but required to properly complete the Work.

.4 Before preparation of shop drawings, or prior to fabrication, the Contractor shall confirm dimensions which can be correlated with job conditions

.16 Separate submissions: Separate submissions by Consultant discipline and by specification section and provide separate submission cover for each item required.

.17 Partial and preliminary submissions: Partial submissions and preliminary submissions should not be provided for the project, without the prior approval of the Consultant. If provided without approval they will be returned without action.

.1 Co-ordinate the preparation, submission, review, (re-submission and re-review) of all submittals with the Construction schedule.

.18 Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Consultant on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal

.19 Resubmittals: Make resubmittals in same form and number of copies as initial submittal

.1 Note date and content of previous submittal

.2 Note date and content of revision in label or title block and clearly indicate extent of revision

.3 Resubmit submittals until they are marked with approval notation from Consultant's action stamp

.20 Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms

.21 Submittals on Site:
- .1 Print and maintain one full scale, colour copy of each reviewed submission on site.
- .2 Use only final action submittals that are marked with approval notation from Consultant's stamp.
- .3 Provide access to these files for use by the Consultant or Owner

1.7 DELIVERY INFORMATION

.1 Prepare and issue submittals directly to consultant responsible for design of that portion of work, with a copy of every submission being provided to the Prime Consultants designee.
- .1 Refer to Specification table of contents for reference to consultant responsible by section.
- .2 Refer to contact information for consultants in spec section 00 21 13 Instruction to bidders article 1.9.

.2 Transmittal: All copies of shop drawings shall include a round trip transmittal and stamping sheet.
- .1 Indicate name of firm or entity that prepared each submittal on label or title block
- .2 Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Consultant
- .3 Include the following information for processing and recording action taken
  - .1 Project name
  - .2 Project Number (Architects project number)
  - .3 Date
  - .4 Submittal number or other unique identifier, including revision identifier
    - .1 Submittal number. Section and Article number dash submission number as (042113,2.2.2-01).
    - .2 Re-submittals shall revise the final submission number as follows (042113,2.2.2-02).
  - .5 Specification Section Number and Name
  - .6 Drawing number and detail reference number (as applicable)
  - .7 Name of Consultant
  - .8 Name of Subcontractor
  - .9 Name of Supplier
  - .10 Name of Manufacturer
  - .11 Submittal number or other unique identifier, including revision identifier
  - .12 Other information as may be required or requested by the Consultant.

1.8 SHOP DRAWINGS AND PRODUCT DATA

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

.2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work. Proceeding with the work without approval for additional scope is the contractor’s acceptance that they accept all cost associated with the supply and install as indicated on the shop drawings.

.5 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.

.6 Submissions include:
- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.7 After Consultant review, distribute copies.

.8 Delete information not applicable to project.

.9 Supplement standard information to provide details applicable to

project.

.10 The review of shop drawings by Consultant is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that The Consultant approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

.2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.9 GROUP SUBMISSIONS

.1 Within the first thirty (30) days of construction, coordinate with all required sub-trades and provide the following group submittals for review by the Consultant. These group submissions are required to review a number of project elements together to preserve the architectural design intent of the project. Provide all sample clearly labeled and identified. Group all materials into a single submission and submit to the consultant at least ninety (90) days before material is required to be ordered.

.1 Exterior Finish Group

.1 Exterior brick masonry (for each type).

.1 Manufacture literature
.2 Size and Colour
.3 Sample board

.2 Composite Metal Wall Panels

.1 Manufacturers literature
.2 300mm X 300mm corner sample with dry joint
.3 Specified colour samples
.4 Colour selection chart.

.3 Preformed Metal Siding

.1 Manufacturers literature
.2 300mm X 300mm sample of specified material
.3 Colour sample selection chart.

.4 Glazed Aluminum Curtain Wall framing

.1 Manufacturers literature
.2 Finish colour
.3 Sample of different specified trim caps

.5 Aluminum Window framing

.1 Manufacturers literature
.2 Finish colour
.3 Sample of different caps

.6 Glazing

.1 Manufacturers literature
.2 Sample of each types of thermal unit in colour specified
.3 Sample of spandrel glazing in colour

specified.

.7 Louvers and Vents
- .1 Manufacturers literature
- .2 300mm X 300mm Sample corner frame with louvers
- .3 Colour selection chart.

.8 Other material used on the exterior of the building
- .1 Manufacturers literature
- .2 Colour selection samples.

.2 Interior Finish Group

.1 Finish Carpentry - woodwork
- .1 Manufacturers literature
- .2 300x300 sample of finished casework in species of wood identified and finished to meet specification requirements.
  - .1 Range of finishes and stains where applicable.

.2 Finish Carpentry – plastic laminate
- .1 Manufacturers litera
- .2 Manufacturers sample ranges as specified in contract documents.

.3 Wood Doors.
- .1 Manufacturers literature
- .2 300x300 sample of finished wood door in species of wood identified and finished to meet specification requirements
  - .1 Range of finishes and stains where applicable.

.4 Flooring.
- .1 Approved manufacturers literature
- .2 Manufacturers colour range(s) of each flooring type with specified surface texture and colour.
- .3 Base, manufacturers colour range of each type of base, with specified colour, or colour sample range where no colour specified.

.5 Acoustic Panel Ceilings.
- .1 Manufacturers literature
- .2 Manufacturers colour range(s) of each type of ceiling specified.
- .3 Sample of ceiling suspension system(s).

.6 Folding Panel Partitions/Operable Walls.
- .1 Manufacturers literature
- .2 Manufacturers colour range of wall covering with specified surface texture and colour, or colour sample range where no colour specified.

.7 Toilet Compartments.
- .1 Manufacturers literature
- .2 Colour selection sample range.

.8 Lockers.
- .1 Manufacturers literature
- .2 Colour selection sample range.

.9 Elevators and Lifts.

.1 Manufacturers literature
.2 Colour selection chart and sample range for all wall ceiling and floor finishes where applicable.

1.10 OPERATION AND MAINTENANCE MANUALS

.1 Operation and Maintenance Manual Master List: **Sixty (60)** working days prior to substantial performance, the contractor shall review the Contract Documents (specification, schedules, and drawings) and assemble a master list of all materials to be included in the Operation and Maintenance Manual, necessary and required for the project.
.1 Organize list to match the format of final submission,
.2 Submit this list to the Consultant for review.

.2 Coordinate the assembly of all manuals from all trades and sub-trades, to match this master format developed for the project. Review all submissions from trades and sub-trades for compliance prior to submission to the Consultant.

.3 Warranty and Guaranty: All Warranty and Guarantees periods shall commence on the date of Substantial Performance of the Project. Coordinate this requirement with all sub-trades and suppliers. Review submissions from trades, sub-trades and suppliers to ensure conformance. Do not submit Operation and Maintenance manuals until all are in conformance with this requirement.

.4 Submit two (2) Hard and two (2) Electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Consultant.

.5 Manuals to contain operational information on equipment, cleaning and lubrication schedules, filters, overhaul and adjustment schedules and similar maintenance information. Instructions in this manual shall be in simple language so as to guide the Owner in the proper operation and maintenance of building components. In all cases where a manufacturer's data sheets, instruction and/or maintenance manuals are available in bilingual form they shall be so included in the submission.

.6 Bind contents in a three-ring, hard covered, plastic jacketed binder. Organize contents into applicable categories of work, parallel to specifications Sections.

.7 In addition to information specified, include the following:
.1 Title sheet, labeled "Operating and Maintenance instructions", containing project name and date
.2 List of names, addresses and phone numbers of subcontractors and suppliers who can effect repair or maintenance on equipment
.3 List of contents
.4 Maintenance instructions for finished surface and materials
.5 Copy of hardware and paint schedules
.6 Description, operation and maintenance instructions for equipment and systems, including complete lists of equipment and parts list. Indicate nameplate information such as make, size, capacity, serial numbers

.7 Names, addresses and phone number of sub-contractors and suppliers
.8 Guarantees, warranties and bonds
.9 Additional material used in project listed under various Sections showing name of manufacturer and source of supply

.8 Include one complete set of final reviewed shop drawings, bound separately, indicating any changes made during fabrication and installation.

1.11 SAMPLES

.1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to a location as agreed to by the Consultant and Owner, noting this location may be in Sault Ste Marie or Sudbury.

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

.4 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work. Proceeding with the work without approval for additional scope is the contractor's acceptance that they accept all cost associated with the supply and install.

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

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

1.12 DELEGATED DESIGN SERVICES

.1 Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated
.1 If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Consultant

.2 Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit five paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional
.1 Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services

1.13 MOCK-UPS	.1	Erect mock-ups in accordance with 01 45 00 - Quality Control and each applicable specification section.
1.14 PHOTOGRAPHIC DOCUMENTATION	.1	Provide construction progress during the course of construction. Photographs shall start at time of contract award and end at time of issuance of certificate of deemed completion.
	.2	Provide minimum 15 pictures per month.
	.3	Submit one set of electronic copy of colour digital photography in JPG format, fine resolution with the monthly progress statement.
	.4	Take Photographs of specific areas of interest on the construction site.
	.5	Monthly application for payment will deem to be incomplete without the progress photo submission.
1.15 CERTIFICATES AND TRANSCRIPTS	.1	Immediately after award of Contract, submit WSIB Clearance.
	.2	Submit transcription of insurance immediately after award of Contract.

PART 2 - PRODUCTS

2.1 NOT USED	.1	Not Used.

PART 3 - EXECUTION

3.1 NOT USED	.1	Not Used.

END OF SECTION

PART 1 - GENERAL

.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section

.2 Section includes administrative and procedural requirements for substitutions that may be required post tender.

.3 Substitutions or alternates should all be pre-approved prior to close of tender. However certain conditions, may arise that necessitate the need of a substitution or alternate. These specific conditions are outline below.

.4 Requests for alternates or substitutions submitted with shop drawing submissions will not be considered.

1.2 RELATED REQUIREMENTS

.1 Division 1 – General Requirements

.2 Section 01 61 00 – Common Product Requirements

.3 All Section and Divisions of the Work

1.3 ACCEPTABLE PRODUCTS

.1 First item named or specified by catalogue number meets specifications in all respects regarding performance, quality of material and workmanship, and is acceptable to the Architect

.2 Items, other than first named, meeting specifications regarding quality of materials and workmanship only, are acceptable to the Architect, if they also meet performance, match the first named product in colour and texture, etc. and/or capacities specified and can be accommodated within the space allotted

.3 General approval indicated by inclusion of other manufacturers named is subject to final review of submitted samples of shop drawings, performance data and test reports

.4 Where the contractor uses equivalent products other than that first named, on which design is based, the contractor shall be fully responsible for all details of installation including product size, arrangement, fit, colour, etc. and maintenance of all required clearances.

1.4 DEFINITIONS

.1 Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor

- .1 Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as, regulatory changes, or other reason as approved by the consultant.
- .2 Substitutions for Owner Benefit: Changes proposed by Contractor that will provide superior performance, or provide the Owner with some other benefit, to materials/items specified.

.1 Provide with proposal, a full description of the specified material and the proposed substitution with a comparison or the two items and a description/outline of the Owner Benefit.

.3 Substitutions for Contractor Benefit or Convenience: Changes proposed by Contractor that are not required in order to meet the Project requirements.

.1 Will not be permitted

.2 "Or-Equal"

.1 Where the phrase "or equal", "approved equal", or "equal as approved by the Architect(consultant)" occurs in the Contract Documents, do not assume that materials, equipment, or methods will be approved by the Architect.

.2 The decision of the Consultant shall be final.

1.5 AVAILABILITY OF SPECIFIED ITEMS

.1 Verify, prior tender close, that all specified items are or will be available in time for installation on the project.

.1 Coordinate all aspects, with suppliers and trades for ordering material and obtain shop drawing review with the project schedule.

.2 In the event specified items are not, or will not be so available, notify the Architect prior to tender close.

.1 Submit one request for substitution for each item for Consultant review.

.2 Submit with cover document including the following information:

.1 Project Name
.2 Project Number
.3 Item Name
.4 Specification and/or Drawing Reference including article and sub-article reference
.5 Manufacturer/supplier name, address and contact information.

.3 Proposed alternate with all relevant data for comparison to specified product.

.4 Submit no later than four (4) working days prior to tender close, for evaluation by the Consultant.

.3 Changes to Contract Price or Contract Time, because of non-availability of specified items, will not be borne by the Owner

.4 Additional time required by the consultant team to review additional submissions may back-charged to the contractor, and shall not be borne by the Owner

1.6 SUBSTITUTION FOR CAUSE

.1 Submit requests for substitution immediately on discovery of need for change. Submit with ample time to allow for full review and possible rejection of submittal so as to not affect the construction schedule.

.2 Submit each request for consideration separately, do not group submissions

.3 Include with the submission the following minimum requirements..
- .1 Provide cover sheet or Contractors Requested for Alternate (RFA) form and indicate the following:
  - .1 Project Name
  - .2 Project Date
  - .3 Specification section and article number.
  - .4 Drawing reference where applicable.
- .2 Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
- .3 Product Data, including drawings and descriptions of products and fabrication and installation procedures
- .4 Detailed comparison, chart and/or table, of proposed substitution to item/Work specified. Include all relevant data and material test data for comparison. Indicate all deviations from the Work specified
- .5 Samples, where applicable or requested
- .6 Certificates and qualification data, where applicable or requested
- .7 List of similar installations for completed projects with project names and reference contacts
- .8 Research reports evidencing compliance with building code in effect for Project
- .9 Authorities: Include a statement indicating that the requested substitution has received necessary approvals of authorities having jurisdiction
- .10 Warranty: Include a statement that the requested substitution provides specified warranty
- .11 Schedule Impact: Include a statement that proposed alternate will not extend the construction schedule.
- .12 Cost Impact: Include a statement that the proposed change shall not impact the contract price
- .13 General Contractor's Certification: Include a statement that they have reviewed proposed substitution and it complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related and adjacent materials, and is appropriate for application indicated.
- .14 General Contractor's Waiver: Include a waiver of rights to any additional costs or time that may subsequently become necessary because of coordination (or lack thereof) or failure of proposed substitution to produce indicated results.

.4 Additional Information: If necessary, the Consultant may request additional information or documentation for evaluation within **seven (7)** working days of receipt of a request for substitution. Provide requested information as soon as possible, to assist in the review process.

.5 Evaluation period: Submit requisitions allowing ample time for review process, coordinate with construction schedule. Allow for a minimum of **fifteen (15)** working days following Consultants receipt of all information.

.6 Acceptance or Rejection:

.1 Acceptance: If approved, the Consultant will issues formal paperwork to document the approval, with accepted contract forms.

.2 Rejection: If rejected, the consultant will issue instruction to the contractor of the rejection.

.1 The Consultant may not, nor is required to, provide reasons for rejection.

.2 Appeals to rejected items will not be permitted.

1.7 SUBSTITUTION FOR OWNER BENIFIT

.1 Submit requests for substitution immediately on discovery of need for change. Submit with ample time to allow for full review and possible rejection of submittal so as to not affect the construction schedule.

.2 Conditions: Consultant will consider Contractor's request for substitution only when all of the following conditions are satisfied. If the following conditions are not satisfied, Consultant will return requests without action, except to record noncompliance with these requirements

.1 Provide cover sheet or Contractors Requested for Alternate (RFA) form and indicate the following:

.1 Project Name

.2 Project Date

.3 Specification section and article number.

.4 Drawing reference where applicable.

.2 Detailed comparison, chart and/or table, of proposed substitution to item/Work specified. Include all relevant data for comparison. Indicate all deviations from the Work specified

.3 Authorities: Include a statement indicating that the requested substitution has received necessary approvals of authorities having jurisdiction

.4 Warranty: Include a statement that the requested substitution provides specified warranty

.5 Schedule Impact: Include a statement that proposed alternate will not extend the construction schedule.

.6 Cost Impact: Provide a fixed fee quotation for the credit to the contract price that the proposed change will provide.

.7 General Contractor's Certification: Include a statement that they have reviewed proposed substitution and it complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related and adjacent materials, and is appropriate for application indicated.

.8 General Contractor's Waiver: Include a waiver of rights to any additional costs or time that may subsequently become necessary because of coordination (or lack thereof) or failure of proposed substitution to produce indicated results.

.3 Additional Information: If necessary, the Consultant may request additional information or documentation for evaluation within **seven (7)** working days of receipt of a request for substitution. Provide requested information as soon as possible, to assist in the review process.

.4 Evaluation period: Submit requisitions allowing ample time for review process, coordinate with construction schedule. Allow for a minimum of **fifteen (15)** working days following Consultants receipt of all information.

.5 Acceptance or Rejection:

.1 Acceptance: If approved, the Consultant will issues formal paperwork to document the approval, with accepted contract forms

.2 If accepted the Consultant is under no obligation to provide revised design documents depicting said change.

.3 Upon acceptance, and only after acceptance, submit project specific shop drawings in accordance with Section 01 33 00 – Submittal Procedures.

.4 Rejection: If rejected, the consultant will issue instruction to the contractor of the rejection.

.1 The Consultant may not, nor is required to, provide reasons for rejection.

.2 Appeals to rejected items will not be permitted.

1.8 SUBSTITION FOR CONVIENEINCE

.1 Will not be considered.

1.9 QUALITY ASSURANCE

.1 Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers. .

1.10 PROCEDURES

.1 Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

.1

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.3 Province of Ontario
- .1 Occupational Health and Safety Act, R.S.O. 1990 Updated 2005.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit site-specific Health and Safety Plan: Within ten (10) days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
- .1 Results of site specific safety hazard assessment.
- .2 Results of safety and health risk or hazard analysis for site tasks and operation.

.3 Submit One (1) copy of Contractor's authorized representative's work site health and safety inspection reports to Consultant Weekly.

.4 Submit one (1) copy of each health and safety meeting minutes to Consultant.

.5 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.6 Submit copies of incident and accident reports.

1.3 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.4 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.5 MEETINGS

.1 Schedule and administer Health and Safety meeting with All Trades prior to commencement of Work.

1.6 REGULATORY REQUIREMENTS

.1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements

1.7 GENERAL REQUIREMENTS

.1 Develop site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement,

maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Consultant may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.8 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9 UNFORSEEN HAZARDS

.1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province Territory having jurisdiction and notify the Consultant and Owner.

1.10 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety coordinator. Health and Safety coordinator must:

- .1 Have site-related working experience specific to activities associated with this type and scale of construction.
- .2 Have working knowledge of occupational safety and health regulations.
- .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
- .5 The authorized representative shall be on site when construction activities are ongoing
- .6 The authorized representative shall not be employed in any other capacity except to discharge this duty (ie: cannot be a site superintendent, project manager, work coordinator, labourer etc…)

1.11 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Consultant.

1.12 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Consultant

.2 Provide Consultant with written report of action taken to correct

non-compliance of health and safety issues identified.

.3 Consultant may stop Work if non-compliance of health and safety regulations is not corrected.

1.13 BLASTING .1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Consultant.

1.14 POWDER ACTUATED DEVICES .1 Use powder actuated devices only after receipt of written permission from Consultant.

1.15 WORK STOPPAGE .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 INSPECTION

.1 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant's instructions, or law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Consultant will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, The Owner shall pay cost of examination and replacement.

1.2 STANDARDS

.1 Where initials of an organization are used, followed by number or combination of numerals and letters, this designates a standard produced by the organization. Conform to issue of standard so designated, as amended and revised to date of contract. When designation does not indicate particular edition of standard edition current at date of Contract shall apply.

.1 Contractor shall provide a copy of all standards indicated or required for the project in the Construction trailer and will provide copies to the consultant upon request.

.2 Wherever a standard confers upon a person, a body politic or a body corporate the right to approve, to select, to exercise authority or to interpret the standard, and refers to that person, body politic or body corporate as the Authority having jurisdiction, the Authority, the Engineer, the Department, the Purchaser, the Contracting Officer or by some other such designation, the Architect shall have the right to exercise the powers of any such person, body politic, or body corporate.

.3 Where standards and manufacturer's instructions reduce the requirements of the Contract Documents, the Contract Documents shall govern.

.4 Where standards and manufacturer's instructions are in excess of the requirements of the Contract Documents, the Standards and manufacturers instruction shall govern.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.4 WATER SUPPLY

.1 Owner will provide continuous supply of potable water for construction use

.2 Make temporary connections and distribution piping as may be required for construction. Ensure all temporary connections do not negatively impact on going operations in adjacent spaces.

.3 Disconnect and restore temporary water service connections provided by this Contractor that are beyond those noted in the Janitor closets, return these temporary connections to condition as found pre contract.

1.5 VENTILATION

.1 Ventilating:
- .1 Prevent accumulations of dust, fumes, mists, vapors or gases in areas occupied during construction.
- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Ventilate temporary sanitary facilities.
- .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.2 Maintain strict supervision of operation of ventilating equipment to:
- .1 Conform with applicable codes and standards.
- .2 Enforce safe practices.
- .3 Prevent abuse of services.
- .4 Prevent damage to finishes.
- .5 Vent direct-fired combustion units to outside.

.3 All interior spaces within the construction areas shall be maintained at a minimum temperature of 50 degrees Fahrenheit or as otherwise required by product manufacturers and installers.

.4 Contractor must follow Owner Ventilation Shut Down Policy.

1.6 TEMPORARY POWER AND LIGHT

.1 Connection to existing electrical services can be made as long as there is no reduction in the existing service and its characteristic that will adversely affect the operation of the existing building during or after use of such electrical power. Power can be used for temporary lighting and operating of power tools inside of the building, to a maximum supply of 208 volts. If power connection is made to existing services at building, it is expected that power consumption and costs will be normal and will not be abused. If extraordinary costs will be experienced resulting from construction activity, obtain approval prior to consuming. If extraordinary utility bills are not preapproved they will be charged back to the contractor.

.2 Temporary power for electric cranes and other equipment requiring in excess of above is responsibility of Contractor.

.3 Arrange for connection with Owner where impacting existing distribution. Pay all costs for installation, maintenance and removal.

.4 Provide and maintain temporary lighting throughout all areas of the construction zone.

.5 Maximum power supply at 120/208 V, 3 phase, 60 Hz is available and will be provided for construction use at cost. Connect to existing power supply in accordance with Canadian Electrical Code and provide additional circuit breakers in existing panels or distribution units/switches to suit requirements.

1.7 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, data, and equipment necessary for own use.

1.8 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws. Turn over safe site to Owner in accordance with Ontario Health and Safety Requirements.

.2 Prior to any interruption or shut down of the existing or new fire alarm and voice communication systems, the Contractor shall provide notification to the Fire Department, Owner, and Supervisory Staff and post notification for the Building Occupants.

.3 For the duration of construction, the Contractor shall maintain a Fire Safety Watch to all areas where the fire alarm service is compromised or not operational, for all hours of the day until the new or modified Fire Alarm system for that area is installed and re-verified and operational. Provide hourly “24 hours” fire watch, review procedure with consultant, owner and Fire Department’

- .1 Fire watch inspections, shall include a visible inspection of all areas at least every hour, and documented records of the inspections, in a typical log to be provided by the Owner.
- .2 Fire watch personnel shall be equipped with a Cellular phone and provided with the appropriate emergency contact numbers.

.1 Review a list of emergency contacts and procedures with the Owner.

.3 Before the construction forces depart for the day, an inspection shall be conducted of all areas of the construction zone for potential fire hazards or flammable vapors or liquids and made safe. Any potential hazards shall be documented for the subsequent fire watch

.4 The Contractor may employ a designated supervisor from among their own forces, actively on the site, responsible for the activities above.

.5 Any modifications to the above noted procedures must be approved by the Owner and Fire Department.

.6 Burning rubbish and construction waste materials is not permitted on site.

.7 Contractor must follow HSCDSB Hot Work Policy.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Not Applicable.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 013119 – Project Management and Coordination.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
- .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.

.2 Canadian Standards Association (CSA International)
- .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA-0121-M1978(R2003), Douglas Fir Plywood.
- .3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
- .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.

.3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.4 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Indicate use of supplemental or other staging area.

.3 Provide construction facilities in order to execute work expeditiously.

.4 Remove from site all such work after use.

1.5 SCAFFOLDING

.1 Scaffolding in accordance with CAN/CSA-S269.2.

.2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms and temporary stairs as required for all stages of construction.

1.6 ELEVATORS

.1 Use of permanent elevators shall be prohibited for construction activities

1.7 SITE STORAGE/LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.8 CONSTRUCTION PARKING

.1 Parking will be permitted on site in designated contractor parking areas.

.2 Provide and maintain adequate access to project site.

1.9 SECURITY

.1 Provide adequate security services, as deemed necessary by this contractor for protection of the building and all materials on site.

.2 Owner shall not be liable for any theft, vandalism or other malicious acts on the property prior to substantial completion.

1.10 OFFICES

.1 General Contractor and Subcontractors to provide their own offices as necessary. Location of these offices to be determined on site with the Owner and may make use of the existing building.

.1 Meeting room. Consultant shall provide the meeting room for use in Contractor, Owner and Consultant team meetings for the duration of the project,.

.2 Contractor to provide cleaning services to any space within existing facilities used as offices once every two days.

.3 Contractor shall provide, maintain and service any trailers until Total Performance is achieved, or until such time as agreed upon by the Consultant. Include all cost in the Contract.

1.11 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.12 SANITARY FACILITIES

.1 Contractor may make use of existing sanitary facilities for work force. Should cleanliness become an issue, the Owner will revoke this access.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.13 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Provide access and temporary relocated roads as necessary to maintain traffic.

.2 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and

erection and maintenance of adequate warning, danger, and direction signs

.3 Protect travelling public from damage to person and property.

.4 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

.5 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

.6 Construct access and haul roads necessary.

.7 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.

.8 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

.9 Dust control: adequate to ensure safe operation at all times.

.10 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Consultant.

.11 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.

.12 Provide snow removal during period of Work.

.13 Remove, upon completion of work, haul roads designated by Consultant.

1.14 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Work of all sections.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CGSB 1.59-[97], Alkyd Exterior Gloss Enamel.
- .2 CAN/CGSB 1.189-[00], Exterior Alkyd Primer for Wood.

.2 Canadian Standards Association (CSA International)
- .1 CSA-O121-[M1978(R2003)], Douglas Fir Plywood.

.3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

1.3 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.4 DUST TIGHT SCREENS

.1 Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

1.5 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.6 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.7 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.8 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.9 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Be responsible for damage incurred due to lack of or improper protection.

1.10 WASTE MANAGEMENT AND DISPOSAL .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 014500 – Quality Controls.

1.2 REFERENCES

.1 Within text of each specifications section, reference may be made to reference standards.

.2 Conform to these reference standards, in whole or in part as specifically requested in specifications.

.3 If there is question as to whether products or systems are in conformance with applicable standards, Consultant reserves right to have such products or systems tested to prove or disprove conformance.

.4 Cost for such testing will be born by Owner in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.3 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.

.3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.4 Should disputes arise as to quality or fitness of products, decision rests strictly with Consultant based upon requirements of Contract Documents.

.5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.4 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If

delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 MATERIALS

.1 Review all material delivered to the site for conformance with the Contract Documents.
- .1 Reject material that does not conform to the contract documents.
- .2 Requests for approval of alternates will be rejected.
- .3 Remove from the Place of the Work

.2 Reject material damaged in transit to the site prior to installation into the Work.
- .1 Remove from site and replace damaged materials

.3 Store packaged materials in original undamaged containers with manufacturer's labels and seals intact.

.4 Handle and store materials in accordance with manufacturers' and suppliers' recommendations.

.5 Prevent damage.

1.6 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementations products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber and doors on flat, solid supports and keep clear of ground.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of Consultant

.9 Touch-up damaged factory finished surfaces to Consultant's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.7 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

.2 Transportation cost of products supplied by Owner will be paid for by Owner. Unload, handle and store such products and install as noted in the contract documents.

1.8 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant will establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.

1.9 QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Consultant reserves right to require dismissal from site, workers deemed incompetent or careless, at his discretion.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Consultant, whose decision is final.

.4 Consultant reserves the right to request the certificate of qualification or apprenticeship of any worker on site.

.5 Consultant reserves the right to evaluate work trade ratios between apprentice and journeyperson workers and dismiss apprentices or require the introduction of journeypersons to ensure compliance with the Provincial requirements without the contractor having claim to any change in schedule or contract cost.

1.10 CO-ORDINATION

.1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 General contractor to be the coordinator of the work of all trades.

.3 General contractor will ensure that all trades have planned the work such that major conflict and removal is not required and that the co-ordination drawings have been completed and followed.

.4 Be responsible for coordination and placement of openings, sleeves and accessories.

1.11 CONCEALMENT

.1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation inform Consultant if there is interference. Install as directed by Consultant.

1.12 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.13 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Inform Consultant of conflicting installation. Install as directed.

1.14 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.15 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.16 PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Consultant.

.2 Employ the services of a Professional Engineer licensed in the Province of Ontario if there are areas deemed to potentially require the use of significant shoring or bracing to evaluate the area and provide a design to proceed.

1.17 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work and/or building occupants and pedestrian and vehicular traffic.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS	.1	Section 01 45 00 – Quality Controls
	.2	Section 01 61 00 – Common Requirements
1.2 REFERENCES	.1	Not Applicable.
1.3 EXISTING SERVICES	.1	Before commencing work, establish location and extent of ***ALL*** service lines in area of Work and notify Consultant of findings.
1.4 RECORDS	.1	Maintain a complete, accurate log of control and survey work as it progresses.
1.5 ACTION AND INFORMATIONAL SUBMITTALS	.1	Submit name and address of Surveyor to Consultant.
	.2	On request of Consultant, submit documentation to verify accuracy of field engineering work.
1.6 SUBSURFACE CONDITIONS	.1	Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
	.2	After prompt investigation, should Consultant determine that conditions do differ materially; instructions will be issued for changes in Work as provided in Changes and Change Orders.

PART 2 - PRODUCTS

2.1 NOT USED	.1	Not Used.

PART 3 - EXECUTION

3.1 NOT USED	.1	Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit written request in advance of cutting or alteration which affects:
- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

.3 Include in request:
- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.2 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

.3 Changes that require a change in the contract price or time require the submission of a Change Request, which may or may not be accepted by the Consultant. Include a clear description of the request, breakdown of cost impacts, schedule impacts, reason for change etc…

1.3 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

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

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

.5 Remove samples of installed Work for testing.

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

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

.8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

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

.11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 - Firestopping, full thickness of the construction element.

.13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

.14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site.

.3 Clear snow and ice from access to construction and buildings under construction, remove snow from site.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site containers for collection of waste materials and debris.

.6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.7 Dispose of waste materials and debris at certified landfills. Keep a record of and provide waybills to consultant when requested.

.8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

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

.12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.2 FINAL CLEANING

.1 Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations

.2 Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions

.3 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.4 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.5 Prior to final review remove surplus products, tools, construction machinery and equipment.

.6 Remove waste products and debris including that caused by Owner or other Contractors.

.7 Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site.

.8 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.9 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.10 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls.

.11 Clean lighting reflectors, lenses, and other lighting surfaces.

.12 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

.13 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.

.14 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.15 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.16 Remove dirt and other disfiguration from exterior surfaces.

.17 Clean and sweep roofs, gutters, areaways, and sunken wells.

.18 Sweep and wash clean paved areas.

.19 Clean equipment and fixtures to sanitary condition; replace filters of mechanical equipment.

.20 Clean roofs, downspouts, and drainage systems.

.21 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.22 Remove snow and ice from access to building.

1.3 WASTE MANAGEMENT AND DISPOSAL .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS
.1 Division 1 – General Requirements
.2 Section 01 29 00 - Payment Procedures
.3 Section 01 31 19 – Project management and Coordination
.4 Section 01 78 00 – Closeout Submittals

1.2 REFERENCES
.1 OAA/OGCA – General Take Over Procedures

1.3 SUMMARY
.1 Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following
- .1 Submittals
- .2 Pre-Substantial Performance Requirements
- .3 Substantial Completion procedures
- .4 Final Completion Procedures
- .5 List of Incomplete Items

1.4 SUBMITTALS
.1 Contractor's List of Incomplete Items: Initial submittal at Substantial Completion
.2 Certified List of Incomplete Items: Final submittal at Final Completion
.3 Certificates of Release: From authorities having jurisdiction

1.5 PRE-SUBSTANTIAL PERFORMANCE REQUIREMENTS
.1 Complete the following a minimum of ten (10) days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:
- .1 Advise Owner of pending insurance changeover requirements

1.6 SUBSTANTIAL COMPLETION PROCEDURE
.1 In general terms, (not to supersede the requirements of the Construction Act) the Contract is Substantially Performed when the following two conditions are achieved.
- .1 When the improvement to be made under the contract or a substantial part thereof is ready for use, or being used for its intended purpose.

AND

- .2 When the improvement to be made under the contract is capable of completion or, where there is a known defect, correction, a cost of not more than,
  - .1 3 per cent of the first $1,000,000 of the Contract Price
  - .2 2 per cent of the next $1,000,000 of the Contract Price
  - .3 1 per cent of the balance of the contract.

1.7 FINAL COMPLETION PROCEDURES

.1 Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following
- .1 Final Application for Payment according to Section 01 29 00 – Payment Procedures
- .2 Certified List of Incomplete Items (Deficiency List): Submit certified copy of Consultant's Substantial Completion inspection list of items to be completed or corrected, endorsed and dated by Consultant. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

.2 Inspection: Submit a written request for final inspection to determine acceptance a minimum of ten (10) days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Consultant will either proceed with inspection or notify Contractor of unfulfilled requirements.

.3 If, upon inspection by the Consultant, it is determined that the work is not complete, the consultant will notify the Contractor of the outstanding Work and call for the work to be re-inspected once complete.
- .1 The Consultant ***shall*** be entitled to compensation for subsequent re-inspection, and administrative costs. These will be billed to the owner as Additional Services. In turn, the Owner shall deduct these costs, plus a reasonable mark-up, from the Contractors payment applications.

1.8 LIST OF INCOMPLETE ITEMS (DEFICIENCY LIST)

.1 Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1.9 REPAIR OF THE WORK

.1 Complete repair and restoration operations before requesting inspection for determination of Substantial Completion

.2 Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
- .1 Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials
- .2 Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration
  - .1 Do not paint over "ULc" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required

labels and identification

.3 Replace parts subject to operating conditions during construction that may impede operation or reduce longevity

.4 Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Pre Warranty Meeting:
- .1 Convene meeting one (1) week prior to contract completion with All Contractor's Representatives, Consultant and Owner in accordance with Section 01 31 19 - Project Meetings to:
  - .1 Verify Project requirements.
  - .2 Review warranty requirements.
- .2 Consultant to establish communication procedures for:
  - .1 Notifying construction warranty defects.
  - .2 Determine priorities for type of defects.
  - .3 Determine reasonable response time.
- .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Two weeks prior to Substantial Performance of the Work, submit to the Consultant two final copies of operating and maintenance manuals in English.

.3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.

.4 Provide evidence, if requested, for type, source and quality of products supplied.

1.3 FORMAT

.1 Organize data as instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf [219 x 279] mm with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings.
- .1 Identify contents of each binder on spine.

.4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

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

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

.7 Text: manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab.
.1 Bind in with text; fold larger drawings to size of text pages.

1.4 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume: provide title of project;
.1 Date of submission; names.
.2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:
.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

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

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

.5 Typewritten Text: as required to supplement product data.
.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

.6 Training: refer to Section 01 79 00 - Demonstration and Training.

1.5 AS -BUILT DOCUMENTS

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

.2 Maintain record documents in clean, dry and legible condition.
.1 Do not use record documents for construction purposes.

.3 Keep record documents and samples available for inspection by Consultant.

1.6 RECORDING INFORMATION ON PROJECT RECORD

.1 Record information on set of black line opaque drawings.

DOCUMENTS

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.
- .1 Do not conceal Work until required information is recorded.

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

.5 Specifications: mark each item to record actual construction, including:
- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.

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

1.7 EQUIPMENT AND SYSTEMS

.1 For each item of equipment and each system include description of unit or system, and component parts.
- .1 Give function, normal operation characteristics and limiting conditions.
- .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

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

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Contractor’s 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 and balancing reports as specified in Section 01 45 00 - Quality Control and 01 91 13 - General Commissioning (Cx) Requirements.

.15 Aboveground storage tank inspection documentation, registration, forms, decommissioning and removal in accordance with CEPA SOR/2008-197.

.16 Additional requirements: as specified in individual specification sections.

1.8 MATERIALS AND FINISHES

.1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

.1 Provide information for re-ordering custom manufactured products.

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

.3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

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

1.9 MAINTENANCE MATERIALS

.1 Spare Parts:

.1 Provide spare parts, in quantities specified in individual

specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to site; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Consultant

.2 Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

.2 Extra Stock Materials:

.1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

.3 Special Tools:

.1 Provide special tools, in quantities specified in individual specification section.

1.10 WARRANTIES AND BONDS

.1 Assemble Warranty information in binder, submit upon acceptance of work and organize binder as follows:

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

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

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

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

.5 Co-execute submittals when required.

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

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

.3 Respond in timely manner to oral or written notification of required construction warranty repair work.

1.11 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

.1 Section Includes.
- .1 Methods and procedures for demolishing, salvaging, recycling and removing site work items designated to be removed in whole or in part.

.2 Related Sections.
- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .3 Section 01 45 00 - Quality Control.
- .4 Section 01 56 00 - Temporary Barriers-Enclosures
- .5 Section 01 51 00 – Temporary Utilities

1.2 REFERENCES

.1 Canadian Council of Ministers of the Environment (CCME).

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
- .1 Material Safety Data Sheets (MSDS).

.3 Transport Canada (TC).
- .1 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34

.4 Environmental Protection Act , Ontario Regulation 102/94 (EPAOR102/94) Waste Audits and Waste Reduction Work Plans.

1.3 DEFINITIONS

.1 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos PCB's, CFC's, HCFC's poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.

.2 Waste Audit (WA): detailed inventory of materials in building. Indicates quantities of reuse, recycling and landfill.
- .1 Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project.
- .2 Indicates quantities of reuse, recycling and landfill.

.3 Waste Management Coordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements. The contractor shall fulfill the requirements of the WMC.

.4 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

1.4 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal

Procedures.

.2 Shop drawings.
- .1 Submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning, where required by authorities having jurisdiction.
- .2 Submit drawings stamped and signed by qualified professional engineer, in good standing, registered or licensed in Province in which the Work occurs.

.3 Hazardous Materials: provide description of Hazardous Materials and Notification of Filing with proper authorities prior to beginning of Work as required.

.4 Waste Reduction Workplan: prior to beginning of Work on site submit detailed Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal and indicate any and all requirements as mandated by the Regulation, and at least the following:
- .1 Descriptions of and anticipated quantities in percentages of materials to be salvaged reused, recycled and landfilled.
- .2 Schedule of selective demolition.
- .3 Number and location of dumpsters.
- .4 Anticipated frequency of tippage.
- .5 Name and address of haulers and waste facilities.

.5 Certificates: submit copies of certified weigh bills/bills of lading/receipts from authorized disposal sites and reuse and recycling facilities for material removed from site on monthly basis upon request of Consultant.
- .1 Written authorization from Owner and Consultant is required to deviate from haulers or receiving organizations listed in Waste Reduction Workplan.

1.5 ENGINEERED DRAWINGS

.1 Demolition Drawings
- .1 Where required by authorities having jurisdiction, retain an Engineer, and submit for approval, any and all drawings, diagrams or details that may be required by the Authorities having Jurisdiction. Said drawings shall bear stamp and signature of qualified professional engineer, in good standing, registered in the Province of Ontario.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: ensure Work is performed in compliance with CEAA, TDGA, EPAOR102/94 and any other applicable Federal, Provincial and Municipal regulations.

.2 Site Meetings.
- .1 Convene Pre-Demolition Meeting prior to beginning work of this Section, coordinate meeting with the project schedule. The intent of this meeting is to:
  - .1 Verify project requirements.
  - .2 Review Waste Reduction requirements and

expectations.

.3 Review existing installation and current conditions, develop work plan to suit new work required by Electrical and Owner fire alarm vendor sub-trades as indicated on the Drawings, which must be verified prior removal of existing fire alarm system within area of demolition work. Ensure all existing circuits within the demo zone are protected during demo activities occurring prior to removal to ensure no negative operational impacts, false alarms, troubles, etc. to adjacent occupied portion of building.

.4 Co-ordination with other building sub-trades.

.5 Co-ordinate with the owners continued use of the building.

.6 Identify potential project risk items and develop solutions.

.2 Coordinate and arrange attendance for this meeting with the following:

.1 General Contractor Project Manager

.2 General Contractor Superintendent

.3 Owners Representative

.4 Consultants Representative(s)

.5 Ministry of the Environment Representative

.3 Waste management reporting.

.1 Reporting Requirements: The WMC shall complete all applications reporting and final verifications to the Ministry of the Environment as may be required. Copies of all correspondence shall be provided to the consultant and the owner for their records.

.2 WMC must provide written report on status of waste diversion activity at each meeting.

.3 Contractor will provide written notification of change to meeting schedule established upon contract award 24 hours prior to scheduled meeting.

.4 Health and Safety. Unless otherwise specified, carry out demolition work in accordance with the Occupational Health and Safety Act, and Regulations for Construction Projects and applicable regulations as amended and revised to date of award of Contract including the regulation respecting asbestos made under O.H.S.A., Ontario Regulation 654/85 or latest edition

1.7 DELIVERY, STORAGE AND HANDLING

.1 Storage and Protection.

.1 Protect existing items designated to remain and items designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Consultant and Owner at no cost to the Owner.

.2 Remove and store materials to be salvaged, in manner to prevent damage.

.3 Store and protect in accordance with requirements for maximum preservation of material.

.4 Handle salvaged materials as new materials.

.2 Waste Management and Disposal.

.1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.2 Separate for recycling and place in designated containers Steel, Metal, or Plastic waste in accordance with Waste Management Plan.

.3 Place materials defined as hazardous or toxic in designated containers.

.4 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal, regulations.

.5 Label location of salvaged material's storage areas and provide barriers and security devices.

.6 Ensure emptied containers are sealed and stored safely.

.7 Source separate for recycling materials that cannot be salvaged for reuse including wood, metal, concrete and asphalt, and gypsum.

.8 Remove materials that cannot be salvaged for reuse or recycling and dispose of in accordance with applicable codes at licensed facilities.

1.8 SITE CONDITIONS

.1 Site Environmental Requirements.

.1 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.2 Do not dispose of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.

.1 Ensure proper disposal procedures are maintained throughout the project.

.3 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.

.4 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction.

.5 Protect trees, plants and foliage on site and adjacent properties where indicated.

.2 Take over spaces to be demolished based on their condition on date that tender is accepted.

.3 Inspect adjacent spaces and ensure that its condition and stability are recorded in a suitable manner for evaluation of possible damage caused by Work of this Section.

.4 Photograph existing spaces in sufficient detail to record conditions and stability before work of this Section commences. These photographs will be used to compare to condition of adjacent construction before and after performance of work of this Section

should any damage to the adjacent construction occur. Submit all photographs to the Consultant prior to the commencement of any work.

1.9 SCHEDULING

.1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.
- .1 Notify Ministry and Consultant representative in writing should unforeseen delay(s) occur.

.2 Coordinate with the Owner for phasing and hours of day for any and all demolition activities. The existing adjacent building will be occupied during the course of demolition and construction activities. Coordinate with the general contractor to maintain access thru and around the site as described in the Scope of The Work.
- .1 Schedule any disruption to the existing college, or noisy operations closely with the Owner and Consultant representatives.
  - .1 Schedule work to be done after normal business hours and when the college is not in operation as required to meet the Owners needs

1.10 HAZARDOUS MATERIALS

.1 Remove contaminated or dangerous materials as defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner, in designated disposal facilities, to minimize danger at site or during disposal

.2 Remove contaminated or hazardous materials as defined by authorities having jurisdiction, and the reports as indicated below. Remove from site and dispose of, at designated disposal facilities, in safe manner and in accordance with authorities having jurisdiction

PART 2 - PRODUCTS

2.1 EQUIPMENT

.1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Inspect site with Owner and Consultant and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

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

.4 At end of each day's work, leave work in safe condition so that no part is in danger of toppling or falling.

.5 Selling or burning materials on site is not permitted.

3.2 PROTECTION

.1 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, adjacent grades, parts of existing building to remain. Provide bracing, shoring and underpinning required. Make good damage and be liable for injury caused by demolition

.2 Take precautions to support structures and, if safety of building being demolished or adjacent structures or services appears to be endangered, cease operations and notify the Consultant

.3 Prevent debris from blocking surface drainage inlets and system and mechanical and electrical systems which must remain in operation

.4 Barricade all access by unauthorized persons to areas in which demolition is in progress

.5 Do not disrupt active or energized utilities traversing premises.

.6 Access: Create controlled access to the demolition site and all demolition activities.

.1 Provide for safe, controlled access to and from demolition/construction areas within the site, for construction workers, material delivery and demolition waste removal.

.2 Provide for safe access around the demolition/construction areas within the site for use by the public.

3.3 REMOVAL OPERATIONS

.1 Perform all demolition under direction of a foreman experienced in similar work at all time.

.2 Remove items as indicated. Do not disturb items designated to remain in place. Confine demolition and associated work only to the area where demolition is required.

.3 Water down debris as often as required to stop the spread of dust. Provide water connections and supply for this purpose.

.1 Control flow or demolition water to avoid storm and sanitary drainage systems.

.2 Where water is used inside the existing building, collect and pump and dispose of all demolition water off site. Temporarily block off all floor and storm drains, do not allow demolition water to down building drains.

.4 Removal of Pavements, Curbs and Gutters:

.1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Consultant.

.2 Protect adjacent joints and load transfer devices.

.3 Protect underlying and adjacent granular materials.

.5 Prevent contamination with base course aggregates, when removing

asphalt pavement for subsequent incorporation into hot mix asphalt concrete paving,

.6 Salvage, from the facility the following items.
- .1 None.
- .2 Owner Item(s) to be salvaged: Other than the items as listed above, the owner will have salvaged what they wish to retain from the existing facility by the time of the Mandatory Site Meeting. The contractor shall assume the responsibility of the demolition and disposal of any remaining items, including furniture and the like, in the construction zone, unless otherwise directed.

.7 Disposal of Material.
- .1 Dispose of materials not designated for salvage or reuse off site at authorized facilities.

3.4 STOCKPILING

.1 Do not stockpile demolished materials on site without the approval from the Owner and Consultant.

3.5 REMOVAL FROM SITE

.1 Transport material designated for alternate disposal using approved haulers, facilities, receiving organizations listed in Waste Reduction Workplan and in accordance with applicable regulations.
- .1 Written authorization from Ministry Representative is required to deviate from haulers, facilities or receiving organizations listed in Waste Reduction Workplan.

.2 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.
- .1 Disposal Facilities: approved and listed in Waste Reduction Workplan.
- .2 Written authorization from Ministry Representative is required to deviate from disposal facilities listed in Waste Reduction Workplan.

3.6 RESTORATION

.1 Restore areas and existing works outside areas of demolition to conditions that existed prior to beginning the Work.

.2 Use soil treatments and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

3.7 CLEANING

.1 Remove debris, trim surfaces and leave work site clean, upon completion of Work.

.2 Remove debris daily as it accumulates.

.3 Use cleaning solutions and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

.4 Clean: Prior to request for substantial performance, thoroughly clean the demolition zone.
- .1 Blow down the dust from the structure.
- .2 Broom clean, then vacuum clean the entire demolition zone

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Division 1 – General Requirements

.2 Section 04 05 11 – Common Work Results for Masonry.

.3 Section 04 05 19 – Masonry Anchorage and Reinforcing

.4 Section 04 05 23 – Masonry Accessories

.5 Section 04 21 13 – Exterior Unit Masonry

.6 Section 04 22 00 – Concrete Unit Masonry

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)
- .1 CAN/CSA-A23.1/A23.2-[04], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CAN/CSA A179-[04], Mortar and Grout for Unit Masonry.
- .3 CAN/CSA A371-[04], Masonry Construction for Buildings.
- .4 CAN/CSA-A3000-[03], Cementitious Materials Compendium; CAN/CSA-A3002-[03], Masonry and Mortar Cement.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product Data:
- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide manufacturer's printed product literature, specifications and datasheets. Include product characteristics, performance criteria, and limitations.
- .3 Provide two copies of Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS) in accordance with Section 01 35 29.06 - Health and Safety Requirements. Indicate VOC's mortar, grout, parging, colour additives and admixtures. Expressed as grams per litre (g/L).
- .4 Samples: upon request

.2 Manufacturer's Instructions:
- .1 Provide manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

.1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties, and in accordance with Section 04 05 00 - Common Work Results for Masonry

.2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store and handles masonry mortar and grout materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented as follows:
- .1 Deliver prepackaged, dry-blended mortar mix to project site in labelled plastic-lined bags each bearing name and address of manufacturer, production codes or batch numbers, and colour or formula numbers.
- .2 Maintain mortar, grout and packaged materials clean, dry, and protected against dampness, freezing, traffic and contamination by foreign materials.

.2 Packaging Waste Management: remove for reuse packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 SITE CONDITIONS

.1 Ambient Conditions: maintain materials and surrounding air temperature to:
- .1 Minimum 5 degrees C prior to, during, and 48 hours after completion of masonry work.
- .2 Maximum 32 degrees C prior to, during, and 48 hours after completion of masonry work.

.2 Weather Requirements: CAN/CSA A371, International Masonry Industry All-Weather Council (IMIAC) - Recommended Practices and Guide Specifications for Hot and Cold Weather Masonry Construction.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Use same brands of materials and source of aggregate for entire project.

.2 Masonry materials: Conforming to CSA A179-04
- .1 Aggregate: Conforming to CSA A82.56-M1976, except that the maximum allowable percentage passing 600 um (No. 30) sieve shall be 80% and maximum passing 300 um (No. 50) sieve shall be 50%.
- .2 Cement: Normal Portland, conforming to CAN/CSA-A3001-03
- .3 White Portland Cement: Federal White Type 10
- .4 Proprietary Mortar Mixes (in lieu of 2. and 3. above) Domtar Construction Materials Ltd., St. Lawrence Cement Company, Canada Cement, St. Mary Cement or Lake Ontario Portland Cement Company. Mortar mixes shall conform to mix requirements specified
- .5 Hydrated Lime: conforming to CSA A82.43-1950 (R1971).

.3 Grout: To CSA 179.

2.2 COLOUR ADDITIVES

.1 Use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, to produce coloured mortar to match approved sample. Admixtures to be approved prior to use. Use in accordance with the specific manufacturer's recommendations.

2.3 MORTAR MIXES

.1 Prepare and mix mortar materials under strict supervision and in small batches for immediate use only. Use and mix proprietary mortar, and use and store ready mixed mortars in strict accordance with manufacturer's instructions to produce the following mortar types in accordance with CSA A179. Do not use retempered mortars:

.1 For bedding steel bearing plates, lintels, for laying bearing courses under concentrated loads and for laying masonry below grade: Use Type 'M' cement mortar having a compressive strength of 2,500 psi (17.5 Mpa) minimum.

.2 For loadbearing masonry units: Use Type 'S' cement mortar having a compressive strength of 1800 psi (12.5 Mpa) minimum

.3 Except as provided in 1 and 2 above: Use Type 'N' masonry mortar having a compressive strength of 750 psi (5.0 Mpa) minimum.

2.4 COLOURED MORTAR

.1 Exterior Brick and Mortar will all receive Brick Stain to match existing. See Specification Section 09 91 13 - Exterior Paint

2.5 PARGING

.1 Parging mortar: Type N to CSA A179- M1976

.2 Parging shall be applied in two coats not less than 10 mm (3/8") thick

.3 First coat shall be roughened to provide a good bond for the second coat

.4 The first coat shall be at least 24 hours old before second coat is applied

.5 The first coat shall be dampened with water before a second coat is applied

2.6 MORTAR MIXING

.1 Use pre-blended, pre-coloured mortar prepackaged under controlled factory conditions. Ingredients batching limitations to be within 1% accuracy.

.2 Mix mortar ingredients in accordance with CAN/CSA A179 in quantities needed for immediate use.

.3 Maintain sand uniformly damp immediately before mixing process.

.4 Add mortar colour and admixtures in accordance with manufacturer's instructions. Provide uniformity of mix and colouration.

.5 Do not use anti-freeze compounds including calcium chloride or

chloride based compounds.

.6 Do not add air entraining admixture to mortar mix.

.7 Use a batch type mixer in accordance with CAN/CSA A179.

.8 Pointing mortar: prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour no more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.

.9 Re-temper mortar only within two hours of mixing, when water is lost by evaporation.

.10 Use mortar within 2 hours after mixing at temperatures of 32 degrees C, or 2-1/2 hours at temperatures under 5 degrees C.

2.7 GROUT MIXES

.1 Bond Beams: grout mix 10 to 12.5 MPa strength at 28 days; 200-250 mm slump; premixed type in accordance with CAN/CSA-A23.1.

.2 Lintels: grout mix 10 to 12.5 MPa strength at 28 days; 200-250 mm slump; premixed type in accordance with CAN/CSA-A23.1.

.3 Grout: Minimum compressive strength of 12.5 MPa at 28 days. Maximum aggregate size and grout slump: CAN/CSA A179.

2.8 GROUT MIXING

.1 Mix batched and delivered grout in accordance with CAN/CSA-A23.1 transit mixed.

.2 Mix grout ingredients in quantities needed for immediate use in accordance with CAN/CSA A179 fine grout.

.3 Add admixtures in accordance with manufacturer's instructions; mix uniformly.

.4 Do not use calcium chloride or chloride based admixtures.

2.9 MIX TESTS

.1 Testing Mortar Mix:

.1 Test mortar to requirements of Section 01 45 00 - Quality Control, and in accordance with CAN/CSA A179, for mortar based on property specification. Test prior to construction and during construction for:

.1 Compressive strength.
.2 Consistency.
.3 Mortar aggregate ratio.
.4 Sand/cement ratio.
.5 Water content and water/cement ratio.
.6 Air content.
.7 Splitting tensile strength.

.2 Testing Grout Mix:

.1 Test grout to requirements of Section 01 45 00 - Quality

Control, and in accordance with CAN/CSA A179, for grout based on property specification. Test prior to construction and during construction for:

.1 Compressive strength.
.2 Sand/cement ratio.
.3 Water content and water/cement ratio.
.4 Slump.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Request inspection of spaces to be grouted.

3.2 PREPARATION

.1 Apply bonding agent to existing concrete surfaces.

.2 Plug clean-out holes with block masonry units. Brace masonry for wet grout pressure.

3.3 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.4 CONSTRUCTION

.1 Do masonry mortar and grout work in accordance with CAN/CSA A179 except where specified otherwise.

.2 Apply parging in uniform coating not less than total 10 mm thick, where indicated.

3.5 MIXING

.1 All pointing mortar can be mixed using a regular paddle mixer. Only electric motor mixers are permissible. Mixers run on hydrocarbons are not permitted, due to fumes, Mixing by hand must be pre-approved by the Consultant.

.2 Clean all mixing boards and mechanical mixing machine between batches.

.3 Mortar must be weaker than the units it is binding.

.4 Contractor to appoint one individual to mix mortar, for duration of project. In the event that this individual must be changed, mortar mixing must cease until the new individual is trained, and mortar mix is tested.

3.6 MORTAR PLACEMENT

.1 Install mortar to manufacturer's instructions.

.2 Install mortar to requirements of CAN/CSA A179.

.3 Install mortar and grout to requirements of other Masonry Sections.

.4 Remove excess mortar from grout spaces.

3.7 GROUT PLACEMENT

.1 Install grout in accordance with manufacturer's instructions.

.2 Install grout in accordance with CAN/CSA A179.

.3 Work grout into masonry cores and cavities to eliminate voids.

.4 Do not install grout in lifts greater than 400 mm, without consolidating grout by rodding.

.5 Do not displace reinforcement while placing grout.

3.8 FIELD QUALITY CONTROL

.1 Site Tests, Inspection: in accordance with Section 04 05 00 - Common Work Results for Masonry supplemented as follows:

.1 Test and evaluate mortar prior to construction and during construction in accordance with CAN/CSA A179.

.2 Test and evaluate grout prior to construction and during construction to CAN/CSA A179; test in conjunction with masonry unit sections specified.

3.9 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

.2 Remove droppings and splashings using clean sponge and water.

.3 Clean masonry with low pressure clean water and soft natural bristle brush.

.4 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

3.10 PROTECTION OF COMPLETED WORK

.1 Cover completed and partially completed work not enclosed or sheltered with waterproof covering at end of each work day. Anchor securely in position.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Division 1 - General Requirements

.2 Section 04 05 11 – Common Work Results for Masonry

.3 Section 04 05 12 – Masonry Mortar and Grout.

.4 Section 04 05 19 – Masonry Anchorage and Reinforcing

.5 Section 04 05 23 – Masonry Accessories

.6 Section 06 10 00 – Rough Carpentry

.7 Section 07 84 00 – Fire Stopping

.8 Section 08 11 00 – Metal Doors and Frames

.9 Section 09 91 23 – Interior Painting

1.2 REFERENCES

.1 ASTM International Inc.
- .1 ASTM E 336-[07], Standard Test Method for Measurement of Airborne Sound Attenuation Between Rooms in Buildings.

.2 Canadian Standards Association (CSA International)
- .1 CAN/CSA-A165 Series-[2004], CSA Standards on Concrete Masonry Units [covers: A165.1, A165.2, A165.3].
- .2 CAN/CSA A371-[04], Masonry Construction for Buildings.
- .3 CSA S304.1-[04], Design of Masonry Structures.

.3 Underwriters' Laboratories of Canada (ULC)
- .1 CAN/ULC-S101-[07], Standard Methods of Fire Endurance Tests of Building Construction and Materials.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Product Data: provide product data, including manufacturer's printed data sheets and catalog pages illustrating products to be incorporated into project for specified products.

.3 Samples:
- .1 Provide unit samples in accordance with Section 04 05 00 - Common Work Results for Masonry.

.4 Manufacturer's Written Instructions: provide in accordance with Section 04 05 00 - Common Work Results for Masonry.

1.4 QUALITY ASSURANCE SUBMITTALS

.1 Certificates: provide in accordance with Section 04 05 00 - Common Work Results for Masonry.

.2 Test and Evaluation Reports: provide certified test reports in accordance with Section 04 05 00 - Common Work Results for Masonry.

1.5 DELIVERY, STORAGE AND HANDELING

.1 Deliver, store and handle concrete unit masonry in accordance with Section 04 05 00 - Common Work Results for Masonry.

.2 Packaging Waste Management:
.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal

PART 2 - PRODUCTS

2.1 GENERAL

.1 Interior Non-loadbearing concrete block units: Modular, conforming to CSA-A165 Series-04, Concrete Masonry units and per the following characteristics
.1 Classification H/15/A/M block walls exposed on interior

.2 Loadbearing concrete block units:
.1 Refer to Structural drawings

.3 Fire rated concrete block units: Modular, Type 1: to CAN/CSA-A165 Series (CAN/CSA-A165.1) as modified below.
.1 Classification: H/15/A/M except as modified by fire resistance requirements specified below.
.2 Fire resistant characteristics: aggregate used in units and equivalent thickness of units to the Supplement to the National Building Code of Canada 2006, and in accordance with CAN/ULC-S101, for fire-resistance ratings indicated.

.4 Provide special shapes and sizes shown or specified such as halves, jambs, lintels, solids, corners, bullnose and double bullnose, semi solids, wall and column caps, etc.
.1 Single bullnose and double bullnose shapes to all exterior corners and ‘fin’ partitions.
.2 Bond Beam to create headers for openings in partitions for door screens and the like. Also as may be indicated on the architectural or structural drawings and specs.

.5 Sizes as indicated on drawings. Architectural drawings generally show extent and size of all concrete masonry units. Structural drawings generally show extent of all load bearing masonry units or otherwise

2.2 REINFORCEMENT

.1 Reinforcement in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing

2.3 CONNECTORS

.1 Connectors in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing

2.4 FLASHING

.1 Flashing: in accordance with Section 04 05 23 - Masonry Accessories

2.5 MORTAR MIXES

.1 Mortar and mortar mixes in accordance with Section 04 05 12 - Masonry Mortar and Grout

2.6 GROUT MIXES

.1 Grout and grout mixes in accordance with Section 04 05 12 - Masonry Mortar and Grout

2.7 CLEANING COMPOUNDS

.1 Compatible with substrate and acceptable to masonry manufacturer for use on products

.2 Cleaning compounds compatible with concrete unit masonry and in accordance with manufacturer's written recommendations and instructions

2.8 TOLERANCES

.1 Tolerances for standard concrete unit masonry tolerances in accordance with CAN/CSA A165.1, supplemented as follows:

- .1 Maximum variation between units within specific job lot not to exceed 2 mm.
- .2 No parallel edge length, width or height dimension for individual unit to differ by more than 2 mm.
- .3 Out of square tolerance not to exceed 2 mm.

.2 Tolerances for architectural concrete masonry units in accordance with CAN/CSA A165.1, supplemented as follows:

- .1 Maximum variation in length or height between units within specific job lot for specified dimension not to exceed 2 mm.
- .2 No parallel edge length, width or height dimension for individual unit to differ by more than 2 mm
- .3 Out of square tolerance not to exceed 2 mm
- .4 Maximum variation in width between units within specific job lot for specified dimension not to exceed 2 mm

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verify surfaces and conditions are ready to accept work of this Section.

.2 Commencing installation means acceptance of existing substrates.

3.2 PREPARATION

.1 Protect adjacent finished materials from damage due to masonry work.

3.3 APPLICATION

.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and data sheets.

3.4 INSTALLATION

.1 Concrete block units:
- .1 Bond: running
- .2 Coursing height: 200 mm for one block and one joint
- .3 Jointing: concave where exposed or where paint or other finish coating is specified

.2 Special Shapes.
- .1 Install special units to form corners, returns, offsets, reveals and indents without cut ends being exposed and without losing bond or module.
- .2 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.
- .3 End bearing: not less than 200 mm or as indicated on drawings
- .4 Install special site cut shaped units.

3.5 REINFORCEMENT

.1 Install reinforcing in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing

3.6 CONNECTORS

.1 Install connectors in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing

3.7 FLASHING

.1 Install flashings: in accordance with Section 04 05 23 - Masonry Accessories

3.8 MORTAR PLACEMENT

.1 Place mortar in accordance with Section 04 05 12 - Masonry Mortar and Grout

3.9 GROUT PLACEMENT

.1 Place grout in accordance with Section 04 05 12 - Masonry Mortar and Grout

3.10 CONSTRUCTION

.1 Cull out masonry units, in accordance with CAN/CSA A165 and reviewed range of colour samples, with chips, cracks, broken corners,

excessive colour and texture variation.

.2 Build in miscellaneous items such as bearing plates, steel angles, bolts, anchors, inserts, sleeves and conduits.

.3 Construct masonry walls using running bond unless otherwise noted.

.4 Build around frames previously set and braced. Fill behind hollow frames within masonry walls with mortar or grout and embed anchors.

.5 Fit masonry closely against electrical and plumbing outlets so collars, plates and covers overlap and conceal cuts.

.6 Install movement joints and keep free of mortar where indicated.

.7 Hollow Units: spread mortar setting bed from outside edge of face shells. Gauge amount of mortar on top and end of unit to create full joints, equivalent to shell thickness. Avoid excess mortar.

.8 Solid Units: apply mortar over entire vertical and horizontal surfaces. Avoid bridging of airspace between brick veneer and backup wall with mortar.

.9 Ensure compacted head joints. Use full or face-shell joint as indicated.

.10 Tamp units firmly into place.

.11 Do not adjust masonry units after mortar has set. Where resetting of masonry is required, remove, clean and reset units in new mortar.

.12 Tool exposed joints concave; strike concealed joints flush.

.13 After mortar has achieved initial set up, tool joints.

.14 Do not interrupt bond below or above openings.

3.11 LINTELS AND BOND BEAMS .1 Build in steel lintels supplied to this Section. Set and level lintels on a bed of mortar. Note the following:

.2 When exterior steel lintels are supported by the building frame, instead of the adjacent brick, locate expansion joints so the brick above the opening (supported by the building frame) is separated from the brick adjacent to the opening (supported by the building foundation).

.3 Unless noted otherwise as steel, for all openings in masonry walls, provide concrete block unit lintels of at least 12 MPa compressive strength. The unit lintel shall be filled with 20 MPa concrete and shall bear a minimum of 200 mm (8") each end. Each unit shall be reinforced with one (1) 20M rebar unless noted otherwise on structural drawings.

.4 Use rebar positioners to position vertical reinforcing bars in walls.

.5 Provide knock-out blocks where horizontal reinforcing bars occur in walls.

.6 Provide low web lintel blocks with knock-out blocks where both horizontal and vertical reinforcing bars occur in walls.

.7 Where reinforced walls are required to be constructed to the underside of structure that is already in place provide open-ended blocks at tops of walls to fit around vertical reinforcing bars.

.8 See lintel schedule on structural drawings for supporting masonry and brick at doorways and HVAC lines through walls. See architectural and mechanical drawings for locations.

3.12 CONCRETE MASONRY LINTELS

.1 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.

.2 End bearing: not less than 200 mm (8") or as indicated on drawings.

.3 Refer to structural drawings for concrete masonry lintels. Reinforce and fill in accordance with Section 03300, Cast-in-Place Concrete.

3.13 BUILT-IN WORK

.1 Verify and coordinate with work of all other sections for work built in or built on masonry. These include but are not limited to the following:

.1 Air barrier
.2 Building Insulation
.3 Building Cladding materials
.4 Flashings and Trim
.5 Unit Masonry
.6 Accessories
.7 Access panels
.8 Metal and Aluminum Frames
.9 Curtain Walls
.10 Louvers and Vents
.11 Mechanical
.12 Electrical
.13 and such items specified in other Sections.

.2 Co-operate in the setting and aligning of built-in work and provide for later installation of items which are included in the work of other Sections to avoid cutting, fitting, and patching

.3 Build masonry around aluminum and metal frames. Ensure that anchors are well secured and that frames are true and plumb. Maintain protective frame covering and ensure that no excess fill material is left on face of frames

.1 Completely fill interior door frames with mortar
.2 Completely fill exterior door frames with low expansion foam insulation

.4 At walls where rod reinforcing is required ensure that the vertical rods are accurately located and conform to locations indicated on structural details. Grout fill block voids around rod reinforcing

.5 Cope, cut, and split concrete masonry units with power-driven abrasive discs. Cut units wherever electrical outlets, grilles, ducts, conduits or pipes occur. Allow 3 mm (1/8") clearance around items which are incorporated in or pass through walls. Make cuts straight, clean, and free from uneven edges

.6 Lay hollow concrete masonry units so that effective shells rest and align one over the other.

3.14 PARTITIONS

.1 Carry the following partitions up through ceiling to structure above, unless noted or specified otherwise: corridor partitions, demising partitions, partitions around staircases and elevator shafts, partitions in areas without suspended ceilings and any other partitions so indicated on Drawings. Provide lateral support at the top of all masonry partitions as per the Structural Drawings.

.2 Except around staircases, elevator shafts and duct shafts, terminate through partitions within 1 1/4” (30 mm) of structure above, i.e., floor or roof decking depending under which partitions occur, and where such partitions occur directly under and parallel to structural framing carry these partitions up to within 1 1/4” (30mm) of bottom of such structural framing

.3 Around stair cases, elevator shafts, wedge and grout masonry solidly to structure above. Provide partition bracing as noted on architectural and structural drawings.

.4 Where walls and partitions are pierced by structural members, duct, pipes, fill voids with mortar to within 1 1/4” (30 mm) of such members flush with wall finish.

.5 Fill spaces between partitions and structure, ducts and pipes in accordance with the requirements of Section 07270, Fire-stopping and Smoke Seals

.6 Wedge and grout loadbearing partitions and walls to underside of structure

3.15 FIRE SEPRATIONS

.1 Walls which provide required fire separations shall be constructed of masonry units which are approved by Jurisdictional Authorities for material thickness, and rating

.2 Unless otherwise approved by Jurisdictional Authorities, in no case shall un-plastered fire separation walls of solid construction be reduced in any part to a thickness less than the listed actual dimensions for the separation ratings indicated

3.16 REPAIR/RESPORATION

.1 Upon completion of masonry, inspect installation and fill holes and cracks. Remove loose mortar and repair defective work to the satisfaction of the consultant.

3.17 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.2 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.

.3 Progress Cleaning.

.1 Standard Concrete Unit Masonry

.1 Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block. Clean wall surface with suitable brush or burlap..

.2 Architectural Concrete Unit Masonry

.1 Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block. Clean wall surface with suitable brush or burlap..

.3 Prefaced Concrete Unit Masonry

.1 Clean masonry as work progresses using soft, clean cloths, within few minutes after laying. Upon completion, when mortar has set so that it will not be damaged by cleaning, clean with soft sponge or clean cloths, brush, and clean water. Polish with soft, clean cloths.

.4 Clean glazed clay masonry as work progresses using soft, clean cloths, within few minutes after laying.

.1 Upon completion, when mortar has set so that it will not be damaged by cleaning, clean with soft sponge or brush, and clean water. Polish with soft, clean cloths.

.5 Clean concrete brick masonry as work progresses.

.1 Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of brick and finally by brushing.

.6 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

.7 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction / Demolition Waste Management and Disposal.

3.18 PROTECTION

.1 Brace and protect brick masonry in accordance with Section 04 05 00 - Common Work Results for Masonry.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Division 1 – General Requirements

.2 Section 06 10 00 – Rough Carpentry

.3 Section 09 21 16 – Gypsum Board Assemblies

.4 Section 09 22 16 – Non-Structural Metal Framing

.5 Sections 21 to 25 - Mechanical

.6 Sections 26 to 28 - Electrical

1.2 REFERENCES

.1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.2 Underwriter's Laboratories of Canada (ULC)
.1 ULC-S115-[1995], Fire Tests of Fire stop Systems.

1.3 DEFINITIONS

.1 Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.

.2 Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.

.3 Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.

.4 Tightly Fitted; (ref: NBC Part 3.1.9.1.1 and 9.10.9.6.1): penetrating items that are cast in place in buildings of noncombustible construction or have "0" annular space in buildings of combustible construction.
.1 Words "tightly fitted" should ensure that integrity of fire separation is such that it prevents passage of smoke and hot gases to unexposed side of fire separation.

1.4 ACTION AND INFORMATION SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Submit manufacturer's printed product literature, specifications and datasheet and include product

characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.

.3 Shop Drawings/Designs:

.1 Submit shop drawings to show location, proposed material, reinforcement, anchorage, fastenings and method of installation.

.2 Construction details should accurately reflect actual job conditions.

.3 Submit manufacturer's specifications and technical data for each application and design, including the composition and limitations, documentation of ULC or cUL fire-stop system to be used and manufacturers installation instructions.

.4 For those fire-stop applications for which no ULC or cUL testing system is available through a manufacturer, a manufacturer's Engineering Judgement derived from similar ULC or cUL system designs or other tests must be submitted to satisfy local authorities having jurisdiction.

.1 Engineer judgment drawings must follow requirements set forth by the international Fire Stop Council (current version)

.4 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control

.1 Test reports: in accordance with CAN-ULC-S101 for fire endurance and CAN-ULC-S102 for surface burning characteristics.

.1 Submit certified test reports from approved independent testing laboratories, indicating compliance of applied fire stopping with specifications for specified performance characteristics and physical properties.

.2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.

.4 Manufacturer's Field Reports: submit to manufacturer's written reports within [3] days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.5 DESIGN

.1 Fire Stopping shall be designed and installed to meet the fire resistance ratings as required on the contract documents. This section shall review the contract documents and provide designs for all locations and areas to receive fire stopping in compliance with the applicable codes and regulations.

.1 Review drawings and submit specific, fire stopping details engineered solutions test reports for all locations required,

including, but not limited to
.1 Wall penetrations.
.2 Floor penetrations

.2 Prior to beginning work of this Section submit to the Contractor and the Authorities having Jurisdiction, copies of any and all ULC Designs, or written ULC confirmation or ULC engineering studies attesting that the required fire resistance ratings required for various assemblies and components will be achieved.

1.6 QUALITY ASSURANCE

.1 A manufacturer's direct representative (not distributor or agent) to be on-site during initial installation of fire-stop system to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details

1.7 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:
.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
.3 Deliver materials to the site in undamaged condition and in original unopened containers, marked to indicate brand name, manufacturer and ULC markings.

.2 Storage and Protection:
.1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Replace defective or damaged materials with new.

.3 Waste Management and Disposal:
.1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.
.1 Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN- ULC-S115 and not to exceed opening sizes for which they are intended

.2 Service penetration assemblies: systems tested to CAN-ULC-S115 and listed in ULC Guide No. 40 U19, or, certified by UL for use in Canada in accordance with CAN4-S115-M under service label cUL.

.3 Service penetration fire-stop components: certified by ULC in

accordance with CAN4-S115-M85 and listed in ULC Guide No. 40 U19.13 and ULC Guide No. 40 U19.15 under the Label Service of ULC, or, certified by UL for use in Canada in accordance with CAN4-S115-M under service label cUL.

.4 Fire-resistance rating (F-rating) of installed fire stopping assembly not less than the fire-resistance rating of surrounding floor and wall assembly. Provide FT-rating for penetrations of fire walls of horizontal fire separation as determined by ULC or cUL.

.5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables and cable trays: fire barrier pillows. Do not use cementitious or rigid seal at such locations

.6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.

.7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

.8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

.9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

2.2 COLOUR AND FINISH

.1 Concealed – Where fire stopping will be concealed in the final construction, fire stopping material can be of any certified type (silicone, acrylic or other) but must be RED in colour to facilitate ease of inspection and verification.

.2 Exposed – Where fire stopping will be exposed in the final construction, fire stopping material must be of a certified type that can accept a paint finish. Fire stopping to be installed RED in colour. Contractor to coordinate the inspection of all fire stopping prior to painting. Only upon acceptance of the installed system, may the contractor proceed with painting.

.1 Should a non-paintable material be provided in a location that is to receive a paint finish, the contractor shall remove the originally installed system and provide the paintable system.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 PREPARATION

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

.2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

.3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.

.4 Coordinate with all other Divisions to ensure all clips and hangers have been installed and for inspection by Consultant prior to proceeding with fire spray to beams or underside of deck where necessary.

.5 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.3 APPLICATION

.1 Apply bonding adhesive or primer to substrate if recommended by manufacturer.

.2 Apply fireproofing to correspond with tested assemblies, or acceptable calculation procedures to provide following fire resistance ratings.

.3 Apply fireproofing over substrate, building up to required thickness to cover substrate with monolithic blanket of uniform density and texture.

.4 Apply fireproofing directly to open web joists without use of expanded lath.

.5 Tamp smooth, surfaces visible in finished work.

.6 Apply curing compound to surface of cementations fireproofing as required by manufacturer.

.7 Apply sealer to surface of mineral fiber fireproofing as required by manufacturer where fireproofing is to be painted and as indicated

3.4 SEQUENCES OF OPERATION

.1 Proceed with installation only when submittals have been reviewed by Consultant.

.2 Install floor fire stopping before interior partition erections.

.3 Metal deck bonding: fire stopping to precede spray applied fireproofing to ensure required bonding.

.4 Mechanical pipe insulation: certified fire stop system component.
  .1 Ensure pipe insulation installation precedes fire stopping.

3.5 FIELD QUALITY CONTROL

.1 Inspections: notify Consultant when ready for inspection and prior to

concealing or enclosing fire stopping materials and service penetration assemblies.

.2 Manufacturer's Field Services:
- .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
- .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- .3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.6 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

.3 Remove temporary dams after initial set of fire stopping and smoke seal materials.

3.7 SCHEDULE

.1 Fire stop and smoke seal at:
- .1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
- .2 Edge of floor slabs at curtain wall and precast concrete panels.
- .3 Top of fire-resistance rated masonry and gypsum board partitions.
- .4 Intersection of fire-resistance rated 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-resistance rated floor slabs, ceilings and roofs.
- .7 Openings and sleeves installed for future use through fire separations.
- .8 Around mechanical and electrical assemblies penetrating fire separations whether shown or not shown on the drawings.
- .9 Around electrical boxes larger than 129cm² in fire rated walls and ceilings in stairwells for items such as public address speakers, etc.
- .10 Rigid ducts: greater than 129 cm² fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.

END OF SECTION

PART 1- GENERAL

1.1 SECTION INCLUDES

.1 Materials, preparation and application for caulking and sealants.

1.2 RELATED SECTIONS

.1 Division 1 – General Requirements

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.4 Section 01 45 00 - Quality Control.

.5 Section 01 61 00 - Common Product Requirements.

1.3 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)
- .1 ASTM C 919-[02], Standard Practice for Use of Sealants in Acoustical Applications.

.2 Canadian General Standards Board (CGSB)
- .1 CGSB 19-GP-5M-[1984], Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
- .2 CAN/CGSB-19.13-[M87], Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .3 CGSB 19-GP-14M-[1984], Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
- .4 CAN/CGSB-19.17-[M90], One-Component Acrylic Emulsion Base Sealing Compound.
- .5 CAN/CGSB-19.24-[M90], Multi-component, Chemical Curing Sealing Compound.

.3 Department of Justice Canada (Jus)
- .1 Canadian Environmental Protection Act, 1999 (CEPA).

.4 General Services Administration (GSA) - Federal Specifications (FS)
- .1 FS-SS-S-200-[E(2)1993], Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.

.5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.6 Transport Canada (TC)
- .1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.4 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Manufacturer's product to describe.
- .1 Caulking compound.
- .2 Primers.
- .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

.3 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.4 Submit duplicate samples of each type of material and colour.

.5 Cured samples of exposed sealants for each color where required to match adjacent material.

.6 Submit manufacturer's instructions in accordance with Section 01 33 00 - Submittal Procedures]
- .1 Instructions to include installation instructions for each product used.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirement].

.2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal plastic, polystyrene, corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.6 Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

.7 Divert unused joint sealing material from landfill to official hazardous material collections site approved by Consultant.

.8 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.

.9 Fold up metal banding, flatten, and place in designated area for recycling.

1.7 PROJECT CONDITIONS

.1 Environmental Limitations:
- .1 Do not proceed with installation of joint sealants under following conditions:
- .2 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
- .3 When joint substrates are wet.

.2 Joint-Width Conditions:
- .1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:
- .1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.8 GENERAL SCOPE DESCRIPTION

.1 Generally provide sealants (and backer-rod) at the junction between dissimilar materials, including but not limited to the following locations:
- .1 Expansion and control joints in masonry and junctions between masonry and other materials
- .2 Expansion and control joints in gypsum board and junctions between gypsum board and other materials
- .3 Joints around the perimeter of interior hollow metal and aluminum door frames and screens and adjacent construction
- .4 Joints around the perimeter of exterior hollow metal and aluminum door frames and adjacent construction
- .5 Joints around the perimeter of exterior windows and curtain-wall systems and adjacent construction
- .6 Control joints in concrete floors
- .7 Joints between countertops and walls
- .8 Joints in ceramic tile
- .9 Junctions of washroom fixtures to floor and wall
- .10 Joints in vapour/air seal materials
- .11 Joints as indicated in all details and sections to be caulked or sealed

1.9 ENVIRONMENTAL REQUIREMENTS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Labour Canada.

.2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

1.10 WARRANTY

.1 Warrant sealant work for a total of Two Years

.2 Warrant that surfaces shall not be stained by sealants

PART 2 - PRODUCTS

2.1 SEALANT MATERIALS

.1 Do not use caulking that emits strong odors, contains toxic chemicals or is not certified as mould resistant in air handling units.

.2 When low toxicity caulks are not possible, confine usage to areas which off-gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.

.3 Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Primer: As recommended by sealant manufacturer for type of surface being primed and conditions of service

.2 Vent Tubes: Rigid clear extruded plastic, min. 6 mm ID and 9 mm OD.

.3 Sealant Colours: Colours of exposed sealants as chosen by the Consultant from manufacturers full range.

.4 Polysulfide Two Part.
.1 Self-Leveling to CAN/CGSB-19.24, Type 1, Class B

.5 Polysulfide Two Part.
.1 Non-Sag to CAN/CGSB-19.24, Type 2, Class B,

.6 Polysulfide One Part.
.1 Self-Leveling to CAN/CGSB-19.13, [MC-1-40-B-N] [MC-1-25-B-N],

.7 Polysulfide One Part.
.1 Non-Sag to CAN/CGSB-19.13, [MC-2-40-B-N][MC-2-25-B-N

.8 Urethanes Two Part.
.1 Self-Leveling to CAN/CGSB-19.24, Type 1, Class B

.9 Urethanes Two Part.
.1 Non-Sag to CAN/CGSB-19.24, Type 2, Class B,

.10 Urethanes One Part.
.1 Self-Leveling to CAN/CGSB-19.13, Type 1,

.11 Urethanes One Part.
.1 Non-Sag to CAN/CGSB-19.13, Type 2, [MCG-2-25] [MCG-2-40],

.12 Silicones One Part.
.1 To CAN/CGSB-19.13.

.13 Acrylics One Part.

.1 To CGSB 19-GP-5M.

.14 Acrylic Latex One Part.
.1 To CAN/CGSB-19.17.

.15 Acoustical Sealant.
.1 To [ASTM C 919].

.16 Butyl.
.1 To CGSB 19-GP-14M.

.17 Preformed Compressible and Non-Compressible back-up materials.
.1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
.1 Extruded open cell foam backer rod.
.2 Size: oversize 30 to 50 %.
.2 Neoprene or Butyl Rubber.
.1 Round solid rod, Shore A hardness 70.
.3 High Density Foam.
.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m³ density, or neoprene foam backer, size as recommended by manufacturer.
.4 Bond Breaker Tape.
.1 Polyethylene bond breaker tape which will not bond to sealant.

2.3 SEALANT LOCATIONS

.1 Generally provide sealants (and backer-rod) at the junction between dissimilar materials, including but not limited to the following locations:
.1 Expansion and control joints in masonry and junctions between masonry and other materials
.2 Expansion and control joints in gypsum board and junctions between gypsum board and other materials
.3 Joints around the perimeter of interior hollow metal and aluminum door frames and screens and adjacent construction
.4 Joints around the perimeter of exterior hollow metal and aluminum door frames and adjacent construction
.5 Joints around the perimeter of exterior windows and curtain-wall systems and adjacent construction
.6 Control joints in concrete floors
.7 Joints between countertops and walls
.8 Joints in ceramic tile
.9 Junctions of washroom fixtures to floor and wall
.10 Joints in vapour/air seal materials
.11 Joints as indicated in all details and sections to be caulked or sealed

2.4 JOINT CLEANER

.1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

.2 Primer: as recommended by manufacturer.

PART 3 - EXECUTION

3.1 PROTECTION

.1 Protect installed Work of other trades from staining or contamination.

3.2 SURFACE PREPARATION

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

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

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP MATERIAL

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

.2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 APPLICATION

.1 Sealant.

.1 Apply sealant in accordance with manufacturer's written instructions.
.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
.3 Apply sealant in continuous beads.
.4 Apply sealant using gun with proper size nozzle.
.5 Use sufficient pressure to fill voids and joints solid.
.6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
.7 Tool exposed surfaces before skinning begins to give slightly concave shape.
.8 Remove excess compound promptly as work progresses and upon completion.

.2 Curing.
- .1 Cure sealants in accordance with sealant manufacturer's instructions.
- .2 Do not cover up sealants until proper curing has taken place.
- .3 Cleanup.
  - .1 Clean adjacent surfaces immediately and leave Work neat and clean.
  - .2 Remove excess and droppings, using recommended cleaners as work progresses.
  - .3 Remove masking tape after initial set of sealant.

END OF SECTION

PART 1- GENERAL

1.1 RELATED SECTIONS

.1 Division 1 – General Requirements

.2 Section 07 92 00 – Joint Sealants.

1.2 GENERAL REQUIREMENTS

.1 This section is intended to provide a general description of the colours of sealants to be utilized for the project. Where no description is provided, confirm colour with Consultant

1.3 GENERAL SCOPE DESCRIPTION

.1

Item		Colour:
.1	Perimeter of interior Doors frames and Screens	Colour to match walls
.2	Door frames and Screens to floor	Colour to match frame
.3	Brick Unit Masonry	Colour to match masonry on exterior and wall colour on interior
.4	Millwork and casework to wall	Clear
.5	Water closet to floor	White
.6	Urinal to wall	White

END OF SECTION

PART 1- GENERAL

1.1 RELATED REQUIREMENTS

.1 Division 1 – General Requirements

.2 Section 05 50 00 – Metal Fabrications

.3 Section 06 10 00 – Rough Carpentry

.4 Section 07 27 00 - Air Barrier

.5 Section 07 62 00 – Metal Flashings and Trim

.6 Section 07 92 00 – Joint Sealants

.7 Section 08 71 00 – Door Hardware

.8 Section 08 80 50 – Glazing

.9 Section 09 91 13 – Exterior Painting

.10 Section 09 91 23 – Interior Painting

.11 Electrical Drawings

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM A 653/A 653M-[06a], Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 ASTM B 29-[03], Standard Specification for Refined Lead.
- .3 ASTM B 749-[03], Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.181-[99], Ready-Mixed Organic Zinc-Rich Coating.
- .2 CGSB 41-GP-19Ma-[84], Rigid Vinyl Extrusions for Windows and Doors.

.3 Canadian Standards Association (CSA International)
- .1 CSA-G40.20-[04]/G40.21-[04], General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .2 CSA W59-[03], Welded Steel Construction (Metal Arc Welding).

.4 Canadian Steel Door Manufacturers' Association (CSDMA)
- .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, [2000].
- .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, [1990].

.5 National Fire Protection Association (NFPA)
- .1 NFPA 80-[99], Standard for Fire Doors and Fire Windows.

.2 NFPA 252-[03], Standard Methods of Fire Tests of Door Assemblies.

.6 Underwriters' Laboratories of Canada (ULC)
- .1 CAN/ULC-S701-[01], Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .2 CAN/ULC-S702-[97], Standard for Thermal Insulation, Mineral Fibre, for Buildings.
- .3 CAN/ULC-S704-[03], Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
- .4 CAN4-S104-[M80], Standard Method for Fire Tests of Door Assemblies.
- .5 CAN4-S105-[M85], Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104.

1.3 SYSTEM DESCRIPTION

.1 Design Requirements:
- .1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35 degrees C to 35 degrees C.
- .2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.
- .3 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 NFPA 252 for ratings specified or indicated.
- .4 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with [CAN4-S104], [ASTM E 152] and [NFPA 252] and listed by nationally recognized agency having factory inspection services.
- .5 Provide and install door grilles where indicated on the Door and Screen Schedule. Sizes and material as specified in this section.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.

.3 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
- .2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed louvered, arrangement of hardware and fire rating and finishes.
- .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing fire rating finishes.

.4 Include schedule identifying each unit, with door marks and numbers matching Consultants numbering and referencing system provide on the Contract Documents.

.5 Submit test and engineering data, and installation instructions.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Waste Management and Disposal:

.1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Acceptable materials: All and only steel doors and frame products manufactured by Canadian Steel Door and Frame Manufacturer's Association (CSDFMA) members are eligible for use on this project.

.2 Hot dipped galvanized steel sheet: to ASTM A 653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 or as indicated below..

.1 Interior Door Frames: 16 Ga. (.060") (1.6 mm).

.2 Door and frame accessories:

.1 Lock/strike reinforcements: 16 Ga., .060" (1.6 mm).

.2 Hinge reinforcements: 12 Ga., .105" (2.7 mm).

.3 Flush bot reinforcements: 16 Ga., .060" (1.6 mm).

.4 Reinforcement for surface applied hardware: 18 Ga., .048" (1.2 mm).

.5 Top and bottom channels: 18 Ga., .048" (1.2 mm).

.6 Steel top caps: 20 Ga., .036" (0.9 mm).

.7 Glass trim (screw fixed or snap-in types): 20 Ga., .036" (0.9 mm).

.8 Mortar guard boxes: 22 Ga., .030" (0.8 mm).

.9 Floor anchors: 16 Ga., .060" (1.6 mm).

.10 Wall anchors:

.1 Masonry strap type: 18 Ga., .048" (1.2 mm).

.2 Masonry wire type: .156" dia. (4.0 m dia.)

.3 Masonry stirrup-strap type: 16 Ga., .060" (1.6 mm).

.4 Steel/wood stud type: 29 Ga., .036" (0.9 mm).

.5 Steel/wood stud tension and associated wall type: 20 Ga. .036" (0.9 mm)..6

.6 Existing masonry/concrete wall type: 20 Ga., .036" (0.9 mm).

.11 Jamb spreaders: 20 Ga., .036" (0.9 mm).

2.2 ADHESIVES

.1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low

viscosity, contact cement.

.2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.

.3 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

2.3 PRIMER

.1 Touch-up prime CAN/CGSB-1.181.

2.4 PAINT

.1 Field paint steel doors and frames in accordance with Section[s] 09 91 23 - Interior Painting, 09 91 13 - Exterior Painting. Protect weather strips from paint. Provide final finish free of scratches or other blemishes.

2.5 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

.2 Exterior top and bottom caps: steel.

.3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.4 Metallic paste filler: to manufacturer's standard.

.5 Fire labels: metal riveted.

.6 Make provisions for glazing as indicated and provide necessary glazing stops.
- .1 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws.
- .2 Design exterior glazing stops to be tamperproof.

.7 Door Grilles. Refer to sizes and locations as indicated in the door schedule and door types drawing.
- .1 Provide fire rated and non-fire rated door grilles, refer to door rating and provide rated grilles to all fire rated doors, including 0 hour and 0 minute rated doors.
- .2 Grilles: Stainless Steel with brushed finish.
- .3 Fasteners: Security Type
- .4 **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - .1 K.N. Crowder model SDL-FP and SDL-V90.
  - .2 Alternate(s) as approved by the Consultant

2.6 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Exterior frames: welded type, thermally broken type construction.

.4 Interior frames: welded type construction.

.5 Blank, reinforce, drill and tap frames for mortised, templated hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.

.6 Protect mortised cutouts with steel guard boxes.

.7 Prepare frame for door silencers, 3 for single door, 2 at head for double door.

.8 Manufacturer's nameplates on frames and screens are not permitted.

.9 Conceal fastenings except where exposed fastenings are indicated.

.10 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

.11 Insulate exterior frame components with polyurethane insulation.

2.7 FRAME ANCHORAGE

.1 Provide appropriate anchorage to floor and wall construction.

.2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.

.3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.

.4 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

2.8 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

.2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

.3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.

.4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.

.5 Securely attach floor anchors to inside of each jamb profile.

.6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

.7 Securely attach lead to inside of frame profile from return to jamb soffit (inclusive) on door side of frame only.

2.9 DOOR FABRICATION GENERAL

.1 Doors: swing type, flush, with provision for glass and/or louver openings as indicated.

.2 Exterior doors: Polyurethane insulated construction. Interior doors: honeycomb core construction.

.3 Fabricate doors with longitudinal edges locked seamed, adhesive assisted. Seams: visible, tack weld at 8” (203mm) o/c & fill with metallic paste filler and sand to a uniform smooth finish.

.4 Blank, reinforce, drill doors and tap for mortised, template hardware and electronic hardware.

.5 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.

.6 Reinforce doors where required, for surface mounted hardware. Provide flush steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.

.7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

.8 Provide fire labeled doors for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with [CAN4-S104] [ASTM E 152] [NFPA 252] and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

.9 Manufacturer's nameplates on doors are not permitted.

2.10 DOORS: HONEYCOMB CORE CONSTRUCTION

.1 Exterior doors sheet steel with polyurethane core laminated under pressure to face sheets.

.2 Interior doors sheet steel with honeycomb and temperature rise rated core laminated under pressure to face sheets.

2.11 THERMALLY BROKEN DOORS AND FRAMES

.1 Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.

.2 Thermal break: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.

.3 Fabricate thermally broken frames separating exterior parts form interior parts with continuous interlocking thermal break.

.4 Apply insulation. Installer to use low expansion spray foam between wall and frame

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION GENERAL

.1 Install labeled steel fire rated doors and frames to NFPA 80 except where specified otherwise.

.2 Install doors and frames to CSDMA Installation Guide.

3.3 FRAME INSTALLATION

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

.5 Caulk perimeter of frames [between frame and adjacent material].

.6 Maintain continuity of air barrier and vapour retarder.

3.4 DOOR INSTALLATION

.1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 06 10 00 – Rough Carpentry.

.2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
- .1 Hinge side: 1.0 mm.
- .2 Latch side and head: 1.5 mm.
- .3 Finished floor, 13 mm.

.3 Adjust operable parts for correct function.

.4 Install louvers.

3.5 FINISH REPAIRS

.1 Touch up with primer finishes damaged during installation.

.2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

3.6 GLAZING

.1 Install glazing for doors and frames in accordance with Section 08 80 50 - Glazing.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Division 1 - General Requirements

.2 Section 06 20 00 - Finish Carpentry.

.3 Section 08 11 00 - Metal Doors and Frames.

.4 Section 08 71 00 - Door Hardware.

.5 Section 08 80 50 - Glazing.

1.2 REFERENCES

.1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
- .1 Quality Standards for Architectural Woodwork 1998.

.2 Canadian General Standards Board (CGSB).
- .1 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
- .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.

.3 Canadian Standards Association (CSA International).
- .1 CSA A440.2-98, Energy Performance of Windows and Other Fenestration Systems.
- .2 CSA O115-M1982(R2001), Hardwood and Decorative Plywood.
- .3 CAN/CSA O132.2 Series-90(R1998), Wood Flush Doors.
- .4 CAN/CSA-O132.5-M1992(R1998), Stile and Rail Wood Doors.
- .5 CAN/CSA-Z808-96, A Sustainable Forest Management System: Guidance Document.
- .6 CSA Certification Program for Windows and Doors 00.

.4 National Fire Protection Association (NFPA).
- .1 NFPA 80-1999, Standard for Fire Doors and Fire Windows.
- .2 NFPA 252-1999, Standard Method of Fire Tests of Door Assemblies.

.5 Underwriters' Laboratories of Canada (ULC).
- .1 CAN-4S104M-80(R1985), Fire Tests of Door Assemblies.
- .2 CAN4-S105M-85 (R1992), Fire Door Frames Meeting the Performance Required by CAN4-S104.

1.3 SUBMITTALS

.1 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
  - .1 For caulking materials during application and curing.
  - .2 For door materials and adhesives.

.2 Shop Drawings:
- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate door types and cutouts for lights and louvres, sizes, core construction, transom panel construction and cutouts.

1.4 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit one 300 x 300 mm corner sample of each type wood door.

.3 Show door construction, core, glazing detail and faces.

.4 Manufacturer's Instructions:
- .1 Submit manufacturer's installation instructions.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements:
- .1 Wood fire rated doors: labeled and listed by an organization accredited by Standards Council of Canada.

.2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

.1 Storage and Protection:
- .1 Protect doors from dampness. Arrange for delivery after work causing abnormal humidity has been completed.
- .2 Store doors in well ventilated room, off floor, in accordance with manufacturer's recommendations.
- .3 Protect doors from scratches, handling marks and other damage. Wrap doors.
- .4 Store doors away from direct sunlight.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.2 Dispose of packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

.3 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.

.4 Do not dispose of unused paint materials into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 FIRE RATED WOOD DOORS

.1 Wood doors: tested in accordance with CAN4-S104 to achieve rating as scheduled.

2.2 WOOD FLUSH DOORS

.1 Solid core: to CAN/CSA-O132.2.1.
- .1 Wood, species to **Maple**
- .2 All doors to receive **Stain & Varnish**
- .3 Construction: Solid particleboard core: stile and rail frame bonded to particleboard core with wood lock blocks and wood blocking,5-ply construction.
  - .1 Stile edges: Consisting of 16 mm edge and solid hardwood for a total thickness of 108 mm.
  - .2 Top and bottom rails: Consisting of 57 mm hardwood laminate.
  - .3 Door thickness: 44mm.
- .4 Face Panels:
  - .1 Hardwood; Grade I (Premium) veneer: Rotary Cut, primed
- .5 **Manufacturer:** Subject to compliance with all requirements above, manufacturers offering products that also **match the existing building standards** will be acceptable.

.2 Adhesive: Type I (waterproof) for interior doors.

2.3 GLAZING

.1 Glass: Refer to Schedules and Section 08 80 00.

2.4 ACCESSORIES

.1 Door Grilles. Refer to sizes and locations as indicated in the door schedule and door types drawing. (coordinate this with hollow metal doors)
- .1 Provide fire rated and non-fire rated door grilles, refer to door rating and provide rated grilles to all fire rated doors, including 0 hour and 0 minute rated doors.
- .2 Grilles: Stainless Steel with brushed finish.
- .3 Fasteners: Security Type
- .4 **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - .1 K.N. Crowder model SDL-FP and SDL-V90.
  - .2 Alternate(s) as approved by the Consultant

2.5 FABRICATION

.1 Vertical edge strips to match face veneer.

.2 Prepare doors for louvres and glazing. Provide hardwood species to match face veneer. Flush glazing stops with mitred corners.

.3 Bevel vertical edges of single acting doors 3 mm in 50 mm on lock

side and 1.5 mm in 50 mm on hinge side.

.4 Radius vertical edges of double acting doors to 60 mm radius.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATION

.1 Unwrap and protect doors in accordance with CAN/CSA-O132.2 Series, Appendix A.

.2 Install labelled fire rated doors to NFPA 80.

.3 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-O132.2 Series, Appendix A.

.4 Adjust hardware for correct function.

.5 Install glazing in accordance with Section 08 80 50 - Glazing

.6 Install louvres and stops.

3.3 ADJUSTMENT

.1 Re-adjust doors and hardware just prior to completion of building to function freely and properly.

3.4 CLEANING

.1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.

.2 Remove traces of primer, caulking; clean doors and frames.

.3 Clean glass and glazing materials with approved non-abrasive cleaner.

.4 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTION	.1	Section 01 33 00 - Submittal Procedures.
	.2	Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
	.3	Section 01 61 00 - Common Product Requirements.
	.4	Section 01 78 00 - Closeout Submittals.
	.5	Section 09 21 16 - Gypsum Board Assemblies.
	.6	Section 09 30 13 – Ceramic and Porcelain Tiling.
1.2 SHOP DRAWINGS	.1	Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
	.2	Submit catalogue details for each type of door illustrating profiles, dimensions and methods of assembly.
1.3 SAMPLES	.1	Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
	.2	Submit one sample of each type of hand entry access door.
	.3	Submit one 300 x 300 mm corner sample of each type of body entry door.
1.4 CLOSEOUT SUBMITTALS	.1	Provide maintenance data for cleaning and maintenance of stainless steel finishes for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
1.5 WASTE MANAGEMENT AND DISPOSAL	.1	Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal, and with the Waste Reduction Workplan.
	.2	Remove from site and dispose of all packaging materials at appropriate recycling facilities.
	.3	Collect and separate for disposal; paper, plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
1.6 DELIVERY, STORAGE AND HANDLING	.1	Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Leave protective covering on stainless steel access panels in place until final cleaning of building.

PART 2 - PRODUCTS

2.1 ACCESS DOORS

.1 Sizes: Except as indicated otherwise, to be minimum sizes as follows:
- .1 For body entry: 600 x 600 mm.
- .2 For hand entry: 300 x 300 mm.

.2 Construction: Rounded safety corners, concealed hinges, screwdriver latch, anchor straps, able to open 180°.

.3 Access doors in detention areas to have tamper proof security screws (not keyed locks)

.4 Materials
- .1 Tiled or marble surfaces and other special areas: Stainless steel with brushed satin finish.
- .2 Other areas: Prime coated steel for painting by Division 9.

.5 **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- .1 Le Hage
- .2 Zurn
- .3 Accudor
- .4 Maxam
- .5 Alternate(s) approved by the Consultant.

2.2 EXCLUSIONS

.1 Lay-in tile ceilings: use unobtrusive identification locators.

PART 3 - EXECUTION

3.1 LOCATION

.1 Provide access doors where required for access to balancing valves, valves, splitters, electrical access, disconnects, devices, cleanouts etc.

.2 Location: Ensure that equipment is within view and accessible for operating, inspecting, adjusting, servicing without using special tools.

END OF SECTION

PART 1- GENERAL

1.1 RELATED SECTIONS

.1 Division 1 – General

.2 Section 06 10 00 – Rough Carpentry

.3 Section 08 11 00 – Metal Doors and Frames

.4 Electrical Drawings

.5 Installation of door operators and sequencing on site with access control division to ensure proper function of exterior actuator by the hardware supplier.

1.2 REFERENCES

.1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).

- .1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.
- .2 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-69.17-[M86(R1993)], Bored and Preassembled Locks and Latches.
  - .2 CAN/CGSB-69.18-[M90]/ANSI/BHMA A156.1-[1981], Butts and Hinges.
- .3 CAN/CGSB-69.19-[93]/ANSI/BHMA A156.3-[1984], Exit Devices.
- .4 CAN/CGSB-69.20-[M90]/ANSI/BHMA A156.4-[1986], Door Controls (Closers).
- .5 CAN/CGSB-69.21-[M90]/ANSI/BHMA A156.5-[1984], Auxiliary Locks and Associated Products.
- .6 CAN/CGSB-69.22-[M90]/ANSI/BHMA A156.6-[1986], Architectural Door Trim.
- .7 CAN/CGSB-69.24-[M90]/ANSI/BHMA A156.8-[1982], Door Controls - Overhead Holders.
- .8 CAN/CGSB-69.26-[96]/ANSI/BHMA A156.10-[1991], Power-operated Pedestrian Doors.
- .9 CAN/CGSB-69.28-[M90]/ANSI/BHMA A156.12-[1986], Interconnected Locks and Latches.
- .10 CAN/CGSB-69.29-[93]/ANSI/BHMA A156.13-[1987], Mortise Locks and Latches.
- .11 CAN/CGSB-69.30-[93]/ANSI/BHMA A156.14-[1991], Sliding and Folding Door Hardware.
- .12 CAN/CGSB-69.31-[M89]/ANSI/BHMA A156.15-[1981], Closer/Holder Release Device.
- .13 CAN/CGSB-69.32-[M90]/ANSI/BHMA A156.16-[1981], Auxiliary Hardware.
- .14 CAN/CGSB-69.33-[M90]/ANSI/BHMA A156.17-[1987], Self-closing Hinges and Pivots.
- .15 CAN/CGSB-69.34-[93]/ANSI/BHMA A156.18-[1987], Materials and Finishes.

.16 CAN/CGSB-69.35-[M89]/ANSI/BHMA A156.19-[1984], Power Assist and Low Energy Power Operated Doors.
.17 CAN/CGSB-69.36-[M90]/ANSI/BHMA A156.20-[1984], Strap and Tee Hinges and Hasps.

.2 Codes and Standards
.1 National Building Code of Canada
.2 Ontario Building Code 1997
.3 NFPA 80
.4 BHMA Builder's Hardware Manufacturing Association
.5 DHI Keying Systems and Nomenclature
.6 DHI Recommended Locations for Architectural Hardware for Standard Hollow Metal Doors and Frames
.7 DHI Abbreviations and Symbols

1.3 SUBMITTALS

.1 Product Data:
.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Hardware List:
.1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Procedures.
.2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
.3 Provide manufacturers catalogue cuts of each hardware item.

.3 Templates
.1 Supply 6 complete sets of hardware templates at same time as hardware schedules. Templates must be compatible with door type (wood, hollow metal, or aluminum.

.4 Keying Schedule
.1 The keying schedule will be prepared by the Hardware supplier and obtain approval from the Owner/Client, prior to proceeding with keying the building. Arrange for and chair a meetings as necessary with the Owner/Client to
.2 Ascertain the keying requirements for the building, which shall be keyed to Owners master key system.
.3 Receive input and provide suggestions on building keying
.4 Obtain approval of final keying schedule.

.5 Manufacturer's Instructions:
.1 Submit manufacturer's installation instructions.

.6 Wiring Diagrams:
.1 Provide riser diagrams and schematics for any electronic hardware including electronic locks, automatic door operators, push buttons, key switches, numeric key pads, power supplies, interface equipment, controlled alarmed exit devices and sentronic door closers at same time as hardware schedule.

.7 Closeout Submittals
.1 Provide operation and maintenance data for door closers,

locksets, door holders electrified hardware and fire exit hardware for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 QUALITY ASSURANCE

.1 Regulatory Requirements:

.1 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.

.2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 MAINTENANCE

.1 Extra Materials:

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals. \

.2 Supply two sets of wrenches for door closers locksets and fire exit hardware.

1.6 QUALITY ASSURANCE

.1 Provide all door hardware as specified in the hardware schedule. Any substitutions must be requested and approved by the Owner / Consultant

.2 Hardware supplier must be engaged regularly in contracting work and is staffed to expedite work. The firm shall have been furnishing hardware on similar projects in the vicinity for at least three years. The supplier must have on staff a certified Architectural Hardware Consultant or a person with equivalent qualifications to periodically inspect and direct detailing, setting, applying, and adjusting of all hardware

1.7 WARRANTY

.1 Warranty against manufacturing defects from date of substantial completion as follows

.1	Door Closers	10 years
.2	Electrical Closers	2 years
.3	Automatic Operators	2 years
.4	Locksets	3 years
.5	Exit Devices	3 years
.6	O/H Stops	1 year
.7	Other Hardware	1 year
.8	Hinges	Lifetime

PART 2 - PRODUCTS

2.1 HARDWARE ITEMS

.1 Use one manufacturer's products only for similar items. Hardware shall be as listed on the hardware schedule. All details including the finish, gauges, and base materials shall be adhered to. Any proposed substitution of the products specified in the hardware schedule must be made prior to tender close, detailing the exact manufacture’s product numbers proposed

versus the product numbers specified. Warranty values of proposed substitutions shall not modify the above

2.2 DOOR HARDWARE

.1 Confirm that all Hardware Matches the existing Schools. Note the Schools may have slight differences.

.2 **Allegion Canada Inc.,** 1076 Lakeshore Blvd., Mississauga, Ontario, Canada:

- .1 Door Closers LCN 1000 & 4000 Series
- .2 O/H Door stop/holders GLYNN JOHNSON
- .3 Exit Devices Von-Duprin 98 Series
- .4 Hinges Ives 3 Knuckle 3CB1 Full Mortise, and 700 Continuous
- .5 Electric Strikes Von-Duprin 6000 Series
- .6 Locks, Latches Schlage ND Series Schlage B Family, Falcon X Series. Interchangeble Cores
- .7 IVES products Wall Stops
- .8 Door Operators LCN4600 Series

.3 **K.N. Crowder MFG. INC.,** 2344 South Sheridan Way., Mississauga, Ontario, Canada

- .1 Weatherstrip & Door Seal Products
- .2 Thresholds
- .3 Louvers

.4 **Gallery Specialty Hardware LTD.,**676 Petrolia Road., Toronto, Ontario, Canada:

- .1 Protective Plates
- .2 Door Pulls
- .3 Wall and Floor Stops

.5 **Camden Door Controls** Ontario

- .1 Restroom Control Kit WC-13AXSM
- .2 Universal Washroom Emergency Call Kit CX-WEC-10K2

2.3 FASTENINGS

.1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

.2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.3 Exposed fastening devices to match finish of hardware.

.4 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.

.5 Use fasteners compatible with material through which they pass.

2.4 KEYING

.1 Door locks, keyed to suit existing keying schedule of the Owner/Client for this School.

.2 Provide keys in duplicate for every lock in this Contract.

.3 Stamp keying code numbers on keys and cylinders.

.4 Install permanent interchangeable cores.

.5 Turn over keys to Owner designate as instructed by Owner

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Furnish wood and metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

.3 Furnish manufacturers' instructions for proper installation of each hardware component.

3.2 INSTALLATION

.1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.

.2 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.3 Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

.4 Installation of door operators and sequencing on site with access control division to ensure proper function of exterior actuator by the hardware supplier, this is to be done by the Hardware Supplier.

3.3 ADJUSTING

.1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.

.2 Lubricate hardware, operating equipment and other moving parts.

.3 Adjust door hardware to provide tight fit at contact points with frames.

3.4 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer’s instructions.

.3 Remove protective material from hardware items where present.

.4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.5 DEMONSTRATION

.1 Maintenance Staff Briefing:
- .1 Brief maintenance staff regarding:
  - .1 Proper care, cleaning, and general maintenance of projects complete hardware.
  - .2 Description, use, handling, and storage of keys.
  - .3 Use, application and storage of wrenches for door closers locksets and fire exit hardware.
  - .4 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.6 SCHEDULE

.1 Refer to appended schedule

END OF SECTION

ITEM #1 1 SINGLE DOOR 120-1 1/915x2135x45 TYPE: 1 — CORRIDOR TO UNIVERSAL WASHROOM 120 WD.SC/HM — RH

3	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	STORE. LOCK	ND80L SPA X	622	SCH
1	EA	CORBIN CYL	CR2203-6-59B1 x 001-A22 TAIL PIECE	626	COR
1	EA	ELECTRIC STRIKE	S6514	630	RCI
1	EA	AUTO-EQUAL	4631 STD	689	LCN
1	EA	KICK PLATE	GSH-80A 8” X 36” X TAPE	32D	GAL
1	SET	WIRE DIAGRAMS	DRG-CX-WC-13-7		CAM
1	EA	DOOR CONTACT	CX-MDH		CAM
1	EA	TRANSFORMER	CX-TRK-2450		CAM
1	EA	REST. CONTROL	CX-WC13AXSM		CAM
1	EA	EMERG. CALL	CX-WEC10K2		CAM
1	EA	WALL STOP	GSH-240		

All Line Voltage, low voltage and device boxes by electrical contractor. Final connections, installation of operator and commissioning by hardware supplier. Cylinder to be keyed to HSCDSB Master System

END OF SECTION

PART 1- GENERAL

1.1 RELATED REQUIREMENTS

.1 Division 1 - General Requirements

.2 Section 07 92 00 – Joint Sealants.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)
- .1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).
- .2 CTI A118.3-92, Specification for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive (included in ANSI A108.1).
- .3 CTI A118.4-92, Specification for Latex Cement Mortar (included in ANSI A108.1).
- .4 CTI A118.5-92, Specification for Chemical Resistant Furan Resin Mortars and Grouts for Tile Installation (included in ANSI A108.1).
- .5 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).

.2 American Society for Testing and Materials International (ASTM)
- .1 ASTM C 144-04, Specification for Aggregate for Masonry Mortar.
- .2 ASTM C 207-06, Specification for Hydrated Lime for Masonry Purposes.
- .3 ASTM C 847-06, Specification for Metal Lath.
- .4 ASTM C 979-05, Specification for Pigments for Integrally Coloured Concrete.

.3 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CGSB 71-GP-22M-78(AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.
- .3 CAN/CGSB-75.1-M88, Tile, Ceramic.
- .4 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.4 Terrazzo Tile and Marble Association of Canada (TTMAC)
- .1 Tile Specification Guide 09 30 00 2006/2007, Tile Installation Manual.
- .2 Tile Maintenance Guide 2000.

.5 Canadian Standards Association (CSA International)
- .1 CSA A123.3-05, Asphalt Saturated Organic Roofing Felt.
- .2 CAN/CSA-A3000-03(R2006), Cementations Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Include manufacturer's information on:
  - .1 Tile, marked to show each type, size, and shape required.
  - .2 Chemical resistant mortar and grout (Epoxy and Furan).
  - .3 Cementations backer unit.
  - .4 Dry-set cement mortar and grout.
  - .5 Divider strip.
  - .6 Elastomeric membrane and bond coat.
  - .7 Reinforcing tape.
  - .8 Levelling compound.
  - .9 Latex cement mortar and grout.
  - .10 Commercial cement grout.
  - .11 Organic adhesive.
  - .12 Slip resistant tile.
  - .13 Waterproofing isolation membrane.
  - .14 Fasteners.

.3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Base tile: submit 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
- .2 Floor tile: submit 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
- .3 Trim shapes, bullnose cap and cove including bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, colour, and size.
- .4 Adhere tile samples to 11 mm thick plywood and grout joints to represent project installation.

.4 Provide shop drawings
- .1 Tile: submit shop drawings showing control/expansion joint and transition strip locations.
  - .1 Coordinate with contractor and indicate locations of floor slab control joints, and show appropriate tile expansion joints to coincide.
  - .2 Indicate location of additional control joints as recommended by the manufacturer, for review by the Consultant.
  - .3 Include with and provide references to sample submittals for all items referenced on drawings.
  - .4 Include sample selection charts where colour selection is required.

.5 Quality assurance submittals
- .1 Manufacturer's Instructions: manufacturer's installation instructions

1.4 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Waste Management and Disposal:
- .1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal

1.5 AMBIENT CONDITIONS

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 degrees C for 48 hours before, during, and 48 hours after, installation.

.2 Do not install tiles at temperatures less than 12 degrees C or above 38 degrees C.

.3 Do not apply epoxy mortar and grouts at temperatures below 15 degrees C or above 25 degrees C.

1.6 EXTRA MATERIALS

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.

.3 Maintenance material same production run as installed material.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 **(TP-1) Tile Porcelain, Floor – Type 1**: to CAN/CGSB-75.1, Type 7, Class MR (02 -3.0%). Tiles Cut tiles to achieve sizes as required. Edges smooth, slip resistant surface.
- .1 **Basis or Design:**
- .2 Manufacturer: Centura Tile
- .3 Collection: Integra or equal
- .4 Texture: Matte or equal
- .5 Colour(s): Graphite or equal
- .6 Size: 300x600mm
- .7 Thickness: 9.5mm.
- .8 Tile Layout to be approved on site by the Owner
- .9 Grout: Epoxy Tile Grout
- .10 **Alternate Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following
  - .1 Other Alternates as approved by the consultant.

.2 **(TP-B1) Tile Porcelain, Base – Type 2**: to CAN/CGSB-75.1, Type 7, Class MR (02 -3.0%). Tiles Cut tiles to achieve sizes as required. Edges smooth, slip resistant surface.
- .1 **Basis or Design:**
- .2 Manufacturer: Centura Tile
- .3 Collection: Frammenti or equal
- .4 Texture: Patterned Terrazzo or equal
- .5 Colour(s): Bianco Micro or equal
- .6 Size: 203x203mm
- .7 Thickness: 8.5mm.
- .8 Tile Layout to be approved on site by the Owner
  - .1 Tile Base to match adjacent base, review on site
- .9 Grout: Epoxy Tile Grout
- .10 **Alternate Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following
  - .1 Other Alternates as approved by the consultant.

2.2 TRIM SHAPES

.1 Not Used. Submit for review if any are needed.

2.3 WATERPROOFING MEMBRANE

.1 Not Used

2.4 MORTAR AND ADHESIVE MATERIALS

.1 Cement: to CSA-A5, type 10.

.2 Sand: to ASTM C 144, passing 16 mesh.

.3 Hydrated lime: to ASTM C 207.

.4 Latex additive: formulated for use in cement mortar and thin set bond coat.

.5 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.

2.5 BOND COAT

.1 Dry set cement mortar: to ANSI A108.1.

.2 Organic adhesive: to CGSB 71-GP-22M, Type 1.

.3 Latex Cement mortar: to ANSI A108.1, two-component universal dry-set mortar.

.4 Epoxy bond coat: non-toxic, non-flammable, non-hazardous during storage, mixing, application, and when cured. To produce shock and chemical resistant mortars having the following physical characteristics:
- .1 Compressive Strength: 246 kg/cm².
- .2 Bond Strength: 53 kg/cm².
- .3 Water Absorption: 4.0% Max.

.4 Ozone Resistance, 200 hours @ 200 ppm: no loss of strength.
.5 Smoke Contribution Factor: 0.
.6 Flame Contribution Factor: 0.
.7 Finished mortar and grout to be resistant to urine, dilute acid, dilute alkali, sugar, brine and food waste products, petroleum distillates, oil and aromatic solvents.

.5 Chemical-Resistant Bond Coat:
.1 Epoxy Resin Type: CTI A118.3.
.2 Furan Resin Type: CTI A118.5.

2.6 GROUTING

.1 Colouring Pigments:
.1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C 979.
.2 Colouring pigments to be added to grout by manufacturer.
.3 Job coloured grout are not acceptable.
.4 Use in Commercial Cement Grout, Dry-Set Grout, and Latex Cement Grout.
.5 Colour: To be selected from Manufacturer full range.

.2 Cement Grout: to ANSI A108.1.
.1 Use one part white cement to one part white sand passing a number 30 screen.

.3 Commercial Cement Grout: to CTI A118.6.

.4 Dry-Set Grout: to CTI A118.6.

.5 Latex Cement Grout: to ANSI A108.1, fast curing, high early strength, polymer-modified, stain resistant, sanded mix for floors, unsanded mix for walls and floors with polished tiles commercial tile grout.

.6 Chemical-Resistant Epoxy Tile Grout:
.1 Epoxy grout: to ANSI A108.1, having quality, colour and characteristics to match epoxy bond coat. Adhesive and grout by same manufacturer.
.2 Furan grout: to CTI A118.5.
.3 Waterproof, Stainproof

2.7 ACCESSORIES

.1 Divider/Transition strips: Aluminum in colour, plastic cap where applicable. Profile to suit specific condition. See schedule below:

Application	Model	Manufacturer
P.Tile to Adjacent	Profile to suit	Gradus or Schluter

2.8 MIXES

.1 Cement:
.1 Scratch coat: Conform to manufacturers
.2 Slurry bond coat: Conform to manufacturers.
.3 Mortar bed for floors: Conform to manufacturers
.4 Mortar bed for walls and ceilings: 1 part cement, 1/5 to 1/2 parts hydrated lime to suit job conditions, 4 parts sand and 1 part water. Adjust water volume depending on water

content of sand. Latex additive may be included.

.5 Leveling coat: 1 part cement, 4 parts sand, minimum 1/10 part latex additive, 1 part water including latex additive.

.6 Bond or setting coat: 1 part cement, 1/3 part hydrated lime, 1 part water.

.7 Measure mortar ingredients by volume.

.2 Dry set mortar: mix to manufacturer's instructions.

.3 Mix bond and leveling coats, and grout to manufacturer's instructions.

.4 Adjust water volumes to suit water content of sand.

2.9 PATCHING AND LEVELING COMPOUND

.1 Cement base, acrylic polymer compound, manufactured specifically for resurfacing and leveling concrete floors. Products containing gypsum are not acceptable.

.2 Have not less than the following physical properties:

.1 Compressive strength - 25 MPa.

.2 Tensile strength - 7 MPa.

.3 Flexural strength - 7 MPa.

.4 Density - 1.9.

.3 Capable of being applied in layers up to 50 mm thick, being brought to feather edge, and being trowelled to smooth finish.

.4 Ready for use in 48 hours after application.

2.10 SEALING

.1 Floor sealer and protective coating: to tile and grout manufacturer’s recommendations.

2.11 CLEANING COMPOUNDS

.1 Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.

.2 Materials containing acid or caustic material are not acceptable.

PART 3 - EXECUTION

3.1 MANUFACTURERS INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 WORKMANSHIP

.1 Do tile work in accordance with TTMAC Tile Installation Manual 2006/2007, "Ceramic Tile", except where specified otherwise.

.2 Apply tile or backing coats to clean and sound surfaces.

.3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.

.4 Maximum surface tolerance 1:800.

.5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.

.6 Lay out tiles so perimeter tiles are minimum 1/2 size.

.7 Sound tiles after setting and replace hollow-sounding units to obtain full bond.

.8 Make internal angles square, external angles rounded bullnose.

.9 Use round bullnose edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.

.10 Install divider strips at junction of tile flooring and dissimilar materials.

.11 Clean installed tile surfaces after installation and grouting cured.

.12 Make control joints where at building and floor expansion joints (saw cuts). Make joint width same as tile joints. Fill control joints with sealant in accordance with Section 07 92 00 - Joint Sealants. Keep building expansion joints free of mortar and grout.

3.3 WALL TILE

.1 Not Used

3.4 FLOOR TILE

.1 Install in accordance with TTMAC detail 200 – 14A

3.5 BASE TILE

.1 Not Used

3.6 FLOOR SEALER AND PROTECTIVE COATING

.1 Apply in accordance with manufacturer's instructions

3.7 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.8 CLEANING

.1 Proceed in accordance with Section 01 74 11 – Cleaning

.2 Clean tile surfaces upon completion of grouting as per tile manufacturer printed instructions using cleaning agents and procedures recommended by the manufacturers of tile and grout.

.3 Remove all grout haze, observing tile manufacturer's recommendations as to use of acid and chemical cleaners. (Do not use muriatic acid on tile work or pavers.)

.4 Rinse tile work thoroughly with clean water before and after using chemical cleaners

.5 After setting, all tile surfaces shall be sounded and visually inspected and wherever any hollow backed or damaged tiles are found they shall be removed and replaced with matching tiles

3.9 PROTECTION FROM CONSTRUCTION DIRT

.1 Seal cementations grout joints and unglazed tile with "Aqua Mix Penetrating Sealer" by Aqua Mix Inc. or as recommended by manufacturer

.2 Cover all tile floors with heavy duty non-staining cotton reinforced paper or 6 mil vapour barrier taped into place

.3 Prior to final acceptance of tile work, remove paper and clean with "Aqua-Mix Miracle Cleaner" by Aqua Mix Inc. or as recommended by manufacturer

3.10 PROTECTION FROM TRAFFIC

.1 Prohibit all foot and wheel traffic from using newly tiled floors for at least three days, preferably seven days after grouting is completed

.2 Place large, flat boards in walkways and wheel ways for seven days, where use of newly tiled floor is unavoidable

.3 Leave finished installation clean and free of cracked, chipped, brock, un-bonded or otherwise defective tile work. Replace damaged or defective work

END OF SECTION

PART 1- GENERAL

1.1 SUMMARY

.1 Section Includes:
- .1 Materials and application of acoustical units for direct application or for application and installation within a suspended ceiling.

1.2 RELATED SECTIONS

.1 Division 1 - General Requirements

.2 Section 09 53 00.01 - Acoustical Suspension

1.3 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM C 423-02a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- .2 ASTM E 1264-98, Standard Classification for Acoustical Ceiling Products.
- .3 ASTM E 1477-98a(2003), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
- .4 ASTM E 119 Standard Test Method of Fire Tests of Building Construction and Material.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction and Amendment No. 1 1988.
- .2 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.

.3 Canadian Standards Association (CSA International)
- .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.5 Underwriter's Laboratories of Canada (ULC)
- .1 CAN/ULC-S102-2003, Surface Burning Characteristics of Building Materials and Assemblies.

1.4 SUBMITTALS

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data: submit WHMIS MSDS in accordance with Section 02 81 01 - Hazardous Materials

.3 Submit duplicate 300 x 300 samples of each type of ceiling

.4 Submit 300mm long samples of suspension system and trim

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements:

.1 Fire-resistance rated floor/ceiling and roof/ceiling assembly: certified by Canadian Certification Organization accredited by Standards Council of Canada.

.2 Health and Safety:
.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.3 Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspection organization.

1. Surface Burning Characteristics: As follows, tested per ASTM E84 and comply with ASTM E 1264 for Class A products. Flame Spread: 25 or less. Smoke Development: 20 or less.

2. Fire Resistance Ratings: As indicated by reference to design designations in UL Fire Resistance Directory, for types of assemblies in which acoustical ceilings function as a fire protective membrane and tested as per ASTM E119.

1. Protect light fixtures and airducts to comply with requirements indicated for rated assembly.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Protect on site stored or installed absorptive material from moisture damage.

.2 Store extra materials required for maintenance, where directed by Consultant.

.3 Waste Management and Disposal:
.1 Separate waste materials for in accordance with Section 01 74 21 - Construction /Demolition Waste Management and Disposal.
.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
.3 Collect and separate for disposal packaging material for recycling in accordance with Waste Management Plan (WMP).

.4 Handle and dispose of hazardous materials in accordance with Regional and Municipal, regulations.

1.7 ENVIRONMENTAL REQUIREMENTS

.1 Permit wet work to dry before beginning to install.

.2 Maintain uniform minimum temperature of 15 degrees C and humidity of 20-40% before and during installation.

.3 Store materials in work area 48 hours prior to installation.

1.8 EXTRA MATERIALS

.1 Provide extra materials of acoustic units in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for project.

.3 Ensure extra materials are from same production run as installed materials.

.4 Clearly identify each type of acoustic unit, including colour and texture.

.5 Deliver to Consultant, upon completion of the work of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 (**SAT2)** Suspended Acoustic Tile 2'x2'. Acoustic units for suspended ceiling system: to CAN/CGSB-92.1.

- .1 Material: Mineral Fiber
- .2 Size: 609 mm x 609 mm x 19 mm thick. (24x24x3/4)
- .3 Colour: White
- .4 Pattern: Fine-textureed with non-directinal pattern (Dune)
- .5 Edge: Square
- .6 Suspension Standard 24mm (15/16") face, White
- .7 **Basis of Design:** The above design parameters are based on the following product/material, which all alternates will be reviewed against.
  - .1 Model no. 1850, by Armstrong
- .8 **Alternates:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - .1 Performa Sand Micro by Certainteed
  - .2 Tropic #1060 by Rockfon
  - .3 Alternate(s) approved by the Consultant

.2 Adhesive: type recommended by acoustic unit manufacturer.

.3 Staples, nails and screws: to CSA B111 non-corrosive finish as recommended by acoustic unit manufacturer.

.4 Polyethylene: to CAN/CGSB-51.34, 0.15 mm thick.

.5 Hold down clips: purpose made clips to secure tile to suspension system, approved for use in fire-rated systems.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Do not install acoustical panels and tiles until work above ceiling has been inspected by Consultant.

3.2 INSTALLATION

.1 Installation: in accordance with ASTM C636 except where specified

otherwise

.2 Install acoustical panels and tiles in ceiling suspension system.

.3 Install fibrous acoustical media over entire area above suspended metal panels.

.4 In fire rated ceiling systems, secure lay-in panels with hold-down clips and protect over light fixtures, diffusers, air return grilles and other appurtenances according to Certification Organizations design requirements.

3.3 APPLICATION

.1 Install patterned acoustical units parallel to building lines with edge unit not less than 50% of unit width or with directional pattern running in same direction. Refer to reflected ceiling plan.

.2 Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with molding

3.4 INTERFACE WITH OTHER WORK

.1 Co-ordinate with Section 09 53 00.01 - Acoustical Suspension.

.2 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, and sprinkler heads, to be built into acoustical ceiling components.

END OF SECTION

PART 1- GENERAL

1.1 RELATED REQUIREMENTS

.1 Division 1 – General Requirements

.2 Section 09 51 13 – Acoustical Panel Ceilings:

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM C 635-04, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings
- .2 ASTM C 636/C 636M-06, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS)..

1.3 DESIGN REQUIREMENTS

.1 Maximum deflection: 1/360th of span to ASTM C 635 deflection test.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures

.2 Provide samples in accordance with Section 01 33 00 - Submittal Procedures:
- .1 Submit one representative model of each type ceiling suspension system
- .2 Ceiling system to show basic construction and assembly, treatment at walls, recessed fixtures, splicing, interlocking, finishes, acoustical unit installation.

1.5 QUALITY ASSURANCE

.1 Fire-resistance rated suspension system: certified by a Canadian Certification Organization accredited by Standards Council of Canada

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Waste Management and Disposal:
- .1 .

.3 Waste Management and Disposal:
- .1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal..

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Suspension System for Ceiling type: **SAT-2 Suspended Acoustic Tile.** Suspension system shall be Intermediate duty, standard exposed grid.
- .1 Manufacturer: Certainteed
- .2 Series: Classic Hook, 24mm (15/16") Exposed Tee System.
- .3 Sizes: 24mm (15/16") face dimension on main and cross tees, c/w 24mm (15/16") corresponding 'L' shaped edge trim.
- .4 Color: White, or selected from standard range
- .5 **Alternate Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following
  - .1 USG. Donn Brand DX 24mm Tee System.
  - .2 Armstrong Ceilings.24mm Prelude System..
  - .3 Rockfon. Chicago Metallic 200 Snap Grid, 24mm Exposed.
  - .4 Alternates as approved by the Consultant.

.2 Intermediate duty system to ASTM C 635.

.3 Basic materials for suspension system: commercial quality cold rolled steel mill finished

.4 Suspension system: non fire rated, made up as follows:
- .1 Two directional exposed tee bar grid

.5 Exposed tee bar grid components: shop painted satin sheen. Components die cut. Main tee with double web, rectangular bulb and 25 mm rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection

.6 Hanger wire: galvanized soft annealed steel wire:
- .1 3.6 mm diameter for access tile ceilings.
- .2 2.6 mm diameter for other ceilings.

.7 Hanger inserts: purpose made.

.8 Accessories: splices, clips, wire ties, retainers and wall molding flush or reveal, to complement suspension system components, as recommended by system manufacturer.

PART 3 - EXECUTION

3.1 MANUFACTURERS INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Installation: in accordance with ASTM C 636 except where specified otherwise

.2 Install suspension system to manufacturer's instructions and Certification Organizations tested design requirements.

.3 Do not erect ceiling suspension system until work above ceiling has been inspected by Consultant.

.4 Install hangers spaced at maximum 1200 mm centers and within 150 mm from ends of main tees.

.5 Lay out centre line of ceiling both ways, to provide balanced borders at room perimeter, with border units not less than 50% of standard unit width and/or system according to reflected ceiling plan.

.6 Ensure suspension system is coordinated with location of related components.

.7 Install wall molding to provide correct ceiling height.

.8 Completed suspension system to support super-imposed loads, such as lighting fixtures diffusers grilles and speakers.

.9 Support at light fixtures diffusers with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.10 Interlock cross member to main runner to provide rigid assembly.

.11 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.

.12 Finished ceiling system to be square with adjoining walls and level within 1:1000.

3.3 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 Touch up scratches, abrasions, voids and other defects in painted surfaces.

END OF SECTION

PART 1- GENERAL

1.1 SUMMARY

.1 Section Includes:
- .1 Material and installation of site applied paint finishes to new interior surfaces, including site painting of shop primed surfaces.

1.2 RELATED SECTIONS

.1 Division 1 – General Requirements

.2 STRUCTURAL DRAWINGS – GENERAL NOTES

.3 Section 08 11 00 – Metal Doors and Frames

.4 Section 09 21 12 - Gypsum Board Assemblies

.5 Section 09 91 13 – Exterior Painting

1.3 REFERENCES

.1 Department of Justice Canada (Jus)
- .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33

.2 Environmental Protection Agency (EPA)
- .1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 - 1995, (for Surface Coatings).

.3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.4 Master Painters Institute (MPI)
- .1 MPI Architectural Painting Specifications Manual, 2004.

.5 National Fire Code of Canada - 1995

.6 Society for Protective Coatings (SSPC)
- .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

.7 Transport Canada (TC)
- .1 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34

1.4 QUALITY ASSURANCE

.1 Qualifications:
- .1 Contractor: minimum of five years proven satisfactory experience. Provide list of last three comparable jobs including, job name and location, specifying authority, and project manager.
- .2 Journeymen: qualified journeymen who have "Tradesman Qualification Certificate of Proficiency" engaged in painting work.
- .3 Apprentices: working under direct supervision of qualified

trades person in accordance with trade regulations.

.2 Mock-Ups:
- .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
  - .1 Consultant to designate three rooms in the building for mock-up use. Prepare and paint, room (in each colour scheme) to specified requirements, with specified paint or coating showing selected colours, gloss/sheen, textures.
  - .2 Mock-up will be used:
    - .1 To judge workmanship, substrate preparation, operation of equipment and material application and workmanship to MPI Architectural Painting Specification Manual standards.
    - .2 Repair and repaint room to the satisfaction of the Consultant.
  - .3 Allow 24 hours for inspection of mock-up before proceeding with work.
  - .4 When accepted, mock-up will demonstrate minimum standard of quality required for this work.

.3 Health and Safety:
- .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements

1.5 SCHEDULING

.1 Submit work schedule for various stages of painting to General Contractor and Consultant for review. Submit schedule minimum of 48 hours in advance of proposed operations.

.2 Schedule painting operations to prevent disruption of occupants.

1.6 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit product data and instructions for each paint and coating product to be used.
- .2 Submit product data for the use and application of paint thinner.
- .3 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures.

.3 Samples:
- .1 Submit full range colour sample chips to indicate where colour availability is restricted.
- .2 Submit 200 x 300 mm sample panels of each paint, stain, clear coating, special finish with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards

submitted on following substrate materials:
- .1 3 mm plate steel for finishes over metal surfaces.
- .2 13 mm birch and cherry plywood for finishes over wood surfaces.
- .3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
- .4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
- .5 10 mm plywood for finishes over wood surfaces.

.3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.

.4 Test reports: submit certified test reports for paint from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
- .1 Lead, cadmium and chromium: presence of and amounts.
- .2 Mercury: presence of and amounts.
- .3 Organochlorines and PCBs: presence of and amounts.

.5 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.6 Manufacturer's Instructions:
- .1 Submit manufacturer's installation and application instructions.

.7 Closeout Submittals: submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals include following:
- .1 Product name, type and use.
- .2 Manufacturer's product number.
- .3 Colour numbers.
- .4 MPI Environmentally Friendly classification system rating.

1.7 MAINTENANCE

.1 Extra Materials:
- .1 Deliver to extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Section 01 78 00 - Closeout Submittals.

.2 Quantity: provide one four litre can of each type and colour of primer, stain and finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

1.8 DELIVERY, STORAGE AND HANDLING

.1 Packing, Shipping, Handling and Unloading:
- .1 Pack, ship, handle and unload materials in accordance with Section 01 61 00 - Common Product Requirements and manufacturer's written instructions.

.2 Acceptance at Site:
- .1 Identify products and materials with labels indicating:

.1 Manufacturer's name and address.
.2 Type of paint or coating.
.3 Compliance with applicable standard.
.4 Colour number in accordance with established colour schedule.

.3 Remove damaged, opened and rejected materials from site.

.4 Storage and Protection:
.1 Provide and maintain dry, temperature controlled, secure storage.
.2 Store materials and supplies away from heat generating devices.
.3 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.

.5 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.6 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.

.7 Remove paint materials from storage only in quantities required for same day use.

.8 Fire Safety Requirements:
.1 Provide one 9 kg Type ABC fire extinguisher adjacent to storage area.
.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
.3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.

.9 Waste Management and Disposal:
.1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
.3 Collect and separate for disposal packaging material for recycling in accordance with Waste Management Plan (WMP).
.4 Place materials defined as hazardous or toxic in designated containers.
.5 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, and Regional and Municipal, regulations.
.6 Ensure emptied containers are sealed and stored safely.
.7 Unused materials must be disposed of at official hazardous material collections site as approved by authorities having jurisdiction.
.8 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous

products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

.9 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

.10 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.11 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into ground follow these procedures:

.1 Retain cleaning water for water-based materials to allow sediments to be filtered out.

.2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.

.3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.

.4 Dispose of contaminants in approved legal manner in accordance with hazardous waste regulations.

.5 Empty paint cans are to be dry prior to disposal or recycling (where available).

.12 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

.13 Set aside and protect surplus and uncontaminated finish materials. Deliver to or arrange collection by organizations for verifiable re-use or re-manufacturing.

1.9 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal packaging material for recycling in accordance with Waste Management Plan (WMP).

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- .1 Retain cleaning water for water-based materials to allow sediments to be filtered out.
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- .3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
- .4 Dispose of contaminants in approved legal manner in accordance with hazardous waste regulations.
- .5 Empty paint cans are to be dry prior to disposal or recycling (where available).

.12 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

.13 Set aside and protect surplus and uncontaminated finish materials. Deliver to or arrange collection by organizations for verifiable re-use or re-manufacturing.

1.10 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:
- .1 Ventilate enclosed spaces in accordance with health and Safety requirements.
- .2 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
- .3 Provide continuous ventilation for seven days after completion of application of paint.
- .4 Coordinate use of existing ventilation system with Consultant and ensure its operation during and after application of paint as required.
- .5 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
- .6 Provide minimum lighting level of 323 Lux on surfaces to be painted.

.2 Temperature, Humidity and Substrate Moisture Content Levels:
- .1 Unless pre-approved written approval by Specifying body and product manufacturer, perform no painting when:
  - .1 Ambient air and substrate temperatures are below 10 degrees C.

.2 Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.

.4 The relative humidity is under 85% or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.

.5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.

.6 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.

.2 Perform painting work when maximum moisture content of the substrate is below:

.1 Allow new concrete and masonry to cure minimum of 28 days.

.2 15% for wood.

.3 12% for plaster and gypsum board.

.3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".

.4 Test concrete, masonry and plaster surfaces for alkalinity as required.

.3 Surface and Environmental Conditions:

.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.

.3 Apply paint when previous coat of paint is dry or adequately cured.

.4 Additional interior application requirements:

.1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

.2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Consultant such that painted surfaces will have dried and cured sufficiently before occupants are affected.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Paint materials listed in the MPI Approved Products List (APL) are

acceptable for use on this project.

.2 Provide paint materials for paint systems from single manufacturer.

.3 Conform to latest MPI requirements for interior painting work including preparation and priming.

.4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.

.5 Linseed oil, shellac, and turpentine: highest quality product from approved manufacturer listed in MPI Architectural Painting Specification Manual, compatible with other coating materials as required.

.6 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.

.7 Flash point: 61.0 degrees C or greater for water-borne surface coatings and recycled water-borne surface coatings.

.8 Ensure manufacture and process of both water-borne surface coatings and recycled water-borne surface coatings does not release:

.1 Matter in undiluted production plant effluent generating 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.

.2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to natural watercourse or a sewage treatment facility lacking secondary treatment.

2.2 COLOURS

.1 Allow for a selection of colours, from manufacturer’s full range of colours to be used to match adjacent finishes. All colours shall be confirmed by the Consultant.

.2 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from Consultant for tinting of painting materials.

.2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.

.3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.

.4 Thin paint for spraying in accordance with paint manufacturer's instructions.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

.1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

Gloss Level Category	Units @ 60 Degrees	Units @ 85 Degrees
G1 – matte finish	0 to 5	max. 10
G2 – velvet finish	0 to 10	10 to 35
G3 – eggshell finish	10 to 25	10 to 35
G4 – satin finish	20 to 35	min. 35
G5 - semi-gloss finish	35 to 70	
G6 – gloss finish	70 to 85	
G7 – high gloss finish	> 85	

.2 Gloss level ratings of painted surfaces as specified and as noted on Finish Schedule

2.5 INTERIOR PAINTING SYSTEMS

.1 Concrete vertical surfaces: including horizontal soffits:
.1 INT 3.1D - Alkyd G4 finish.

.2 Concrete horizontal surfaces: floors and stairs:
.1 INT 3.2C - Epoxy finish.

.3 Cementitious composition board surfaces:
.1 INT 3.3C - Alkyd G4 finish.

.4 Concrete masonry units: smooth and split face block and brick:
.1 INT 4.2C - Alkyd G4 finish.

.5 Structural steel and metal fabrications: columns, beams, joists:
.1 INT 5.1D - Alkyd dry wall finish.

.6 Steel - high heat: (boilers, furnaces, heat exchangers, breeching, pipes, flues, stacks, etc., with temperature range as noted):
.1 INT 5.2A - Heat resistant enamel finish, maximum 205 degrees C.

.7 Dressed lumber: including doors, door and window frames, casings, mouldings:
.1 INT 6.3Z - Clear (2 component) polyurethane finish.

.8 Wood paneling and casework: partitions, panels, shelving, millwork:
.1 INT 6.3Z - Clear (2 component) polyurethane finish

.9 Bituminous coated surfaces: cast iron pipe, concrete, etc.:
.1 INT 10.2B - Alkyd G6 finish.

2.6 SOURCE QUALITY CONTROL .1 Perform following tests on each batch of consolidated post-consumer material before surface coating is reformulated and canned. Testing by laboratory or facility which has been accredited by Standards Council of Canada.

.1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.

.2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.

.3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 GENERAL .1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to General Contractor and Consultant damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

.2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:

.1 Stucco, plaster and gypsum board: 12%.
.2 Concrete: 12%.
.3 Clay and Concrete Block/Brick: 12%.
.4 Wood: 15%

3.4 PREPARATION .1 Protection:

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable

non-staining covers or masking. If damaged, clean and restore surfaces as directed by Consultant.

.2 Protect items that are permanently attached such as Fire Labels on doors and frames.

.3 Protect factory finished products and equipment.

.4 Protect passing pedestrians, building occupants and general public in and about the building.

.2 Surface Preparation:

.1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.

.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.3 Place "WET PAINT" signs in occupied areas as painting operations progress.

.3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and other surface debris by wiping with dry clean cloth, brushing and vacuuming.

.2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.

.3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.

.4 Allow surfaces to drain completely and allow to dry thoroughly.

.5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.

.6 Use trigger operated spray nozzles for water hoses.

.7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.

.4 Clean following surfaces with high pressure water washing: None.

.5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

.6 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

.7 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.8 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes, blowing with clean dry compressed air and vacuum cleaning.

.9 Prepare Block surfaces, new and existing with 2 coats of Block Filler (prior to min. 1 coat primer, 2 coats finish)

.10 Touch up of shop primers with primer as specified.

.11 Do not apply paint until prepared surfaces have been accepted by Consultant

3.5 APPLICATION

.1 Method of application to be as approved by Consultant. Apply paint by brush, roller or (airless sprayer combined with back-rolling). Conform to manufacturer's application instructions unless specified otherwise.

.2 Brush and Roller Application:
- .1 Apply paint in uniform layer using brush and/or roller type suitable for application.
- .2 Work paint into cracks, crevices and corners.
- .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
- .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
- .5 Remove runs, sags and brush marks from finished work and repaint.

.3 Spray application:
- .1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
- .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
- .3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
- .4 Brush out immediately all runs and sags.
- .5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.

.5 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.7 Sand and dust between coats to remove visible defects.

.8 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.9 Finish inside of cupboards and cabinets as specified for outside surfaces.

.10 Finish closets and alcoves as specified for adjoining rooms.

.11 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 MECHANICAL/ELECTRICAL EQUIPMENT

.1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.

.2 Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.

.3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

.4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.

.5 Do not paint over nameplates.

.6 Keep sprinkler heads free of paint.

.7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

.8 Paint fire protection piping red.

.9 Paint disconnect switches for fire alarm system and exit light systems in red enamel.

.10 Paint natural gas piping yellow.

.11 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

.12 Do not paint interior transformers and substation equipment.

3.7 SITE TOLERANCES

.1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.

.2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.8 FIELD QUALITY CONTROL

.1 Interior painting and decorating work shall be inspected by a Consultant.

.2 Painting contractor shall notify inspector a minimum of one week prior to commencement of work.

.3 Provide minimum lighting requirements for inspection

.4 Repair and/or repaint surfaces to the Satisfaction of the Consultant

.5 Standard of Acceptance:
- .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
- .2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
- .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

.6 Cooperate with inspection firm and provide access to areas of work.

.7 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Consultant.

3.9 RESTORATION

.1 Clean and re-install hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Consultant. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Consultant'.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Division 1 – General Requirements

.2 Section 06 10 00 – Rough Carpentry

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)
- .1 ASTM A 167-99, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- .2 ASTM B 456-95, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- .3 ASTM A 653/A 653M-99, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .4 ASTM A 924/A 924M-99, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.81-M90, Air Drying and Baking Alkyd Primer for Vehicles and Equipment.
- .2 CAN/CGSB-1.88-92, Gloss Alkyd Enamel, Air Drying and Baking.
- .3 CAN/CGSB-12.5-M86, Mirrors, Silvered.
- .4 CGSB 31-GP-107Ma-90, Non-inhibited Phosphoric Acid Base Metal Conditioner and Rust Remover.

.3 Canadian Standards Association (CSA)
- .1 CAN/CSA-B651-95, Barrier-Free Design.
- .2 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.

1.3 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

1.4 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Samples to be returned for inclusion into work.

1.5 CLOSEOUT SUBMITTALS

.1 Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout

Submittals.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal.

.2 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.

1.7 EXTRA MATERIALS

.1 Provide special tools required for accessing, assembly/disassembly or removal for toilet and bath accessories in accordance with requirements specified in Section 01 78 00 - Closeout Submittals.

.2 Deliver special tools to Consultant.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 For the purposes of this specification, Bobrick model numbers have been specified. Equal products manufactured by ASI, Hadrian, Fiat, Bradley, Frost or Watrous, will be accepted.

.2 **Washroom Partition (WP)** Floor Mounted Overhead Braced, 25mm thick Powder Coated Steel, toilet and change cubicle partitions and doors. Complete with Stainless steel hardware..

.1 Colour – Selected from Manufacturers standard range, to be confirmed by consultant

.2 **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

.1 Bradley Corporation – Phenolic Privacy Partitions

.2 Hadrian - Headrail Braced Phenolic Toilet Partitions

.3 Alternate(s) approved by the Consultant

.3 Doors, Panels and Pilasters shall be constructed of two sheets of panel flatness zinc-coated galvanneal steel, ASTM A653 GR33, laminated under pressure to a honeycomb core for sound deadening and rigidity. Formed edges to be welded together and interlocked under tension with a roll-formed oval crown locking bar, mitered, welded and ground smooth at the corners.

.4 Doors and panels shall be 1613mm (63.5”) high and 25mm (1”) thick with cover sheets not less than 0.8mm (.030”).

.5 Pilasters shall be 32mm (1.25”) thick with cover sheets not less than 0.9mm (.036”).

.6 Finish. All sheet metal to be finished with high performance powder coating, baked on to provide uniform smooth protective finish.

.7 **Colour** will be selected from **full color range** including but not limited to Premium, Solid Color, Anti-Graffiti color ranges. Allow for up to (2) Two color selections

.8 Attachment: stainless steel tamper proof type screws and bolts.

2.2 COMPONENTS

.1 Hardware: All panel-to-wall, panel-to-pilaster and pilaster-to-wall connections shall be made with full height continuous channels. Door hardware shall be chrome plated zinc die castings. Fasteners are zinc plated 12 x 1-3/4” and 12 x 5/8” TR-27 6-lobe security screws.

.2 Wall and connecting brackets: stainless steel extrusion or casting.

.3 Do not provide Coat Hooks. Bumper may not project.

2.3 COMPONENTS WASHROOM

.1 Provide accessory items manufactured by companies as noted or approved equal

.2 Emergency Call System **(ECS)**
.1 Refer to Door Hardware and Electrical.

.3 Grab Bar 1 **(GB1):** Bobrick 6898.99. (‘L’ shape beside)
.1 30” (760 mm) x 30” (760 mm) ‘L’ shaped grab bar mounted as indicated on the drawings. Satin-finish 18-gauge type 304 stainless steel tubing 1-1/2" (38mm) diameters. Bar passes through flange and is heliarc welded to form single structural unit. Cover snaps over mounting flange to conceal screws. Concealed mounting flange 1/8" (3mm) thick stainless steel plate, 2" W x 3-1/8" H (50 x 80mm), with two screw holes for concealed anchors. Cover is 22-gauge (0.8mm) stainless steel with satin-finish, 3-1/4" (85mm) dia.

.4 Grab Bar 2 **(GB2)**: Bobrick 5806 series. (straight, behind)
.1 36" (915 mm) long grab bar as indicated on drawings. Satin-finish 18-gauge type 304 stainless steel tubing 1-1/4" (32mm) diameters. Bar passes through flange and is heliarc welded to form single structural unit. Cover snaps over mounting flange to conceal screws. Concealed mounting flange 1/8" (3mm) thick stainless steel plate, 2" W x 3-1/8" H (50 x 80mm), with two screw holes for concealed anchors. Cover is 22-gauge (0.8mm) stainless steel with satin-finish, 3-1/4" (85mm) dia.

.5 Mirror **(Mirr)** and Mirror Barrier Free **(Mirr-BF):**
.1 Bobrick B-165 series, 30”h x 24”w. Mirror shall have a one piece stainless steel channel frame, 1/2” x 1/2” x 1/2” with 90 deg. mitered corners; all exposed surfaces shall have bright polished finish. Mirror shall No. 1 quality, 1/4” (6mm) glass mirror, warranted against silver spoilage for 15 years. Corners shall be protected by friction-absorbing filler strips. Back of all glass mirrors shall be protected by full-size, shock-absorbing, water-resistant, non abrasive, 3/16” thick polyethylene padding Galvanized steel back shall have integral horizontal hanging brackets located near top for mounting on concealed wall hangers

.6 Paper Towel Dispenser (powered) **(PTD)** and Paper Towel Dispenser

Barrier Free **(HD-BF)**:
.1 Refer to Electrical.

.7 Robe Hook **(RH)** and Robe Hook Barrier Free (**RH-BF**).
.1 Bobrick Model B-6717. Satin finish stainless steel.

.8 Utility Shelf (**SHF**): Bobrick model no. B-295.
.1 Utility shelf shall be type-304, 18-gauge stainless steel with all-welded construction: exposed surfaces shall have satin finish. Mounting brackets, welded to shelf, shall be 16-gauge stainless steel. Shelf shall be 355mm long by 125mm wide with 19mm return edges. Front edge shall be hemmed for safe handling.

.9 Soap Dispenser (**SD**):
.1 BETCO Mode R1000 Black Foaming bulk refill disp. Black Plastic. 12/cs bottle.

.10 Toilet Paper Dispenser (**TPD**).
.1 Oceans Model R2090TBK. Black Pearl. 12” H, 10-3/4” W, 5-3/4” D. Core Diameter 3-1/4”. Capacity: 9” JBT roll. Wall mounted.

2.4 FABRICATION

.1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.

.2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.

.3 Brake form sheet metal work with 1.5 mm radius bends.

.4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.

.5 Back paint components where contact is made with building finishes to prevent electrolysis.

.6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CSA G164.

.7 Shop assemble components and package complete with anchors and fittings.

.8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.

.9 Provide steel anchor plates and components for installation on studding and building framing.

2.5 FINISHES

.1 Chrome and nickel plating: to ASTM B 456, satin finish.

.2 Baked enamel: condition metal by applying one coat of metal conditioner to CGSB 31-GP-107Ma, apply one coat Type 2 primer to CAN/CGSB-1.81 and bake, apply two coats Type 2 enamel to

CAN/CGSB-1.88 and bake to hard, durable finish. Sand between final coats. Colour selected from standard range by Consultant.

.3 Manufacturer's or brand names on face of units not acceptable.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Install and secure accessories rigidly in place as follows:
- .1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
- .2 Hollow masonry units or existing plaster/drywall: use toggle bolts drilled into cell/wall cavity.
- .3 Solid masonry, marble, stone or concrete: use bolt with lead expansion sleeve set into drilled hole.
- .4 Toilet/shower compartments: use male/female through bolts.

.2 Install grab bars on built-in anchors provided by bar manufacturer.

.3 Use tamper proof screws/bolts for fasteners.

.4 Fill units with necessary supplies shortly before final acceptance of building.

.5 Install mirrors in accordance with Section 08 80 50 - Glazing.

3.2 SCHEDULE

.1 Locate accessories in location as indicated on the drawings. Confirm final layout with Consultant prior to installation.

END OF SECTION

GENERAL

1.1 RELATED SECTIONS
.1 Division 1 – General Requirements
.2 Section 06 10 00 – Rough Carpentry

1.2 SECTION INCLUDES
.1 Supply and install, where specified under this section, provide a complete installation and include all necessary and required anchoring and fastening devices. Coordinate with various trades and provide all blocking and bracing concealed in partition assemblies as may be necessary.
.1 Roller Shade (RS-E, RS-I)
.2

1.3 SHOP DRAWINGS
.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
.2 Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

1.4 SAMPLES
.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
.2 Samples to be returned for inclusion into work.

1.5 CLOSEOUT SUBMITTALS
.1 Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.6 WASTE MANAGEMENT AND DISPOSAL
.1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal.
.2 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.

PART 2 - PRODUCTS

2.1 PATIENT LIFT TRACK (PLT)
.1 Powered Patient Lift Track and Harness **(PLT):** Refer to Specialties Schedule.
.1 **Basis of Design: Maxi Sky 2 Series Ceiling Lifter**
.2 Supplied by Contractor, Installed by Owner Vendor. Coordinate installation with Owner Vendor.
.3 Shop drawings to be submitted for review.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Install and secure accessories rigidly in place as follows:

- .1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
- .2 Hollow masonry units or existing plaster/drywall: use toggle bolts drilled into cell/wall cavity.
- .3 Solid masonry, marble, stone or concrete: use bolt with lead expansion sleeve set into drilled hole.

3.3 ADJUSTING CLEANING AND PROTECTION

.1 Clean, lubricate, and adjust hardware.

.2 Protect installed materials from damage, abuse, dust, dirt, stain, or paint. Do not permit use during construction

.3 Touch up marred finishes, or replace materials that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by manufacturer.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL

.1 Refer to the following Specification Section 15 00 10:
Ontario Building Code Data Matrix Part 11
Prepared by IDEA Inc.

Dated
May 21, 2026

.2 Refer to the following Specification Section 15 00 20:
Ontario Building Code Data Matrix Part 3
Prepared by IDEA Inc.

Dated
May 21, 2026

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

Name of Practice: IDEA Inc.
Certificate of Practice Number: 5851
IDEA Inc.
421 Bay Street, Suite 507
Sault Ste. Marie, ON P6A 1X3

Name of Project:
Universal Washroom Renovation – Holy Angels Learning Center
Huron Superior Catholic District School Board

Location:
102 Wellington Street East Sault Ste. Marie, Ontario

Date: May 21 2026

Ontario Building Code Data Matrix, Part 11 – Renovation of Existing Building					**Building Code Reference**
11.1	Existing Building classification:	Describe Existing Use: Community Classrooms, Play Areas Construction Index: _____ Hazard Index: _____ ■ Not Applicable (no change of major occupancy)			11.2.1 T 11.2.1.1A T 11.2.1.1B to N
11.2	Alteration to Existing Building is:	Basic Renovation Extensive Renovation ***Fire Separations Revised** **See Part 3 Matrix for New Construction**	■ ☐*		11.3.3.1 11.3.3.2
11.3	Reduction in Performance Level:				11.4.2
		Structural: By Increase in occupant load: By change of major occupancy: Plumbing: Sewage-system:	■ No ■ No ■ No ■ No ■ No	☐ Yes ☐ Yes ☐ Yes ☐ Yes ☐ Yes	11.4.2.1 11.4.2.2 11.4.2.3 11.4.2.4 11.4.2.5
11.4	Compensating Construction:				11.4.3
		Structural: **Compensating Construction**	■ No	☐ Yes (explain)	11.4.3.2
		Increase in occupant load: **Table 11.4.3.3 & Ventilation**	■ No	☐ Yes (explain)	11.4.3.3
		Change of major occupancy: **Table 11.4.3.3**	■ No	☐ Yes (explain)	11.4.3.4
		Plumbing: **New WR to Part 7**	☐ No	■ Yes (explain)	11.4.3.5
		Sewage system: **New WR to Part 8**	☐ No	■ Yes (explain)	11.4.3.6
11.5	Compliance Alternatives Proposed:	■ No ☐ Yes (give number[s])			11.5.1

Name of Practice: IDEA Inc.
Certificate of Practice Number: OAA 5851
IDEA Inc.
421 Bay Street, Suite 507
Sault Ste. Marie, ON P6A 1X3

Name of Project:
Universal Washroom Renovation – Holy Angels Learning Center
Huron Superior Catholic District School Board

Location:
102 Wellington Street East Sault Ste. Marie, Ontario

Date: May 21 2026

Ontario Building Code Data Matrix Part 3

						Building Code Reference [1]
3.00	Building Code Version:	O. Reg. 332/12	Last Amendment	O. Reg. 191/14		
3.01	Project Type:	☐ New ☐ Addition ☒ Renovation ☐ Change of use ☐ Addition and renovation Description: Renovations				[A] 1.1.2.
3.02	Major Occupancy Classification:	Occupancy: A2 – Assembly	Use: Learning Center, Classrooms			3.1.2.1.(1)
3.03	Superimposed Major Occupancies:	☒ No ☐ Yes Description:				3.2.2.7.
3.04	Building Area (m^2)	Description:	Existing	New	Total	[A] 1.4.1.2.
		Level 1	1112	N/A	1112	
		Level 2	913	N/A	913	
3.05	Gross Area (m^2)		Existing	New	Total	[A] 1.4.1.2.
			1112	N/A	1112	
3.06	Mezzanine Area (m^2)	Not Applicable				3.2.1.1.
3.07	Building Height	2 Storeys above grade	7 (m) Above grade			[A] 1.4.1.2. & 3.2.1.1.
		0 Storeys below grade				
3.08	High Building	☒ No ☐ Yes				3.2.6.

3.09	Number of Streets/ Firefighter access	2 street(s)	3.2.2.10. & 3.2.5.
3.10	Building Classification: (Size and Construction Relative to Occupancy)	3.2.2.30 Group/Div Group A Div.3 - 2 Storeys	3.2.2.20. - 83.
3.11	Sprinkler System	☐ Required ☒ Not Required Proposed: ☐ entire building ☐ selected compartments ☐ selected floor areas ☐ basement ☐ in lieu of roof rating ☒ none	3.2.1.5. & 3.2.2.17.
3.12	Standpipe System	☒ Not required ☐ Required	3.2.9.
3.13	Fire Alarm System	☒ Required (existing) ☐ Not required Proposed: ☒ Single stage (existing) ☐ Two stage ☐ None	3.2.4.
3.14	Water Service / Supply is Adequate	☐ No ☒ Yes	
3.15	Construction Type:	Restriction: ☐ Combustible permitted ☒ Non-combustible required Actual: ☐ Combustible ☒ Non-combustible ☐ Combination Heavy Timber Construction: ☒ No ☐ Yes	3.2.2.20. - 83. & 3.2.1.4.
3.16	Importance Category:	☐ Low ☐ Low human occupancy ☐ Post-disaster shelter ☒ Normal ☐ High ☐ Minor storage building ☐ Explosive or hazardous substances ☐ Post-disaster	4.1.2.1.(3) & T4.1.2.1.B
3.17	Occupant Load	Floor Level/Area: Community Hub, All Visitors; Occupancy Type: A3; Based On: Area; Occupant Load (Persons): 629 (existing)	3.1.17.
3.18	Barrier-free Design:	☒ Yes Existing BF Entrance, Universal Washroom ☐ No	3.8.
3.19	Hazardous Substances:	☐ Yes N/A ☒ No	3.3.1.2. & 3.3.1.19.
3.20	Required Fire Resistance Ratings	Horizontal Assembly; Ratin; Supporting Assembly (H); Noncombustible in lieu of rating?	3.2.2.20. - 83. & 3.2.1.4.

		Floors (N/A)	60	60	☐ No	☐ Yes	☒ N/A		
		Mezzanine (N/A)	60	60	☐ No	☐ Yes	☒ N/A		
		Roof (Combustible)	45	45	☐ No	☐ Yes	☒ N/A		
3.21	Fire Separations	Multiple Major Occupancy	N/A						3.1.3.1
		Janitor's Rooms	1 hour (maintain existing)						3.3.1.1.
		Corridors (used by the public)	N/A (travel distance < 30m)						3.3.2.5.(2.) & (4.)
		Service Rooms	1 hour (maintain existing)						3.6.2.1.

3.22 Spatial Separation — 3.2.3.

Wall	EBF Area (m^2)	L.D. (m)	L/H or H/L	Permitted Max. % of Openings	Proposed % of Openings	FRR (H) Listed Design	Construction Type Required	Cladding Type Required
North	-	ex	-	-	ex	ex	☐ Noncombustible	☐ Noncombustible
East	-	ex	-	-	ex	ex	☐ Noncombustible	☐ Noncombustible
West	-	ex	-	-	ex	ex	☐ Noncombustible	☐ Noncombustible
South	-	ex	-	-	ex	ex	☐ Noncombustible	☐ Noncombustible

3.23 Plumbing Fixture Requirements — 3.7.4.

Ratio: Male:Female = 50:50 Except as noted otherwise

Floor Level/Area	Occupant Load	OBC Reference	Fixtures Required	Fixtures Provided
Classrooms	629	3.7.4.3 (C)	4f 4m	7f 7m
Universal WR			1	1

3.24 Energy Efficiency: — SB-10

Compliance Path: N/A

Climatic Zone: Zone 6

3.25 Notes:

Refer also to Part 11 OBC Matrix for Renovation

1 *All references are to Division B of the OBC unless preceded by [A] for Division A and [C] for Division C.*

PART 1 - GENERAL

1.1 GENERAL

.1 Refer to the following Specification Section 15 20 10:
Designated Substance Survey
102 Wellington St. E., Sault Ste. Marie, Ontario

Prepared By: M.R. Wright & Associates Co. Ltd.

Dated: August 2008

.2 These reports are provided as is. The consultant who provided this report was retained directly by the Owner. IDEA assumes no responsibility for the content, its completeness nor accuracy. Any questions regarding this report should be directed to the Owners Representative

.3 In case of discrepancies between this report and observations on site advise the Owners Representative in writing prior to proceeding with the work.

1.2 REMOVAL AND REMEDIATION

.1 Remove contaminated or hazardous materials within the construction zone, and any and all areas that construction workers may come into contact with hazardous materials. Known materials are identified in the report.

.2 Remove designated materials in in compliance with all applicable regulations, codes and standards, (current version at time of tender.)

.3 Remove material from site, prior to start of any other demolition Work

.4 Dispose of any materials at designated/registered disposal facilities in safe manner in accordance with all applicable Regulatory requirements.

.5 Submit all Records.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

Asbestos Containing Building Material Survey and Management Program

Holy Angels School
Sault Ste. Marie, Ontario

Consulting Engineers
MRW
M.R. WRIGHT & ASSOCIATES CO. LTD.
SAULT STE. MARIE • ONTARIO

Member of Consulting Engineers of Ontario
Member of Association of Consulting Engineers of Canada

Asbestos Containing Building Material Survey and Management Program

Holy Angels School
Sault Ste. Marie, Ontario

Prepared for:

Mr. Sam Colizza, P. Eng.
Manager of Plant

Huron Superior Catholic District School Board
90 Ontario Avenue
Sault Ste. Marie, Ontario
P6B 6G7

Prepared by:

M.R. Wright and Associates Co. Ltd.
Consulting Engineers
Sault Ste. Marie, Ontario
P6A 1X2

Contract 7738.26

Consulting Engineers MRW M.R. WRIGHT & ASSOCIATES CO. LTD. SAULT STE. MARIE • ONTARIO

August 2008

Table of Contents

1.0 Introduction

1.1 Terms of Reference

The Consulting Engineering firm of M.R. Wright and Associates Co. Ltd. (MRW), was commissioned by Mr. Sam Colizza, Manager of Plant for the Huron Superior Catholic District School Board (HSCDSB), to conduct an Asbestos Containing Material (ACM) Survey and develop an Asbestos Management Program for the institution known as Holy Angels School, located in the City of Sault Ste. Marie, Province of Ontario.

In order to satisfy the requirements of the Occupational Health and Safety Regulation 278/05 – *"Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations",* which was fully implemented on November 1, 2007, MRW conducted an asbestos building materials survey on June 30, 2008, to investigate, identify and quantify building materials that contain asbestos fibres.

1.2 Scope of Work

In order to satisfy the objectives for the identification, management, transportation and disposal of Asbestos Containing Materials (ACMs), the scope of work included:

1) Review available information and drawings to determine date of construction and the chronological order of renovations for the institution.

2) Conduct a limited non-intrusive investigation of the building infrastructure to visually inspect accessible areas for building materials of concern.

3) Collect samples for analyses of building materials that have the potential of containing asbestos fibres.

4) Estimate the quantity and condition of asbestos containing materials, assess the hazards of asbestos-containing materials, and determine the asbestos content and accessibility of materials.

5) Provide a final report that summarizes the presence of ACMs, provide information regarding asbestos fibres and exposures to ACMs, develop a program for the management of ACMs, assesses potential risks associated with the presence of ACMs, and provide recommendations for the management of ACMs.

1.3 History

Review of available information and drawings provided by the Huron Superior Catholic District School Board for the Holy Angels School revealed that the entire floor area of the institution is approximately 22,250 square feet, and the original date of construction appears to be 1967.

1.4 Objective

Upon review of the information to determine the age of building materials, we determined that the asbestos containing material survey would apply to the entire institution. This document provides an inventory of asbestos containing materials, information, procedures and work practises pertaining to Holy Angels School Asbestos Management Program (AMP) as required by the Occupational Health and Safety Regulation 278/05 – *"Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations".*

The objectives of the AMP include; the prevention of occupational illness arising from exposure to airborne asbestos fibres through maintenance of an inventory of asbestos by location, type, and condition. Furthermore, an objective of this AMP also includes the prevention of hazardous exposure to occupants of the Holy Angels School, to airborne asbestos fibres through safe work procedures by monitoring and training.

2.0 Asbestos Background Information

Asbestos is a generic term used to describe a family of naturally occurring fibrous hydrated silicates. Asbestos is a naturally occurring, strong mineral fibre that is resistant to heat, fire and many chemicals. Due to its fibrous, crystalline structure, it differs from other minerals and is described as resistant and even indestructible, since it tolerates abrasion, the corrosive effect of chemical products and very high temperatures (flames). In addition to its qualities as a thermal and electrical insulating material, asbestos is relatively cheap. Once the fibres have been extracted, the product can be marketed without having to undergo a sophisticated transformation process. Asbestos came to be widely used during World War II, and in 1950, Underwriters Laboratories approved it as a fireproofing material. From 1950 to the present day, it has been used in a variety of applications: in car brakes, as a fireproofing material, as a thermal insulation, etc. During the 1970's, its use began to wane because of potential health hazards related to asbestos containing materials (ACMs) and its use was banned in 1978. However, the use of ACMs continued into the early 1990's, since many building material products were warehoused and/or stored prior to the ban in 1978.

The distinction between asbestos types is important due to the different degrees of severity of asbestos related diseases with different types of asbestos fibres. The following provides additional information as to the types of asbestos:

• ***Chrysotile*** - This is the most common type of asbestos found in buildings. It is also known as "white asbestos." It is the only serpentine form of asbestos.

• ***Amosite*** - Also known as "brown asbestos," it has been used in thermal insulation and asbestos cement products where greater structural strength is required.

• ***Crocidolite*** - Also known as "blue asbestos," it is not as commonly used as the previous two types and only occasionally encountered in buildings as a mixture of chrysotile and/or amosite asbestos.

• ***Vermiculite Attic Insulation*** - Some vermiculite insulation may contain asbestos fibres. The vermiculite ore produced by the Libby Mine in Montana, sold as *Zonolite®,* is known to contain asbestos fibres. Disturbing this insulation during maintenance, renovation or demolition may cause asbestos fibres to become airborne.

• ***Other Forms of Asbestos*** - This includes anthophyllite, tremolite, and actinolite. These are rarely encountered and are found mainly as contaminants in other minerals.

For the purpose of limiting confusion and unnecessary panic situations for those who are not educated with respect to asbestos, M. R. Wright and Associates Co. Ltd. has developed a 'Letter to Faculty and Students Regarding Asbestos Information', which is located in Appendix A.

3.0 Elements of the Asbestos Management Program

3.1 Methodology

The survey was conducted in order to identify Asbestos Containing Materials (ACMs) that may exist within the structure known as Holy Angels School, located in the City of Sault Ste. Marie. The ACMs survey was conducted in order to satisfy the minimum bulk material sample requirements, as prescribed by the Occupational Health and Safety Regulation 278/05 – *"Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations"*. An inventory of asbestos containing materials has been developed by MRW, for which a building record has been established, in the form of this report. During the course of the investigation, building materials suspect of containing asbestos were sampled and relinquished for analyses. Sampling areas of friable materials (pipe insulations) were sealed with the use of 3M High-Tack tape. Analysis of bulk material samples was conducted by an accredited laboratory using the U.S. Environmental Protection Agency "Polarized Light Microscopy (PLM) Test Method EPA/600/R-93/116". The report documents the extent and condition of ACMs, as well as describes locations of sampling, and the results of laboratory analysis for samples collected.

The inventory will include the following factors in evaluating a particular asbestos-containing material.

Condition of Exposure

The condition of the asbestos-containing materials may indicate how easily fibres can cause contamination by being released into the area. An assessment of the condition considers the quality of the installation, adhesion of the material to the underlying substrate, deterioration and/or damage.

Water Damage

Water can dislodge, delaminate and disturb friable asbestos-containing materials that are otherwise in good condition. Water can carry fibres as slurry to other areas where evaporation leaves a collection of fibres that can be released into the air.

Exposed Surface Area

The exposed surface area of friable material affects potential fibre fallout levels and the possibility for contact and damage. Friable asbestos-containing material is considered exposed when it is visible.

Maintenance personnel frequently access the space above suspended ceilings to service or maintain electrical or communications equipment, or adjust the ventilation system. In most cases, this space is considered an exposed surface. Areas with louvers, grids or other open ceiling systems should be considered exposed.

Accessibility

Accessibility is one of the most important indicators of exposure potential. If the asbestos-containing material can be reached, it is accessible and subject to accidental or intentional contact and damage. Friable material is considered accessible if it is close to heating, ventilation, lighting and plumbing systems requiring maintenance or repair.

In schools, the behaviour of the student population should be considered in evaluating accessibility. Damage is the most obvious factor. For example, students involved in sport activities may accidentally damage material on the walls and ceiling of a gymnasium.

Activity and Movement

This factor combines the effects of general causes that may result in contact with, or damage to, friable material. These causes include air movement, maintenance activities, vibration (from machinery or other sources) and activity levels of students or building workers. This factor is also an indication of the potential for future exposure.

Friability

The material in question must be touched to evaluate its friability. The easier it is to crumble, the more friable the material and the greater the potential for asbestos fibre release and contamination. Sprayed asbestos material is generally more friable than most trowelled materials or mechanically installed insulation.

Asbestos Content

To calculate total asbestos content, the percentage content for each type of asbestos present in a given sample should be summed. The Occupational Health and Safety Regulation 278/05 stipulates that any materials consisting of greater than 0.5% total asbestos content is considered ACM and must be managed accordingly. While all asbestos-containing materials present an exposure potential, those with a high percentage of asbestos content can release more fibres and therefore, increase the risks of exposures.

3.2 Risk Assessment

Asbestos must be inhaled or ingested to cause disease. Intact and undisturbed asbestos presents no direct health hazard; however, exposure to asbestos fibres does present a potential hazard should fibres be released and inhaled/ingested into the body. As a result, there is some risk associated with and/or in the vicinity of asbestos containing materials.

The health risk is considered minimal for asbestos materials in good condition in an inaccessible location and protected from damage. Where damage can be controlled or prevented, managing the exposure risk is often the most cost-effective control measure.

Where damage or disturbance cannot be controlled or where deterioration is due to uncontrolled natural causes, management of the exposure risk is very difficult.

The use of air monitoring of occupied areas is not considered an acceptable method to determine whether or not ACMs must be removed, enclosed, encapsulated or may be left as is (with a management system). Air monitoring alone is insufficient to determine the potential health and exposure risk since asbestos fibres cannot usually be detected above background levels unless the material is disturbed in some way. Additional criteria are needed to determine the risk of exposure or the need for removal. MRW uses table 1 below, in order to assess risk associated with potential exposures to asbestos fibres.

Table 1

Factor	Description	Rating of Risk Exposure
Accessibility of material	• Accessible in high activity areas. • Accessible in low activity areas or beyond the reach of area occupants • Enclosed	High (H) Medium (M) Low (L)
Condition of material	• Severely damaged • Mild to moderate damage • Good condition	High (H) Medium (M) Low (L)
Friability of material	• Easily breaks apart • Mild to moderate friability • Non-friable	High (H) Medium (M) Low (L)

Table 2

	Less than 20% Asbestos Content in Material	Greater than 20% Asbestos Content in Material
Immediate Control Measures Required	3Hs	2H or 3Ms or H1 and 2Ms
Control Measures Required	2H or 3Ms	2M or 2Ls or 1H and 1M
No Control Required	2M or >2Ls	1M or 3Ls

Immediate control and abatement required if Asbestos is Present in a Return Air Plenum, unless 3Ls and less than 20% asbestos content in material.

Refer to Appendix B for the Response Protocols for the Accidental Release of Asbestos Fibres.

3.3 Management of Exposure Risks

Elimination

The preferred method to control asbestos exposure is to eliminate the hazard. The ultimate goal of the asbestos management program is the elimination of asbestos-containing materials.

Prohibition on Use

In accordance with Section 4 of O. Reg. 278/05, no person shall apply, or install, or cause to be applied or installed, by spraying on a thermal insulation material containing 0.1 per cent or more asbestos by dry weight that can become friable. However, we strongly recommend that all and/or any new and/or existing building materials consisting of asbestos fibres be prohibited from use and/or re-use.

Purchasing Standards

We strongly recommend against the purchase of asbestos containing materials of any type since alternative products that are asbestos-free are commercially available.

Planning Standards (Renovation/Demolition)

It is our opinion that the most effective control strategy to limit exposure to asbestos fibres is to remove and eliminate asbestos-containing material whenever possible.

Renovations/Alterations

If an area within a building is being altered or renovated, any asbestos-containing material that has the potential for releasing asbestos fibres in that area must be removed or controlled appropriately before the renovation/alteration begins.

Additionally, where asbestos-containing building components are removed, equivalent replacements such as fire barriers may need to be provided. Impact on exits during the abatement project need to be addressed, e.g. a second floor exit may be blocked off while abatement occurs on the floor below. While conducting renovations/alterations, operation of existing fire suppression systems may be compromised, and impacts on building ventilation system, electrical systems and emergency lighting or alarm systems may exist.

Demolition

In buildings or parts of buildings that are being demolished, materials having the potential for releasing asbestos fibres must first be removed. In addition, we recommend that a fire safety plan be developed for the site, a schedule for the asbestos removal project be provided and considerations for potential cross-contamination issues be addressed.

Removal

In order to limit liabilities, we recommend that asbestos containing materials are completely removed and properly disposed of. Removal is mandatory prior to demolition or major renovations on a building with asbestos containing materials.

Management Program

The area is inspected periodically for changes in exposure potential and maintenance workers or specialized contractors are correctly notified and trained to deal with the asbestos-containing materials. This Asbestos Management Program is intended to deal with asbestos-containing materials that do not pose an immediate risk or for materials remaining after remedial actions have reduced the potential for exposure.

Should asbestos containing materials be removed altered, repaired and/or encapsulated, the work shall be recorded on the 'Asbestos Containing Material Work Form', which has been included in Appendix H. In addition, inspections of asbestos containing materials shall be recorded on the 'ACM Inspection Checklist, located in Appendix C.

3.4 Inspection Frequency & Procedures

The purpose of inspections is to perform a systematic assessment of the condition of asbestos containing materials. Refer to Appendix C for the Asbestos Containing Material Condition Inspection Checklist. We recommend that inspections be conducted on a pre-determined schedule based on the inventory of asbestos containing materials and their condition. Although Section 7, subsection 4 of O. Reg. 278/05 stipulates that a record of inspections must be updated once every 12 months, or whenever the owner becomes aware of new information relating to the matters the record deals with, we recommend that inspection be carried out in accordance with the following table.

Table 3: Determining the Inspection Frequency

Condition of ACM	Inspection Frequency
Good/Marginal Condition	Yearly
Poor Condition	Every 3 Months
Critical Condition	Monthly

Any change in the condition of asbestos containing materials must be reported and documented in an inventory. The inspection may also result in an immediate need to remediate the asbestos containing material based on a hazard assessment. Results from all inspections must be clearly documented.

4.0 Personal Protective Equipment (PPE)

Every worker in an area in which asbestos-containing material has been disturbed, must wear appropriate personal protective equipment. Workers must use:

- Appropriate respiratory protective equipment during all construction work and most maintenance work around friable asbestos where fibre levels are not controlled;
- Protective clothing to reduce the risk of contaminating street clothing, skin and hair; and
- Other protective equipment such as eye protection, hard hats, hearing protection and steel toe footwear as site conditions or regulations require.

The supervisor must ensure that personal protective equipment provided to workers will not cause medical problems (e.g. latex allergies, respirators and breathing difficulties).

4.1 Respiratory Protection

Respiratory protective equipment works properly only when selected, used, maintained and cared for in the proper manner. Only approved respirators may be used. Please refer to Ontario Regulation 278/05, Table 2 'Respirators', for additional information.

Single-use disposable respirators are **not approved** for use in asbestos-related work.

4.2 Protective Clothing

Protective clothing for asbestos abatement work usually consists of disposable, impermeable coveralls, foot coverings, gloves and head coverings. Protective clothing reduces contamination of the worker's body and hair and makes decontamination when leaving the work area much easier.

Protective clothing with an attached hood and foot coverings provides the most complete protection. Alternatively, laceless rubber boots can be worn as long as they are properly decontaminated prior to removal from the work site. Disposable types of protective clothing are made of products such as Tyvek™. Permeable outer clothing is not recommended for asbestos abatement work as fibres can penetrate the clothing, contaminating clothing worn beneath it and contaminating the skin.

Protective clothing **does not include** street clothes, shoes, T-shirts, socks, blue jeans, sweat bands, etc. If these items are used inside the work area, they should remain there and be disposed of as asbestos waste at the end of the job.

Protective clothing may also be required to protect workers from physical hazards. If the asbestos-containing materials being removed contain wire mesh, lath or other sharp objects, heavy gloves should be worn to protect workers' hands. Appropriate footwear must also be worn to provide protection from sharp or heavy objects and wet or slippery conditions.

4.3 Other PPE

Other safety equipment such as head, eye and hearing protection should be worn if hazardous conditions requiring their use are encountered.

5.0 Training

5.1 Asbestos Awareness

Asbestos awareness information should be provided to all individuals who work in areas or buildings which may contain asbestos containing materials. Asbestos awareness is designed to inform individuals who do not work directly with asbestos containing materials of the potential hazards of asbestos.

5.2 Safe Work Instruction Training for Workers

We recommend that instruction be provided for workers who may come into contact or disturb asbestos containing materials in their normal job activities (i.e. Janitorial/Maintenance staff). The training will incorporate asbestos health risks, safe work instructions, personal protective equipment (including respiratory protection) and the Asbestos Management Program.

As of November 1, 2007, O. Reg. 278/05 requires that all workers involved in a Type 3 operation for the abatement of asbestos containing materials must provide proof that he/she has successfully completed the Asbestos Abatement Worker Training Program, approved by the Ontario Ministry of Training, Colleges and Universities.

6.0 Asbestos Containing Building Materials Survey

6.1 Summary of Findings

On June 30, 2008, MRW conducted a survey for building materials that had the potential of containing asbestos fibres, and collected twenty-eight (28) bulk samples of suspect asbestos containing materials (ACMs) from the structure. Refer to Appendix D for the Potential ACM Summary Table.

Review of the laboratory analytical report revealed that a total of two (2) samples collected by MRW were identified as containing greater than 0.5% asbestos fibres. Refer to Appendix E for the Master Summary Sheet for Asbestos and Appendix F for a copy of EMSL Analytical reports.

Following the survey conducted by MRW, analyses for drywall joint compound materials revealed that the materials contained 1% Chrysotile asbestos fibres. In addition, analysis conducted on a sample of pipe joint insulation material, revealed that the materials contained 20% Chrysotile asbestos fibres. Cloth-like pipe insulation materials did not contain asbestos fibres. Refer to Appendix E for the Master Summary Sheet for Asbestos, which also identifies locations of ACM. Refer to Appendix G for drawing 7738-Holy Angels School.

Materials that are greater than 0.5% asbestos by dry weight, are considered to be ACM. The scope of this assignment was to identify both friable and non-friable suspect ACM, in accordance with the Occupational Health and Safety Regulation 278/05, *"Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations"* (O. Reg. 278/05).

Caulking and Roofing Bitumens

Caulking and roofing materials were not sampled nor included as part of this assessment since in order to collect adequate samples, caulked seals and/or roofing membranes would be compromised, potentially adversely impacting the building infrastructure. All caulking and roofing materials have historically been known to contain asbestos fibres and therefore, should be considered as ACM unless analyses confirms otherwise.

7.0 Conclusions and Recommendations

Based upon findings described in this report, the following non-friable asbestos containing materials were identified to exist, within the structure known as the Holy Angels School located in the City of Sault Ste. Marie, Province of Ontario:

Material Description	***RISK ASSESSMENT SUMMARY***	***Type of Asbestos***	***Percentage Asbestos***	***Control Measure***	***Recommended Inspection Frequency***
Pipe joint insulation	1M 2L	Chrysotile	20%	None	Yearly

In addition, the following non-friable asbestos containing materials were identified to exist, within the structure known as the Holy Angels School:

Material Description	***RISK ASSESSMENT SUMMARY***	***Type of Asbestos***	***Percentage Asbestos***	***Control Measure***	***Recommended Inspection Frequency***
Drywall joint compound	3L	Chrysotile	1%	None	Yearly

Therefore, it is the opinion of MRW that the above noted building materials must be managed or removed from the building, in accordance with O. Reg. 278.05. Based on the findings of this report and the requirements of O. Reg. 278/05, we recommend the following:

- Should any renovations and/or alterations of piping components or surfaces consisting of drywall sheeting materials take place, ensure that all precautions are adequately implemented and followed in accordance with O. Reg. 278/05.

- It was MRW's mandate to conduct non-intrusive surveys only for the identification and management of ACMs; therefore, there is a potential for unidentified ACMs to exist within wall and ceiling cavities that were inaccessible at the time of our survey. Should any inaccessible areas become exposed during future renovations, alterations or demolition, all questionable materials must be treated as ACMs until analyses confirms otherwise.

- Prior to conducting any renovations and/or alterations to building components consisting of caulking materials, or restoration and/or replacement of roofing materials, we recommend that samples be collected in accordance with the requirements of O. Reg. 278/05, in order to determine whether such materials are ACMs.

Based on confirmed ACMs identified within the structure, an Asbestos Management Program (AMP) must be implemented in order to comply with Sections 7 and 8 of O. Reg. 278/05. We recommend that the Joint Health and Safety committee select an 'Asbestos Co-ordinator' to conduct periodic inspections to document the condition of ACMs identified from our survey, and maintain the Asbestos Management Program. In addition, should asbestos containing materials be removed altered, repaired and/or encapsulated, the work should be documented in an 'Asbestos Containing Material Work Form', which has been included in Appendix H.

8.0 Limitation of Liability

The services performed and outlined in this report were based, in part, upon visual observations of accessible areas of the structure(s). Our opinion cannot be extended to portions of the structure(s) that were unavailable for direct observations, reasonably beyond the control of M. R. Wright and Associates Co. Ltd. The possibility remains that unexpected environmental conditions may be encountered at the property and/or structure(s) in locations not specifically investigated. Parties interpreting this report may wish to carry out more extensive investigations.

The total amount of all claims the Client may have against M.R. Wright and Associates Co. Ltd. (MRW) or any present or former partners, executive officers, directors, stockholders or employees thereof under this engagement, including but not limited to claims for negligence, negligent misrepresentation and breach of contract, shall be strictly limited to the amount of MRW's professional fees for this assignment. No claim may be brought against M.R. Wright and Associates Co. Ltd. in contract or in tort more than two (2) years after the Services were completed or terminated under this agreement.

This Asbestos Containing Materials Survey and Management Program was conducted in accordance with generally accepted engineering practices; however, no warranty is provided or implied.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties.

9.0 Qualifications of Environmental Consultants

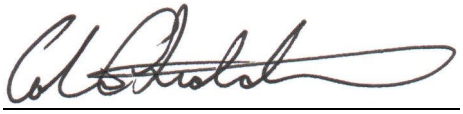
M. R. Wright and Associates Co. Ltd.'s offices are located in Sault Ste. Marie, Ontario. The consulting firm was established in 1961, primarily in the field of Civil, Structural and Geotechnical Engineering. Mechanical and Electrical Engineering disciplines were added in 1973 and, while maintaining all of the above professional services, the Firm included Environmental Engineering Services in 1992.

Over the last sixteen (16) years, M. R. Wright and Associates Co. Ltd. (MRW) has completed numerous of Phase I and II Environmental Site Assessments in accordance with CSA Standard Z768-94 Phase I Environmental Site Assessments, Canada Mortgage and Housing Corporation (CMHC), Ontario Housing, Canadian Environmental Auditing Association (CEAA) and American Society of Testing Materials (ASTM) standards, the Ontario Ministry of the Environment and Energy and the Consulting Engineers of Ontario guidelines. A broad range of project experience has been developed covering all aspects of Phase I and II site assessments including numerous remediation projects, risk assessment and monitoring studies. Additionally, over the last eight (8) years, M.R. Wright and Associates Co. Ltd. has completed numerous mould and hazardous building material (HazMat) investigations and Waste Audits and Waste Reduction Work Plans (WRWP).

MRW's client base includes the Business Development Bank of Canada (Sault Ste. Marie Branch), the Department of National Defence, Provincial Ministries, Architects, Commercial Institutions, Industrial Firms, Banking Institutions, School Boards, Insurance Companies and Private Developers.

We trust the above is satisfactory for your requirements at this time. Please advise us if you have any questions or comments with respect to any of the above.

Respectfully submitted,



CL:ccl

Colin Liddiard, C.E.T.

Appendix A Letter to Faculty and Students Regarding Asbestos Information

Appendix B Response Protocol For The Accidental Release of Asbestos Fibres

Appendix C Asbestos Containing Material Condition Inspection Checklist (4 copies)

Appendix D Potential ACM Summary Table

Appendix E Master Summary Sheet for Asbestos

Appendix F Copy of EMSL Analytical Reports

Appendix G Drawing 7738-Holy Angels

Appendix H Asbestos Containing Materials Work Form

EMSL Analytical, Inc
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Attn: **Colin Liddiard**
M.R. Wright & Associates Company, Ltd.
390 Bay Street
5th Floor
Sault Ste. Marie, ON P6A 1X2

Fax: (705) 949-3026 Phone: (705) 945-5090
Project: **7758-76**

Customer ID: MRWA78
Customer PO: 7758.76
Received: 07/07/08 9:00 AM
EMSL Order: 090804978

EMSL Proj:
Analysis Date: 7/13/2008
Report Date: 7/14/2008

Asbestos Analysis of Bulk Material via EPA 600/R-93/116. Quantitation using 400 Point Count Procedure.

			Non-Asbestos		Asbestos
Sample	**Location**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
HA-1A-B, Mastic *090804978-0001A*	Staff w/r	Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**<0.25% Chrysotile**
HA-1B-B, Mastic *090804978-0002A*	Staff w/r	Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**<0.25% Chrysotile**
HA-1C, 8x8 Vinyl floor, tile *090804978-0003*	Staff w/r	Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**<0.25% Chrysotile**

Analyst(s)

Nathee Dummai (3)

Baojia Ke, Laboratory Manager
or other approved signatory

Samples received in good condition unless otherwise noted.
NVLAP Lab Code 101048-3

PLMPointCount-1

THIS IS THE LAST PAGE OF THE REPORT.

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Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos			Asbestos
Sample	**Location**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
HA-1A-A, 8x8 Vinyl floor *090804978-0001*	Staff w/r	Brown Non-Fibrous Homogeneous			100% Non-fibrous (other)	**<1% Chrysotile**
HA-1A-B, Mastic *090804978-0001A*	Staff w/r	Brown Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
HA-1B-A, 8x8 Vinyl floor *090804978-0002*	Staff w/r	Brown Non-Fibrous Homogeneous			100% Non-fibrous (other)	**<1% Chrysotile**
HA-1B-B, Mastic *090804978-0002A*	Staff w/r	Brown Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
HA-1C, 8x8 Vinyl floor, tile *090804978-0003*	Staff w/r	Brown Non-Fibrous Homogeneous			100% Non-fibrous (other)	**<1% Chrysotile**
HA-2A, 12x12 Spotted fibreboard *090804978-0004*	Classroom 12	Brown Fibrous Homogeneous	95%	Cellulose	5% Non-fibrous (other)	**None Detected**
HA-2B, 12x12 Spotted fibreboard *090804978-0005*	Classroom 12	Brown Fibrous Homogeneous	95%	Cellulose	5% Non-fibrous (other)	**None Detected**

Analyst(s)

Nathee Dummai (27)

Baojia Ke, Laboratory Manager
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client.Samples received in good condition unless otherwise noted.

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Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos			Asbestos
Sample	**Location**	**Appearance**	**%**	**Fibrous**	**% Non-Fibrous**	**% Type**
HA-2C, 12x12 Spotted fibreboard *090804978-0006*	Classroom 12	Brown Fibrous Homogeneous	95%	Cellulose	5% Non-fibrous (other)	**None Detected**
HA-3A, Drywall, joint compound *090804978-0007*	Supply rm	Tan Non-Fibrous Homogeneous			99% Non-fibrous (other)	**1% Chrysotile**
HA-3B, Drywall, joint compound *090804978-0008*	Supply rm					**Stop Positive (Not Analyzed)**
HA-3C, Drywall, joint compound *090804978-0009*	Supply rm					**Stop Positive (Not Analyzed)**
HA-3D, Drywall, joint compound *090804978-0010*	Supply rm					**Stop Positive (Not Analyzed)**
HA-3E, Drywall, joint compound *090804978-0011*	Supply rm					**Stop Positive (Not Analyzed)**

Analyst(s)

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Baojia Ke, Laboratory Manager
or other approved signatory

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Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos				Asbestos
Sample	**Location**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**% Type**
HA-3F, Drywall, joint compound *090804978-0012*	Supply rm						**Stop Positive (Not Analyzed)**
HA-3G, Drywall, joint compound *090804978-0013*	Supply rm						**Stop Positive (Not Analyzed)**
HA-4A, 24x48 Susp *090804978-0014*	2nd Floor hallway	Brown Fibrous Homogeneous	30% 40%	Cellulose Min. Wool	30%	Non-fibrous (other)	**None Detected**
HA-4B, 24x48 Susp *090804978-0015*	2nd Floor hallway	Brown Fibrous Homogeneous	30% 40%	Cellulose Min. Wool	30%	Non-fibrous (other)	**None Detected**
HA-4C, 24x48 Susp *090804978-0016*	2nd Floor hallway	Brown Fibrous Homogeneous	40% 40%	Cellulose Min. Wool	20%	Non-fibrous (other)	**None Detected**
HA-5A-A, Sheet vinyl Flooring *090804978-0017*	Janitors rm	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
HA-5A-B, Backing paper *090804978-0017A*	Janitors rm	Brown Fibrous Homogeneous	60% 5%	Cellulose Synthetic	35%	Non-fibrous (other)	**None Detected**

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Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos			Asbestos
Sample	**Location**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
HA-5A-C, Mastic *090804978-0017B*	Janitors rm	Gold Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
HA-5B-A, Sheet vinyl Flooring *090804978-0018*	Janitors rm	White Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
HA-5B-B, Backing paper *090804978-0018A*	Janitors rm	Brown Fibrous Homogeneous	60% 5%	Cellulose Synthetic	35% Non-fibrous (other)	**None Detected**
HA-5C-A, Sheet vinyl Flooring *090804978-0019*	Janitors rm	White Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
HA-5C-B, Backing paper *090804978-0019A*	Janitors rm	Brown Fibrous Homogeneous	60% 5%	Cellulose Synthetic	35% Non-fibrous (other)	**None Detected**
HA-5C-C, Mastic *090804978-0019B*	Janitors rm	Gold Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
HA-6A, Cloth wrap pipe insulation *090804978-0020*	Care takers rm	Yellow Fibrous Heterogeneous	40% 60%	Cellulose Glass		**None Detected**

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			Non-Asbestos			Asbestos
Sample	**Location**	**Appearance**	**%**	**Fibrous**	**% Non-Fibrous**	**% Type**
HA-6B, Cloth wrap pipe insulation *090804978-0021*	Care takers rm	Yellow Fibrous Heterogeneous	30% 70%	Cellulose Glass		**None Detected**
HA-6C, Cloth wrap pipe insulation *090804978-0022*	Care takers rm	Yellow Fibrous Heterogeneous	30% 70%	Cellulose Glass		**None Detected**
HA-7A, Elbow pipe insulation *090804978-0023*	Care takers rm	Gray Fibrous Homogeneous			80% Non-fibrous (other)	**20% Chrysotile**
HA-7B, Elbow pipe insulation *090804978-0024*	Care takers rm					**Stop Positive (Not Analyzed)**
HA-7C, Elbow pipe insulation *090804978-0025*	Care takers rm					**Stop Positive (Not Analyzed)**
HA-8A, 12x12 Vinyl tile *090804978-0026*	Stage	Brown Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**

Analyst(s)

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Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Location**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
HA-8B, 12x12 Vinyl tile *090804978-0027*	Stage	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
HA-8C, 12x12 Vinyl tile *090804978-0028*	Stage	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**

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Potential Asbestos Containing Materials Summary

Holy Angels School

Sample ID	*Location*	*Material Description*	*ACM*	*Friable/Non Friable*	*Type of Asbestos*	*Percentage Asbestos*	*Estimated Quantity*	*Remarks*
HA-1A	Staff washroom	8x8" vinyl floor tile	No	-	-	-	-	
HA-1B	Staff washroom	8x8" vinyl floor tile	No	-	-	-	-	
HA-1C	Staff washroom	8x8" vinyl floor tile	No	-	-	-	-	
HA-2A	Classroom #12	12x12" white spotted fibreboard ceiling tile	No	-	-	-	-	
HA-2B	Classroom #12	12x12" white spotted fibreboard ceiling tile	No	-	-	-	-	
HA-2C	Classroom #12	12x12" white spotted fibreboard ceiling tile	No	-	-	-	-	
HA-3A	Supply room	Drywall joint compound	Yes	Non-friable	Chrysotile	1%	Unknown	Throughout structure
HA-3B	Supply room	Drywall joint compound	NT	-	-	-	-	Must be considered ACM due to previous results
HA-3C	Supply room	Drywall joint compound	NT	-	-	-	-	Must be considered ACM due to previous results
HA-3D	Supply room	Drywall joint compound	NT	-	-	-	-	Must be considered ACM due to previous

								results
HA-3E	Supply room	Drywall joint compound	NT	-	-	-	-	Must be considered ACM due to previous results
HA-3F	Supply room	Drywall joint compound	NT	-	-	-	-	Must be considered ACM due to previous results
HA-3G	Supply room	Drywall joint compound	NT	-	-	-	-	Must be considered ACM due to previous results
HA-4A	2nd floor hallway	24x48" spotted suspended ceiling tile	No	-	-	-	-	Throughout structure
HA-4B	2nd floor hallway	24x48" spotted suspended ceiling tile	No	-	-	-	-	
HA-4C	2nd floor hallway	24x48" spotted suspended ceiling tile	No	-	-	-	-	Must be considered ACM due to previous results
HA-5A	Janitor's room	Grey sheet vinyl flooring	No	-	-	-	-	Must be considered ACM due to previous results
HA-5B	Janitor's room	Grey sheet vinyl flooring	No	-	-	-	-	
HA-5C	Janitor's room	Grey sheet vinyl flooring	No	-	-	-	-	Must be considered ACM due to previous results
HA-6A	Caretaker's room	Cloth wrap pipe insulation	No	-	-	-	-	Must be considered ACM due to previous results
HA-6B	Caretaker's room	Cloth wrap pipe insulation	No	-	-	-	-	

HA-6C	Caretaker's room	Cloth wrap pipe insulation	No	-	-	-	-	
HA-7A	Caretaker's room	Pipe elbow insulation	Yes	Non-friable	Chrysotile	20%	TMTQ	Throughout structure
HA-7B	Caretaker's room	Pipe elbow insulation	NT	-	-	-	-	Must be considered ACM due to previous results
HA-7C	Caretaker's room	Pipe elbow insulation	NT	-	-	-	-	Must be considered ACM due to previous results
HA-8A	Stage	12x12" brown vinyl floor tile	No	-	-	-	-	
HA-8B	Stage	12x12" brown vinyl floor tile	No	-	-	-	-	
HA-8C	Stage	12x12" brown vinyl floor tile	No	-	-	-	-	

TMTQ = Too Many To Quantify
NT - NOT TESTED

MASTER SUMMARY SHEET FOR ASBESTOS

Sample ID	*Material Description*	*RISK ASSESSMENT*			*Type of Asbestos*	*Percentage Asbestos*	*Estimated Quantity*	*Location*
		Accessibility to material	*Condition of Material*	*Friability of Material*				
HA-3A	Drywall joint compound	L	L	L	Chrysotile	1%	Unknown.	Throughout institution
HA-7A	Pipe elbow insulation	L	L	M	Chrysotile	20%	TMTQ	Throughout institution

NOTE: - TMTQ = Too Many To Quantify
- Estimated quantity based on visible only.
- Risk Assessment - L = Low
M = Medium
H = High

PART 1 - GENERAL

1.1 SUMMARY

.1 This section covers the general requirements for Mechanical systems. Read all divisions of the building specifications.

.2 The mechanical work shall consist of the supply and installation of complete and operable systems and shall include all necessary labour, plant, materials and incidentals for the work involved.

.3 The mechanical work shall include all of Division, 21, 22 and 23 as noted on the drawings and specifications.

.4 Refer to the electrical and controls drawings and specifications and note exact scope of work required by each mechanical trade.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 61 00 - Common Product Requirements

.3 Section 01 78 00 - Closeout Submittals

.4 Section 01 45 00 - Quality Control

.5 Section 01 91 13 – General Commissioning Requirements

.6 Section 08 31 00 – Access Doors – Mechanical & Electrical

.7 Section 09 91 23 - Interior Painting

.8 Section 23 05 93 - Testing, Adjusting and Balancing for HVAC

.9 Section 26 60 10 – Powered Equipment Schedule

1.3 REFERENCES

.1 General:
- .1 All references, codes, regulation, by-laws, etc. as noted in the Specification for Divisions 21, 22 and 23 shall be the latest edition / revision, except where specific editions are specified.

1.4 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Shop drawings; submit drawings to the Consultant for all equipment as outlined in the specifications and on the Mechanical drawings.

.3 Shop drawings to show (as a minimum) (refer to equipment specification sections for details):
- .1 Make & Model Number.
- .2 Capacity.
- .3 Dimensions.
- .4 Installation arrangement.
- .5 Plan View and sections.
- .6 Weights.

.7 Operating characteristics.
.8 Operating Performance.
.9 Performance curves showing the operating point of the equipment.
.10 Piping hook-ups.
.11 Construction details.
.12 Energy Efficiency Ratings.
.13 Sound Data.
.14 Mounting arrangements.
.15 Operating and maintenance clearances.
.16 Installation instructions.
.17 Electrical data and characteristics.
.18 Motor duty.
.19 Motor brand and model no.
.20 Wiring Diagrams.
.21 All miscellaneous equipment and accessories to complete the system.
.22 Schematic Flow Diagrams.
.23 Approvals.

.4 Shop drawings and product data accompanied by:
.1 Detailed drawings of bases, supports, and anchor bolts.
.2 Acoustical sound power data, where applicable.
.3 Points of operation on performance curves.
.4 Manufacturer to certify current model production.
.5 Certification of compliance to applicable codes.

.5 In addition to transmittal letter referred to in Section 01 33 00 - Submittal Procedures use "Shop Drawing Submittal Stamping Sheet". Identify section and paragraph number. The General Contractor and all applicable subtrades shall provide their stamp and approval complete with signature and date prior to submission to Consultant for approval.

.6 The mechanical contractor shall ensure that equipment has been checked for conformance with all the requirements of the drawings and specifications and that the equipment has been coordinated with other equipment to which it is attached or connected, and that all dimensions have been verified to ensure the proper installation of equipment within the available space without interference with the work of other trades. All information on the shop drawings such as wiring diagrams, accessories and details must be specifically prepared for this project. Shop drawings containing information irrelevant to this project will be rejected for resubmission. Make sure that electrical, controls and structural co-ordination is complete before submitting drawings for approval.

.7 Closeout Submittals:
.1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
.2 Operation and maintenance manual approved by, and final copies deposited with, Consultant before final inspection.
.3 Operation data to include:
.1 Control schematics for systems including

environmental controls.
.2 Description of systems and their controls.
.3 Operation instruction for systems and component.
.4 Description of actions to be taken in event of equipment failure.
.5 Valves schedule and flow diagram.
.6 Colour coding chart.

.4 Maintenance data to include:
.1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.
.2 Data to include schedules of tasks, frequency, tools required and task time.

.5 Performance data to include:
.1 Equipment manufacturer's performance datasheets with point of operation as left after commissioning is complete.
.2 Equipment performance verification test results.
.3 Special performance data as specified.
.4 Testing, adjusting and balancing reports as specified in Section 23 05 93 - Testing, Adjusting and Balancing for HVAC.

.6 Approvals:
.1 Submit 2 copies of draft Operation and Maintenance Manual to Consultant for approval. Submission of individual data will not be accepted unless directed by Consultant.
.2 Make changes as required and re-submit as directed by Consultant.

.7 Additional data:
.1 Prepare and insert into operation and maintenance manual additional data when need for it becomes apparent during specified demonstrations and instructions.

.8 Site records:
.1 Consultant will provide 1 set of reproducible mechanical drawings. Mark changes as work progresses and as changes occur.
.2 Transfer information weekly to reproducibles, revising reproducibles to show work as actually installed.
.3 Use different colour waterproof ink for each service.
.4 Make available for reference purposes and inspection.

.9 As-built drawings:
.1 Prior to start of Testing, Adjusting and Balancing for HVAC, finalize production of as-built drawings.
.2 Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: - "AS BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (Date).
.3 Submit to Consultant for approval and make corrections as directed.
.4 Perform testing, adjusting and balancing for HVAC using as-built drawings.

.5 Submit completed reproducible as-built drawings with Operating and Maintenance Manuals.

.10 Submit copies of as-built drawings for inclusion in final TAB report.

1.5 QUALITY ASSURANCE

.1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.

1.6 MAINTENANCE

.1 Furnish spare parts in accordance with Section 01 78 00 - Closeout Submittals as follows:

.1 One set of packing for each pump.
.2 One casing joint gasket for each size pump.
.3 One head gasket set for each heat exchanger.
.4 One glass for each gauge glass.
.5 One filter cartridge or set of filter media for each filter or filter bank in addition to final operating set.

.2 Provide one set of special tools required to service equipment as recommended by manufacturers and in accordance with Section 01 78 00 - Closeout Submittals.

.3 Furnish one commercial quality grease gun, grease and adapters to suit different types of grease and grease fittings.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Material Delivery Schedule: coordinate delivery of material to suit proposed construction schedule.

.2 Construction/Demolition Waste Management and Disposal: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Building Loads

.1 Before loading any part of the structure, make sure that the construction is sufficiently complete and that concrete has attained sufficient strength to support such loads.

1.8 SYSTEM STARTUP

.1 Instruct Consultant and Owner’s Operating Personnel in operation, care and maintenance of systems, system equipment and components.

.2 Arrange and pay for services of manufacturer's factory service technician to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.

.3 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant will aspects of its care and operation.

1.9 OPERATING INSTRUCTIONS AND MAINTENANCE DATA

.1 Provide for each system and principal item of equipment as specified in technical sections for use by operation and maintenance personnel.

.2 Operating instructions to include the following:

.1 Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.
.2 Start up, proper adjustment, operating, lubrication, and shutdown procedures.
.3 Safety precautions.
.4 Procedures to be followed in event of equipment failure.
.5 Other items of instruction as recommended by manufacturer of each system or item of equipment.

.3 Names and addresses of nearest suppliers for all items included in maintenance manuals.

.4 Print operating instructions and frame under glass or in approved laminated plastic.

.5 Post instructions where directed.

.6 For operating instructions exposed to weather, provide weather-resistant materials or weatherproof enclosures.

.7 Ensure operating instructions will not fade when exposed to sunlight and are secured to prevent easy removal or peeling.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Provide material and equipment in accordance with Section 01 61 00 - Common Product Requirements

.2 This section covers the materials and methods of workmanship of items that are common to more than one section of division 21, 22, and 23.

.3 Verify installation and co-ordination responsibilities related to equipment and controls, as indicated.

.4 Refer to Section 26 60 00 – Powered Equipment Schedule for coordination and division of work between trades.

.5 Access doors in ducts: Refer to 08 31 00
.1 Manufactured from 2mm core thickness galvanized steel, c/w galvanized concealed hinges, positive locking screwdriver or cam lock, include neoprene sponge air seal all around.
.2 Standard of acceptance: Acudor, Nailor, Maxam

.6 Other access doors: Refer to 08 31 00
.1 Flush mounted 610mmx610mm for body entry and 305mmx305mm or hand entry unless otherwise noted. Doors shall open 180°, have rounded safety corners, concealed hinges, screwdriver latches and anchor straps. Steel shall be prime coated. Doors in fire rated assemblies shall be fire rated.
.2 Standard of acceptance: Acudor, Nailor, Maxam.

PART 3 – EXECUTION

3.1 EQUIPMENT REQUIREMENTS AND INSTALLATION

.1 Comply with Division 1 for coordination of the work with other trades.

.2 Carry out complete installation in such a manner that will permit equipment maintenance and disassembly by use of unions or flanges, will minimize disturbance to connecting piping and duct systems and will be free of interference with building structure or other equipment.

.3 Extend inaccessible lubricating connections and sight glasses to accessible locations outside of housings or other restricted access spaces.

.4 Install base mounted equipment on concrete housekeeping pads with chamfered edges. Make pads a minimum of 100mm high and 50mm larger than the equipment base dimensions all around.

.5 For all equipment with drain connections, provide and install drain piping from equipment to closest floor drain.

.6 Line-up equipment, floor plates and ceiling plates with building walls wherever possible.

.7 Assist the Electrical Trade to ensure proper connection, correct thermal overload selection, correct stop-start controls and interlocking.

.8 Rigidly comply with manufacturer's instructions and recommendations for the installation of equipment. Where required, arrange and pay for the manufacturers' field engineer to supervise the installation of the equipment.

3.2 HANGERS & SUPPORTS

.1 .1 Fabricate hangers, supports and sway braces in accordance with ANSI B31.1 and requirements of ULC C203.

.2 Set inserts in position in advance of concrete work.

.3 Support all equipment and piping from structural members. Where structural supports do not exist or inserts are not in suitable locations, suspend hangers from steel channels or angles. Provide supplementary structural members. Obtain approval before using expansion shields. Use minimum two shields for each hanger. **DO NOT SUSPEND FROM METAL DECK.** Anchoring of piping and equipment shall be to manufacturers recommendations. Provide special supports for equipment where required, fabricated from welded steel structural members. Provide shop drawings and obtain their approval when requested.

.4 Provide split adjustable steel ring hangers on piping NPS 50mm dia. and under and clevis type for NPS greater than 50mm dia. Use roller type hangers as required.

.5 Provide rigid hangers, swing hangers or pipe rollers complete with

bracing for hot water supply and return, domestic hot & cold water and hot water recirculation pipes in accordance with the following:

Hanger Type	Rigid	Swing	Pipe Roller
Pipe expansion to hanger rod length	<1/24	1/24-1/6	>1/6
Minimum rod length	305mm	305mm	305mm

.6 Provide pipe roller stand on supplementary structural members where hangers cannot be used.

.7 Provide spring hangers where required to offset expansion on horizontal runs which follow long vertical risers.

.8 Use the smallest pipe size to determine spacing between pipe rack supports.

.9 Use rod diameters and support spacing as shown in the following table except where specified otherwise:

Rod Diameter and Support Spacing Table

Pipe Size (Nominal)	Rod Diameter	Maximum Support Spacing Steel Pipe	Copper Pipe
15mm	8mm	-	1525mm
20mm – 25mm	9.5mm	1830mm	1830mm
32mm	9.5mm	1830mm	1830mm
40mm	9.5mm	2750mm	2440mm
50mm	9.5mm	3050mm	2750mm
65mm – 80mm	9.5mm	3660mm	3050mm

.10 Support plumbing piping in accordance with the more stringent requirements of authorities having jurisdiction, plumbing code, or as specified above.

.11 Place support within 300mm of each horizontal elbow and within 600mm of each side of valve or tee.

.12 Mild steel wall hooks may be used to support non-expanding piping. Allow 25mm minimum clearance for insulated pipe.

.13 Provide riser clamps for all risers unless detailed otherwise.

.14 Uninsulated copper piping, use copper hangers or 6mm lead crimped to hanger between copper and ferrous hanger.

.15 Provide insulation protection shields:

.1 Insulated cold piping (Fluid Operating Temperature Range <4 deg. C to 15 deg. C):

1. 64 kg/m³ density insulation plus insulation protection shield to: MSS SP 69, galvanized sheet carbon steel. Length designed for maximum 3 m span.

.2 Insulated hot piping Fluid Operating Temperature Range 20 deg. C to 175 deg. C):

1. Curved plate 300 mm long, with edges turned up, welded-in centre plate for pipe sizes NPS 12 and over, carbon steel to comply with MSS SP 69.

.16 Offset hanger pipe and structural attachments in such a manner that rod is vertical when piping is hot and equalize loads on all hangers where possible.

3.3 SLEEVES

.1 Provide pipe sleeves at all points where pipes pass through masonry or concrete. Sleeves shall be at least 20 gauge core thickness galvanized sheet steel with lock seam joints.

.2 Provide cast iron pipe sleeve with integral annular fin or steel pipe sleeves with annular fin continuously welded at midpoint where the sleeve passes through foundation walls or extends above finished floor.

.3 Size sleeves to provide 6mm clearance all around, between sleeve and pipes or between sleeve and insulation. As a minimum where piping passes below footings, provide a clearance of at least 50mm between sleeve and pipe. Backfill around pipe sleeve up to underside of footing with concrete of the same strength as the footing. Do not embed pipe in concrete.

.4 Terminate sleeves flush with vertical surface of concrete and masonry or 100mm above floors.

.5 For pipes passing through roofs, provide cast iron sleeves with caulking recess and flashing clamp device. Anchor sleeves in roof construction; caulk between sleeve recess and pipe; fasten roof flashing to clamp device; make water-tight durable joint.

.6 Fill voids around pipes as follows:
- .1 Caulk between sleeve and pipe in foundation walls and below grade floors.
- .2 Where sleeves pass through walls or floors, caulk space between insulation and sleeve or between pipe and sleeve with waterproof fire retardant non-hardening mastic.

.7 Ensure no contact between copper tube or pipe and ferrous sleeve.

.8 On any exterior wall penetrations, provide special modular mechanical closures, "Link-Seal" as manufactured by Thunderline Corporation, to provide a watertight seal between pipe and wall sleeve.

.9 Fill future-use sleeves with easily removable filler.

.10 Coat exposed exterior surfaces of ferrous sleeves with heavy application of zinc rich paint.

.11 Temporarily plug all pipe openings during construction.

3.4 FIRESTOPPING

.1 All firestopping and smoke sealing (except for fire dampers) required for mechanical service penetrations of rated walls, floors and

partitions shall be the responsibility of Division 7.

.2 Fire Compartments are indicated on Architectural Drawings

3.5 ESCUTCHEONS AND PLATES .1 Provide escutcheons on exposed pipes passing through finished walls, partitions, floors and ceilings and secure to pipe or finished surface but do not secure to insulation. Inside diameter shall fit around the finished pipe or insulation. Outside diameter shall cover the opening or sleeve.

3.6 ACCESS DOORS .1 Supply access doors for furred ceilings or spaces for servicing equipment and accessories or for inspection of safety, operating, or fire devices for installation by the appropriate trade.

3.7 DIELECTRIC COUPLINGS .1 Provide wherever pipes of dissimilar metals are joined.

.2 Provide insulating unions for pipe sizes 50mm and under; flanges for pipe sizes over 50mm.

.3 Provide felt or rubber gaskets to prevent contact of dissimilar metals.

3.8 PAINTING REPAIRS AND RESTORATION .1 Painting of equipment and material installed under Division 21, 22 and 23 is not part of the mechanical work except as noted.

.2 Do painting in accordance with Section 09 91 23 - Interior Painting.

.3 Prime and touch up marred finished paintwork to match original.

.4 Restore to new condition, finishes which have been damaged.

.5 Clean all uncoated metal surfaces such as piping, fittings, valves, and equipment and leave ready for painting.

.6 Prime uncoated metal surfaces in areas exposed to view that will be inaccessible to painter after installation.

.7 Assist painter to determine proper colour coding.

3.9 ANCHORAGE OF EQUIPMENT .1 Anchor all machinery and equipment. Install lift rings for all major items of equipment, if required.

.2 Construct equipment supports of structural steel or steel pipe, securely braced. Use only welded construction. Bolt mounting plates to structure.

.3 Anchoring by explosive charge inserts is not acceptable unless approved by the Consultant

3.10 CANNING OR SLEEVING OF OPENINGS & HANGER INSERTS .1 Provide all cans or forms required for openings in poured-in-place concrete to suit pipes or ducts etc. Locate each in place, well in advance of concrete pouring.

.2 Where cutting of the building framing or envelope is required to suit the work of this division, mark out the exact dimensions and position

of such work and obtain the approval of the Consultant before carrying out cutting.

.3 Supply all sleeves and hanger inserts required for the work of this division.

3.11 PIPING EXPANSION LOOPS .1 Provide expansion loops or joints where required.

.2 Securely anchor pipes to the building structure where necessary to provide proper expansion. Install pipe guides on each side of each expansion loop or joint.

.3 Refer to section 23 05 16 Expansion Fitting and Loops for HVAC equipment.

3.12 SETTING AND ALIGNMENT .1 Employ a journeyman millwright to align all V belt drives and shaft coupling drives prior to start up.

.2 Submit a certificate from the millwright certifying that the above work has been carried out.

3.13 EQUIPMENT LUBRICATION .1 Lubricate all equipment which has provision for lubrication, with the exception of factory sealed bearings which shall be checked for alignment and smooth operation.

.2 Use the lubricant recommended by the manufacturer for the service for which the equipment is specified.

.3 Maintain and adequately lubricate equipment furnished and operated before completion of the Contract until the completed work is handed over to, and accepted by, the Owner. Provide a cardboard tag, wired in place on the equipment showing the date of motor start-up, the last date of lubrication, and the lubricant used.

3.14 CLEANING .1 Clean interior and exterior of all systems including strainers. Vacuum interior of ductwork and air handling units.

3.15 FIELD QUALITY CONTROL .1 Testing Piping Systems:

- .1 Conduct tests in accordance with Section 01 45 00 - Quality Control and submit report as described in PART 1 - SUBMITTALS.
- .2 Conduct tests and pay for all associated work including making good and re-testing when required.
- .3 Contractor to prepare a testing quality control plan for review by the consultant 1 month prior to starting any system testing. The testing plan shall include all testing procedures, testing fluids, duration, testing pressures, sample forms for recording results, and a proposed schedule of testing activities.
- .4 Notify Consultant 1 week prior to starting any site testing and provide confirmation 24 hours in advance of date when tests will be conducted.
- .5 Conduct all testing as required by applicable codes, regulations, governing bodies, and as noted in the table below:

Piping System Testing Requirements

Piping System	**Requirements**	**Reference**
Potable Water	Air testing and water testing in accordance with the requirements of the OBC	OBC 7.3.7
Drainage and Venting	Provide Air and Water and Ball and Final testing in accordance with the requirements of OBC	OBC 7.3.6
Hydronic	Air testing @ 50 PSI for 48 hrs Water testing @100 PSI for 1 hr	CSA B214
Refrigeration	See Section 23 23 00 - Refrigerant Piping	CSA B52
Natural Gas	Varies based on pipe and pressure – test in accordance with CSA B149.1	CSA B149.1
Compressed Air	Air test @ 150 PSI for 2 hrs	CSA B51

.6 Where both air and water testing are noted in the table above the air testing shall be completed and passed prior to proceeding with the water testing.

.7 Make sure all work has been tested and approved prior to insulating or concealing. Leave all work uncovered until completion of testing. However, should the construction schedule require that work be covered, carry out tests in sections as required prior to system covering.

.8 Carry out tests in the presence of the Consultant and the Authority having jurisdiction.

.9 Forward written test results to the Consultant. For progressive testing of systems ensure that a key plan is provided clearly noting how the test results correspond to the sections of the system tested.

.2 Testing HVAC Systems:

.1 Refer to Section 23 05 93 Testing, Adjusting and Balancing for HVAC Systems.

.3 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.

.2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

.4 Field Testing:

.5 If the field tests indicate that equipment supplied to the project does not meet specifications, laboratory certification of the potentially deficient equipment may be requested by the Owner. In the event that equipment does not meet specifications, the Contractor shall be responsible for the costs of the above laboratory tests, and all subsequent testing and correction required.

3.16 SYSTEMS COMMISSIONING .1 Refer to Section 01 91 13 General Commissioning (CX) requirements.

.2 Refer to Section 01 91 31 Commissioning (CX) Plan.

.3 Refer to Section 01 91 41 Commissioning: Training.

.4 In addition to the commissioning requirement of the sections above provide:

.1 Commission all Mechanical systems (Plumbing, HVAC and Controls) and components to achieve:

.1 Systems which are in full, demonstrated, and documented working order, and

.2 The familiarization and instruction of Owner's operating staff to ensure they are capable of operating systems properly and maintaining ongoing systems performance.

.2 Give the following points particular emphasis:

.1 Provide clear, concise, yet comprehensive control sequence descriptions for all systems and components. These are important as they will form the basis for the systems performance test checklists.

.2 Provide system performance testing of all systems and components. Cover all modes of operation (e.g. summer/winter; occupied / unoccupied) and all specified control sequences, both for normal operations and abnormal conditions.

.3 If outside temperature, lack of full occupancy, or other factors prevent full performance testing of some functions, then testing, verifying, and documenting the performance of these functions may be carried out at an appropriate time during the 12 months after Substantial Performance.

.5 Mechanical Contractor to assign a Mechanical Commissioning Coordinator to:

.1 Assign direct overall charge of commissioning to the mechanical commissioning coordinator. Use a Commissioning Coordinator who is fully qualified through practical experience, has a comprehensive knowledge of the interactive nature of building systems and their controls, understands the complete system, and who is available to carry the project through total completion. This person, a Principal or an employee of the Mechanical Contractor or hired from an outside source, shall be responsible for Commissioning, Demonstration to the Owner, and Certifications of Substantial and Total Performance. This person shall not be the Mechanical Contractor's

superintendent.

.6 Schedule, Commissioning Plan

.1 Contribute to the construction team's efforts to prepare and submit a schedule within two months after award of contract (integrated with general construction schedule) for the commissioning phase of the work. Show:

.1 completion dates for each trade in each major section of the building.

.2 timing of the various phases of the commissioning, testing, balancing, and demonstration process.

.3 submission dates for the various documents required prior to verification of commissioning.

.2 The Mechanical Contractor shall contribute to the preparation of the commissioning Plan. It is a description of how the commissioning process will be organized, scheduled, and documented. Indicate:

.1 The composition of the Mechanical Contractor's group representation to the Commissioning Team.

.2 A list of activities and proposed checklists required to commission the system and its subsystems.

.3 A schedule for each activity linked to the master project schedule to make possible the coordination necessary between trades and trade divisions.

.3 The Mechanical Commissioning Coordinator shall review design intent and intended commissioning procedures with the commissioning team and submit a detailed plan identifying the orderly progression of the prestart commissioning check and subsequent commissioning performance check of each sub-system, leading to the ultimate commissioning of entire systems. This review shall be completed 6 months prior to substantial performance.

.7 Field Testing

.1 If the field tests indicate that equipment supplied to the project does not meet specifications, laboratory certification of the potentially deficient equipment may be requested by the Owner. If equipment does not meet specifications, the Contractor shall be responsible for the costs of the above laboratory tests, and all subsequent testing and correction required.

.8 System Completion

.1 Have the Mechanical Commissioning Coordinator provide written certification that each system is ready for start-up and that the following work is fully completed and checked.

.1 All systems physically installed.

.2 Permanent electrical connections

.3 Controls

.4 Vibration Isolation adjusted

.5 Filter systems

.6 Fan drives

.7 Duct Leakage Testing

.8 Duct cleaning

.9 Rotational checks

.10 Equipment lubrication
.11 Equipment Prestart Checks
.12 Chemical Cleaning
.13 Chemical Treatment
.14 All safety controls operational and tested
.15 Qualified personnel operating systems
.16 Manufacturers equipment start-up and commissioning reports by equipment supplier.
.17 All deficiencies recorded, reviewed by the commissioning team, and subsequently corrected.

.9 System Activation
.1 System Activation is the stage at which the System Completion has been completed and the services (i.e. electrical power, hot water, chilled water, natural gas) have been connected and started. Perform an activation inspection so that the system is operational and ready for testing and balancing.

.10 Testing, Balancing, and Adjusting
.1 Include the following:
.1 activation of all subsystems
.2 testing and adjustment of all subsystems
.3 major or composite system activation
.4 major or subsystem testing and adjustment
.2 As in the case of the System Completion Phase, record all deficiencies, review by the Commissioning team and, subsequently, correct. Repeat the process at the point of the deficiency before proceeding forward.
.3 This phase is concluded when the installation is in full working order and acceptable for use. Include the following:
.1 position all balance dampers in ductwork
.2 position all balance valves in piping systems
.3 make provisions for testing air pressures and flow rates
.4 set up air diffusers, registers, and grilles
.5 set up all automatic control valves/dampers and automatic temperature control devices
.6 set up fans and pumps
.7 plug all air pressure and flow measuring holes
.8 adjust vibration isolators as necessary
.9 correct problems revealed by Balancing Agency. Change fan speed and pitch as necessary
.10 a detailed check by a person having direct overall charge of commissioning This check must include all items and functions to be later demonstrated to the Owner's representatives.
.11 systems operation in the fire mode in the presence of the authorities having jurisdiction. Obtain a written statement/certificate of approval.

.11 System Performance Verification
.1 Do not commence Verification of Commissioning by the commissioning team until System Activation and Testing, Balancing, and Adjusting has been completed. Submit test

procedure completion certificates at the time of requesting the commencement of the verification procedure.
Demonstrate to the commissioning team the following:
- .1 Operation of all mechanical equipment
- .2 Location of and opening and closing of all access panels
- .3 Operation of all automatic control dampers and automatic temperature control devices
- .4 Proper response of all variable air volume terminals, reheat coils, valves, etc…
- .5 Fire damper operation
- .6 Noise levels
- .7 Exhaust systems

.2 At the completion of the system performance verification submit the following to the commissioning team:
- .1 A letter certifying that all work specified under this contract is complete, clean, and operational in accordance with the specification and drawings
- .2 A copy of verification certificates and signed checklists provided by the specialist trades for transmission to the Owner
- .3 Record drawings
- .4 A letter from the testing and balancing agency certifying that all necessary data for inclusion in operating and maintenance manuals has been received

.12 Commissioning and Documentation
- .1 Provide and coordinate commissioning documentation as described in Division 1.

3.17 DEMONSTRATION

.1 Refer to Section 01 79 00 – Demonstration and Acceptance.

.2 Consultant will use equipment and systems for test purposes prior to acceptance. Supply labour, material, and instruments required for testing.

.3 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, troubleshooting and servicing of all systems and equipment during regular work hours, prior to acceptance.

.4 Use operation and maintenance manual, as-built drawings, and audio visual aids as part of instruction materials.

.5 Instruction duration time requirements as specified in appropriate sections.

3.18 PROTECTION

.1 Protect equipment and material during construction from the weather, moisture, dust, painting, plastering and physical damage. Cover all equipment with polyethylene plastic sheets during plaster or concrete work and clean and return to "as new" condition prior to Substantial Performance of the Work. Provide for repainting of marked or damaged surfaces as required.

.2 Mask or grease and cover machined surfaces. Securely cover equipment openings and open ends of piping, conduit, and ductwork as work progresses.

.3 Any equipment that has operating parts, bearings, or machined surfaces that show signs of rusting, pitting, or physical damage will be rejected.

3.19 CLEAN-UP

.1 At all times keep the premises free from accumulations of waste material caused by employees or work, and at the completion of the work, remove surplus materials and leave area "broom clean" or equivalent, unless otherwise specified.

END OF SECTION