West **Nipissing** Ouest

RECREATION CENTRE
INTERIOR IMPROVEMENTS

STURGEON FALLS, ONTARIO

PROJECT MANUAL
&
SPECIFICATIONS

#2026-030

2607

June 5, 2026

Issued for Tender June 10, 2026

OWNER:	The Municipality of West Nipissing ("Owner")
PROJECT TITLE:	WN Recreation Centre Interior Improvements
PROJECT LOCATION:	219 O'Hara Street, Sturgeon Falls, ON, P2B 1A2
PROJECT DESCRIPTION:	Work of this Contract includes the Lobby Improvements, Pool Upgrades, Fire Alarm Panel Replacement and related work located at the West Nipissing Recreation Centre, Sturgeon Falls, ON and identified as Contract Number #2026-030 (2607).
ARCHITECT	Perry + Perry Architects Inc. 69 Young Street, Suite B1, Sudbury, Ontario, P3E 3G5 (705) 688-0440 (705) 688-0439 fax Attention: Chris Perry
DOCUMENTS ISSUED:	Electronic Tender Documents may be obtained via Merx no sooner than **Wednesday, June 10th, 2026 @ 12:00 p.m.**
QUOTATIONS RECEIVED:	Bids are to be submitted in PDF format, referencing the following: WN Recreation Centre Interior Improvements #2026-0XX on or before **Tuesday, June 30th, 2026 @ 2:00 p.m.**
MANDATORY PRE-TENDER SITE MEETING:	**Tuesday, June 16th, 2026 @ 10:00 a.m**. 219 O'Hara Street, Sturgeon Falls, ON

Bidders are advised that the Municipality functions through its Policy No. 2006-332 "Validity of Tenders" and by its By-Law No 2016-89 (including the most current amendments), "Bylaw to Establish Purchasing Policies and Procedures for the Municipality of West Nipissing" (Purchasing By-Law).

Offers will be opened Publicly via streaming after closing.

End of Section

OWNER: Municipality of West Nipissing *("Owner")*

PROJECT TITLE: WN Recreation Centre Interior Improvements

PROJECT LOCATION: 219 O'Hara Street, Sturgeon Falls, ON, P2B 1A2

End of Specifications

ATTACHMENTS

None.

OWNER: Municipality of West Nipissing *("Owner")*

PROJECT TITLE: WN Recreation Centre Interior Improvements

PROJECT LOCATION: 219 O'Hara Street, Sturgeon Falls, ON, P2B 1A2

1. BID DOCUMENTS

1.1 The Bid Documents include:

(a) These Instructions to Bidders, together with the attached Bid Form, which include the following appendices:

Appendix A List of Drawings;
Appendix B List of Subcontractors;
Appendix C Alternates;
Appendix D Tender Breakdown;
Appendix E Previous Experience
Appendix F Unit Prices

(b) CCDC2 2020 Stipulated Price and Supplementary General Conditions;

(c) General Requirements;

(d) Project drawings, specification books and addenda prepared by, or on behalf of Perry + Perry Architects Inc ("Owner's Consultant");

1.2 The Bidder shall verify in its Bid that it has received and reviewed all Bid Documents and shall assume responsibility for the said Bid Documents received as being complete. Any missing Bid Documents shall be reported immediately, in writing, to the Owner's Consultant at the address set out below.

1.3 It is agreed that the Bid Documents are made available only for the purpose of obtaining Bids for this project. Their use does not confer a license or grant for any other purposes.

1.4 The drawings and specifications remain the property of the Owner and must be returned unmarked, in good condition, after the Bid has been awarded, except for the successful Bidder.

1.5 It is understood and agreed that the Bid Documents and information that the Bidder may learn regarding the business of the Owner is a corporate asset belonging to the Owner and is strictly confidential in nature. The Bidder agrees that in the event of a breach of this confidentiality, either by it, its employees, agents, or assigns, the Owner shall be entitled to seek all remedies at law and in equity.

1.6 Bidders are advised that the Municipality functions through its Policy No. 2006-332 "Validity of Tenders" and by its By-Law No 2016-89 (including the most current amendments), "Bylaw to Establish Purchasing Policies and Procedures for the Municipality of West Nipissing" (Purchasing By-Law)."

1.7 Offers will be opened Publicly via streaming, immediately after closing.

2. BID SUBMISSION

2.1 Bid documents may be returned as an electronic bid submission via Merx.

2.2 Electronic bid submission via Merx, bid documents must be in the form of a pdf document submitted before **2:00 PM** (local time) on **Tuesday, June 30th, 2026**. Subject line should include the Project Title and Bid reference number. It is the respondent's responsibility to ensure submissions are received via Merx by the submission deadline. The Municipality assumes no obligation for issues caused by electronic or telecommunications issues affecting the delivery of the submission.

2.3 It is the respondent's responsibility to ensure submissions are received via Merx by the submission deadline. The Municipality assumes no obligation for issues caused by electronic or telecommunications issues affecting the delivery of the submission. Respondents are encouraged to submit their response early and to call Merx after submitting their proposal to confirm Merx's receipt of the proposal.

2.4 Submit Supplementary Bid Information electronically and clearly marked within 1 hour after Tender Close.

2.5 Bid Forms and appendices shall be completed in ink or typewritten and shall provide the telephone number, address and name of the individual to be contacted. All blank spaces of the Bid Form and appendices must be filled in. Non-applicable sections must be lined out and initialled. Bid prices must be stated both in words and figures. Penciled entries may be considered invalid or informal by the Owner.

2.6 Bid Forms shall be signed by a Bidder's duly authorized signing officer under the Bidder's corporate seal. If the Bidder operates its business as a sole proprietorship, the Bid Form must contain the signature of the sole proprietor in the presence of a witness who will also sign the Bid Form. The words "Sole Proprietor" must be added below the signature.

2.7 Bid prices must include all government taxes (except HST), custom duties and excise taxes in effect at Closing.

2.8 Bids shall be irrevocable and shall remain open for acceptance by the Owner for a period of sixty (60) calendar days from Closing.

2.9 No oral or faxed transmitted Bid will be considered.

2.10 Bidders shall be solely responsible for the delivery of their Bids in the manner and time prescribed. Bids that are incomplete, unsigned, improperly signed or sealed, conditional, illegible, obscure, or that contain arithmetical errors, erasures, alterations, reservations or irregularities of any kind, may, at the sole discretion of the Owner, be declared informal and rejected.

2.11 Bids that contain prices which appear to be so unbalanced that they may adversely affect the interests of the Owner may be rejected. Bids may also be rejected if they are based on an unreasonable period of time for completion of the work.

3. BID MODIFICATION AND WITHDRAWAL OF BIDS

3.1 A Bidder may withdraw its Bid at any time prior to Closing provided the withdrawal:

(i) is in the form of an electronic transmittal and all pages of such electronic transmittal are received by Merx by the receipt time recorded by Merx;

(ii) states the name of the Bidder and clearly identifies the Bid that is being withdrawn; and

(iii) is signed by the Bidder's duly authorized signing officer.

No oral, written transmitted or other means of Bid withdrawal will be considered by the Owner.

3.2 A Bid submitted in accordance with these Instructions to Bidders may be modified at any time prior to Closing provided the modification:

(i) is in the form of an electronic transmittal and all pages of such electronic transmittal are received by Merx by the receipt time recorded by Merx;

(ii) states the name of the Bidder and the nature of the modification, subject to the requirements of Section 3.3, below; and

(iii) is signed by the Bidder's duly authorized signing officer.

3.3 Where a modification directs a change to the Bid price, the modification shall not reveal the original Bid price nor the revised Bid price and:

(i) on lump sum Bid prices, only the amount to be added to or deducted from the original Bid price shall be stated; and

(ii) when unit prices are used, only the amount to be added to or deducted from each original unit price shall be stated.

3.4 The Owner has no responsibility for the content of modifications or modifications that are, for any reason, delayed, illegible or otherwise improperly submitted or received, and the Owner may, in its sole discretion, disregard any modifications that are improperly submitted or received.

4. ALTERNATIVE MATERIALS AND PROCEDURES

4.1 If, for any reason, the Bidder should propose to use different materials, equipment or methods which, in the Bidder's opinion, would improve the operation of the installation specified, the Bidder shall:

(a) base its Bid on the exact requirements of the Bid Documents;

(b) Request for equals to the material, equipment or methods of fabrications specified, should be submitted in writing to the contract administrator three (3) days prior of bid closing time. These requests should contain pertinent data such as specifications, construction and operational characteristics, cost savings etc. in order to assist the contract administrator in his decision. Approvals for equals will be in the form of addenda, the contract administrator is not obligated to review and approve equals prior to the bid closing time.

4.2 The Owner reserves the right, in its sole discretion, to accept or reject any or all substitutions and alternatives.

5. EXAMINATION OF CONDITIONS

5.1 In submitting a Bid, it will be assumed that the Bidder has carefully examined the site of the proposed work and the Bid Documents including the provisions of the Contract, has fully informed itself as to the existing conditions and limitations under which the work is to be performed, the

conditions which may be encountered, the materials it will be required to supply and other materials which are required in carrying out the Contract to a satisfactory conclusion, and has included in its Bid the complete cost of the work shown and/or specified in the Bid Documents.

5.2 No claims or allowances will be considered based on the assertion by the Bidder that it was not aware of existing site conditions or the provisions or conditions covered by the Bid Documents.

5.3 Drawings may not reflect all existing elements, and exact locations of those elements may vary: Bidders are responsible for reviewing site conditions and reporting in writing any discrepancies which may affect the Bid Price and/or Contract schedule. Extra's will not be allowed for discrepancies unless reported during the Bid period.

5.4 Bidders and other persons intending to carry out investigations relative to the proposed work shall make arrangements with the Owner before entering and carrying out investigations on the site.

5.5 Bidders and other persons wishing to carry out destructive investigations relative to the proposed work shall be bonded and shall obtain the Owner's consent in writing before entering and carrying out such investigations on the site.

6. INTERPRETATIONS AND ADDENDA

6.1 Bidders finding discrepancies, ambiguities, or omissions in the drawings, specifications or other Bid Documents, or having doubt as to the meaning or intent thereof shall immediately address all queries, in writing, to the Owner's Consultant at:

Perry + Perry Architects Inc, 69 Young Street, Suite B1, Sudbury, Ontario, P3E 3G5 (705) 688-0439 fax

6.2 The Owner's Consultant may issue instructions and/or clarifications in the form of addenda. Bidders may also be advised by addenda of any other additions, deletions or alterations to the drawings and specifications. All such addenda shall become part of the Bid Documents.

6.3 No oral interpretation or instructions shall be effective to modify the provisions of the Bid Documents. Neither the Owner nor the Owner's Consultant will be responsible for any oral interpretation or instruction.

6.4 All addenda, if issued, during the bid period shall become part of the Bid Documents and shall supersede and amend the Bid Documents, as required.

7. BONDS

7.1 The Bidder shall include with its Bid a Bid Bond for 10% of the Bid price, valid for the full length of the bid acceptance period and issued by a recognized Surety Company licensed to operate in the Province in which the Contract is to be performed.

7.2 The Bid Bond shall be forfeited to the Owner if the successful Bidder fails to enter into a Contract and provide the required Performance Bond and Labour and Material Payment Bond as described below.

7.3 The Bidder shall include with its Bid an Agreement to Bond issued by a Surety Company licensed to operate in the Province in which the Work is to be performed, stating that a 100% Performance Bond and a 100% Labour and Material Payment Bond will be provided to the Owner. If a Bid is accepted by the Owner within the aforementioned time period by written notification of acceptance of the Bid, the successful Bidder shall deliver to the Owner's Consultant a 100%

Labour and Material Payment Bond and a 100% Performance Bond issued by the Surety Company. The cost of the bonds shall be included in the Bid price.

8. ACCEPTANCE OF BID

8.1 The Owner reserves the right, in its sole discretion, to reject any or all Bids as the interests of the Owner may require, without stating the reasons therefore, including without limitation, the lowest priced Bid.

8.2 The Owner reserves the right, in its sole discretion, to accept the Bid that in the Owner's sole discretion it deems the most advantageous, notwithstanding any custom, usage or agreement in the industry or trade, or any other policy or practice. The successful Bid, if any, will be selected by the Owner based on any number of criteria that the Owner, in its sole discretion, considers relevant, including without limitation (and not listed in order of importance), any combination of: stipulated price, separate prices, alternative prices and product options, schedule, proposed subcontractors, proposed supervision and project management, related qualifications and experience with similar work projects, and any other factor the Owner deems relevant. The submission of Bids does not obligate the Owner to accept any Bid or to proceed further with this invitation, or with the Project.

8.3 By submitting a Bid, the Bidder acknowledges the Owner's rights as stated herein and absolutely waives any right of action against the Owner and the Owner's Consultant for the Owner's failure to accept the Bidder's Bid whether such right of action arises in contract, negligence, bad faith, or any other cause of action.

8.4 Bidders shall bear all costs of preparing and submitting Bids in response to this Invitation. The Owner will not be responsible for any costs, expenses, loss, damage or liabilities incurred by the Bidder as a result of or arising out of tendering for the proposed Contract, or due to the acceptance or non-acceptance of any Bid.

8.5 It shall be understood by all Bidders that the Bids shall be valid and irrevocable subject to acceptance by the Owner and that no adjustment shall be made to the Bid amount for a period of up to and including sixty (60) calendar days from Closing.

8.6 Bids not received by the stated Closing will not be considered and will be returned.

8.7 If a Bid is accepted by the Owner within the aforementioned time period by written notification of acceptance of the Bid, the successful Bidder shall execute and deliver to the Owner the Contract within seven (7) calendar days of receipt of such Contract from the Owner, and shall commence work immediately thereafter.

8.8 It is understood and agreed that if the successful Bidder fails to commence work immediately after the written notification of acceptance of its Bid, the Owner will be entitled to all remedies available at law and in equity, including but not limited to damages amounting to the difference between the accepted Bid and the price of the Contract that is subsequently and consequently signed.

8.9 Without limiting the foregoing, the Owner further reserves the right, in its sole discretion, to cancel this invitation if the Bid prices received exceed the Owner's internal budget for the Project, or should the Owner not receive any satisfactory Bids, or should the Owner receive an insufficient number of Bids, or should unforeseen circumstances arise at any time before the Bid irrevocability period expires, or for any other reasons relevant to the Owner.

8.10 Where the Owner does not receive any satisfactory Bids, including any number of Bids which the Owner deems non-compliant with any aspect of the invitation, these Instructions, or the requirements set forth in the Bid Documents, the Owner may, at its sole discretion, either: revise the Project work scope identified in the Bid Documents and invite one or more of the Bidders to resubmit revised prices; or enter into negotiations for the whole or any part of the Project work with any Bidder, or with more than one Bidder, concurrently. The Owner is not required to offer any revised scope of work or negotiations to any Bidder, and shall incur no obligation or liability to any Bidder in the exercise of this right.

9. INSURANCE

9.1 If a Bid is accepted by the Owner within the aforementioned time period by written notification of acceptance of the Bid, the successful Bidder shall deliver to the Owner within seven (7) calendar days of receipt of the Owner's notification of acceptance, certificate(s) of insurance from an approved insurance company licensed to carry on business where the Work is to be performed, evidencing the insurance coverage as required under the Contract.

10. HEALTH & SAFETY

10.1 General: Contractor must comply with the Occupational Health and Safety Act (OHSA), the Regulations for Construction Projects, the Municipality of West Nipissing safety policy and as well as complying with the prescribed requirements legislated in the Regulations for Industrial Establishments. As applicable, the Contractor's policies and procedures should address communication, project meetings, site access for visitors, transfer of documents, physical distancing, personal hygiene, personal protective equipment, portable restrooms, site cleaning, worksite monitoring and worker self–assessment. It is the responsibility of the Contractor to communicate this policy to subcontractors and all other persons on site.

10.2 Contractor or all sub-contractors working for the contractor must pre-qualify with the Municipality of West Nipissing health and safety officer before starting work.

10.3 Refer to Specification Section 01 35 23 Health & Safety for additional requirements.

11. QUALIFICATIONS

11.1 Bidders submitting Bids shall be actively engaged in the type of work required by the Bid Documents and on request shall provide the Owner with a list of similar work performed by the Bidder.

11.2 The resumé of the Bidders' proposed superintendent is to be provided to the Owner on request.

11.3 Reserved.

12. WORK SEQUENCE

12.1 Time shall be of the essence of the contract. The Contractor shall begin work immediately after receiving written instructions to do so and shall diligently execute the Work on this contract starting **September 1, 2026** to substantial completion on or before **October 31st, 2026**.

12.2 The above date is based on contract award no later than **July 15th, 2026**.

12.3 If the time limit above specified is not sufficient to permit completion of the work by the Contractor working a normal number of hours each day or week on a single shift basis, it is expected that

additional shifts will be required throughout the life of the contract to the extent deemed necessary by the Contractor to insure that the work will be completed within the time limit specified. Any additional costs occasioned by compliance with these provisions will be considered to be included in the prices for the various items of work and no additional compensation will be allowed therefore.

End of Section

PROJECT NUMBER: #2026-030 **(**2607)

PROJECT TITLE: WN Recreation Centre Interior Improvements

PROJECT LOCATION: 219 O'Hara Street, Sturgeon Falls, ON, P2B 1A2

Submitted To: The Municipality of West Nipissing ("Owner")

We, _____
(Company Name)

of _____
(Business Address)

_____

having examined the bid documents for the Project and Addenda No. _____ to No. _____ inclusive, all as issued by Perry + Perry Architects Inc, *(Consultant)*

and listed in Appendix "A" (the "Bid Documents") and having visited and examined the Project Site, hereby offer to enter into a contract to perform the work required by the Bid Documents (the "Work") inclusive of all specified allowances for the stipulated price of

_____

Dollars $ _____

in Canadian funds, which price includes any specified cash and contingency allowances and all applicable taxes in force at this date, excluding Separate Prices and H.S.T., except as may be otherwise provided in the Bid Documents.

Separate Price No 1: Men's/Women's Shower Upgrades

_____

Dollars $ _____

Appendices to Bid:

The information on List of Bid Documents, List of Subcontractors, Alternative Prices, and Tender Cost Breakdown, Previous Experience and Unit Rates forms, are provided in the attached Appendices, and form an integral part of this Bid.

Declarations:

We hereby declare that:

1. we acknowledge and agree to abide by all of the terms and conditions as set out in the Instructions to Bidders.

2. we agree to perform the Work in compliance with the terms and conditions stated in the Bid Documents and within the required completion schedule stated in the Bid Documents, or if no schedule is stated, to attain Substantial Performance of the Work within _____ weeks after receiving notice of Contract award;

3. no person, firm or corporation other than the undersigned has any interest in this Bid or in the proposed Contract for which this Bid is made;

4. this Bid is irrevocable and open to acceptance for a period of sixty (60) days from the date of Bid closing, irrespective of the acceptance by the Owner of any other Bid or the issuance of a notice of acceptance of any other Bid;

5. We will execute and deliver to the Consultant a Contract for the Work in the form prescribed in the Bid Documents, within seven (7) days of receiving the Contract from the Owner, or the Consultant;

6. We agree that the Owner has the absolute right to accept or to reject the offer that this Bid comprises, for any reason whatsoever, without explanation, including if it contains the lowest stipulated price of the Bids received by the Owner;

7. If this Bid is accepted by the Owner within the time period stated, we undertake and agree to furnish the following documents, in addition to the signed Contract, all within seven (7) days from the date of acceptance:

   (a) shall deliver to the Owner's Consultant a 100% Labour and Material Payment Bond and a 100% Performance Bond issued by the Surety Company. The cost of the bonds shall be included in the Bid price;

   (b) shall deliver to the Owner's Consultant certificate(s) of insurance from an approved insurance company licensed to carry on business where the Work is to be performed, evidencing the insurance coverage as required under the Contract;

8. We acknowledge and agree that we shall not be entitled to any compensation for the cost of preparing this Bid, nor shall the Owner have any obligation to compensate us for the cost of preparing this Bid. We further acknowledge that neither the Owner, nor the Consultant, nor their representatives or agents, shall be liable to us for any cost, loss or damages suffered or incurred as a result of the rejection of this Bid.

Signatures:

Signed, sealed and submitted for and on behalf of:

Company: _____
(Name)

_____
(Street Address or Postal Box Number)

_____
(City, Province & Postal Code) *(Apply SEAL above)*

Signature: _____

Name & Title: _____
(Please Print or Type)

Witness: _____

Dated at _____ this _____ day of _____, 2026

N.B. Where legal jurisdiction or Owner requirement calls for proof of authority to execute this Bid, proof of such authority in the form of a certified copy of a resolution naming the person or persons in question as authorized to sign this Bid for and on behalf of the Corporation or Partnership should be attached.

PROJECT NUMBER: #2026-030 (2607)

PROJECT TITLE: WN Recreation Centre Interior Improvements

PROJECT LOCATIONS: 219 O'Hara Street, Sturgeon Falls, ON, P2B 1A2

BID SUBMITTED BY: _____

LIST OF BID DOCUMENTS

The following is the list of the Bid Documents referred to in the Bid for the above-named Project.

Project Manual and Specifications dated June 5, 2026

Drawings:

A000	Title Page
A100	Floor Plans
A101	Schedules/Elevations/Details
A102	Sections/Details
ME-0	Mechanical-Electrical Systems Specification Notes
ME-1	Mechanical-Electrical Systems Removals Plan
M-1	Mechanical Systems Floor Plans & Details
E-1	Electrical Systems Floor Plans & Details
PL1.0	Pool Area Tile Replacement Scope Areas
PL1.1	Main Pool Tank Re-Grout Scope Area
PL1.2	Main Pool tank New Tile General Details
PL1.3	Filter Tank Coating and Chemical Controllers

Appendix A must be submitted with Supplementary Bid Information no later than 3:00 p.m. local time on the specified Tender Close date.

APPENDIX "B" to Bid

PROJECT NUMBER: #2026-030 (2607)

PROJECT TITLE: WN Recreation Centre Interior Improvements

PROJECT LOCATIONS: 219 O'Hara Street, Sturgeon Falls, ON, P2B 1A2

BID SUBMITTED BY: _____

LIST OF SUBCONTRACTORS

The following are the Subcontractors we propose to use for the Divisions or Sections of Work listed hereunder.

(If not used, bar and initial the space below)

Division or Section of Work	Name of Subcontractor
Finished Carpentry and Millwork	
Resilient Sheet Flooring	
Gypsum Board & Acoustic Ceilings	
Turnstile Entrance System	
Swimming Pool Restoration	
Mechanical	
Electrical	
Fire Alarm Panel Replacement	

Appendix B must be submitted with the Bid Form no later than 2:00 p.m. local time on the specified Tender Close date.

June 5, 2026

APPENDIX "C" to Bid

PROJECT NUMBER: #2026-030 (2607)

PROJECT TITLE: WN Recreation Centre Interior Improvements

PROJECT LOCATIONS: 219 O'Hara Street, Sturgeon Falls, ON, P2B 1A2

BID SUBMITTED BY: _____

ALTERNATIVE PRICES

The following are our prices for the Alternative Work listed hereunder. Such Alternative Work and amounts are **NOT** included in our Stipulated Price.

(If not used, bar and initial the space below)

Description of Alternative Work	Effect on Stipulated Price ($)	
	Addition	Deduction

Appendix C must be submitted with Supplementary Bid Information no later than 3:00 p.m. local time on the specified Tender Close date.

APPENDIX "D" to Bid

PROJECT NUMBER: #2026-030 (2607)

PROJECT TITLE: WN Recreation Centre Interior Improvements

PROJECT LOCATIONS: 219 O'Hara Street, Sturgeon Falls, ON, P2B 1A2

BID SUBMITTED BY: _____

LOBBY RENOVATIONS TENDER COST BREAKDOWN #2026-030 (2607)		
CODE	DESCRIPTION	TOTAL
A01	GENERAL CONDITIONS	
A02	DEMOLITION/REMOVALS	
A03	FINISHED CARPENTRY & MILLWORK	
A04	JOINT SEALANTS/FIRESTOPPING	
A05	GLASS & GLAZING	
A06	GYPSUM BOARD & ACOUSTIC CEILINGS	
A07	RESILENT SHEET FLOORING	
A08	PAINTING	
A09	COUNTER SHUTTER	
A10	MECHANICAL	
A11	ELECTRICAL	
A12	TURNSTILE ENTRANCE SYSTEM	
A13	ALLOWANCES	
A14	OTHER	
	S U B T O T A L No 1	

FIRE ALARM PANEL REPLACEMENT TENDER COST BREAKDOWN #2026-030 (2607)		
CODE	DESCRIPTION	TOTAL
B01	FIRE ALARM PANEL REPLACEMENT	
	S U B T O T A L No 2	

POOL UPGRADES TENDER COST BREAKDOWN #2026-030 (2607)		
CODE	DESCRIPTION	TOTAL
C01	POOL TILE REPLACEMENT/GROUT/FILTER	
	S U B T O T A L No 3	

T O T A L (Sub-Total No 1 + No 2 + No 3)	

Appendix D must be submitted with Supplementary Bid Information no later than 3:00 p.m. local time on the specified Tender Close date.

Please indicate three (3) past/current related work experience

All bidders must demonstrate similar experience by providing references from a government/public sector entity of similar nature. Bidders without or with insufficient government/public sector experience may be disqualified. Past experience with the Municipality will also be considered. Prior poor performance with the Municipality may result in disqualification. Decisions of disqualification by the Municipality will be deemed final and will be given to the bidder in writing.

Reference #1

Project Title & brief description of work:

_____

_____

Project start date: _____ Project end date: _____

Total value of contract awarded: $_____

Owner or Contractor who awarded contract _____

Contact person: (Full Name) _____ Phone: _____

Reference #2

Project Title & brief description of work:

_____

_____

Project start date: _____ Project end date: _____

Total value of contract awarded: $_____

Owner or Contractor who awarded contract _____

Contact person: (Full Name) _____ Phone: _____

Reference #3

Project Title & brief description of work:

_____

_____

Project start date: _____ Project end date: _____

Total value of contract awarded: $_____

Owner or Contractor who awarded contract _____

Contact person: (Full Name) _____ Phone: _____

Appendix E must be submitted with Supplementary Bid Information no later than 3:00 p.m. local time on the specified Tender Close date.

PROJECT NUMBER: #2026-030 (2607)

PROJECT TITLE: WN Recreation Centre Interior Improvements

PROJECT LOCATIONS: 219 O'Hara Street, Sturgeon Falls, ON, P2B 1A2

BID SUBMITTED BY: _____

UNIT RATES

Site Supervisor	$_____per hour
Skilled Trade	$_____per hour
Labourer	$_____per hour

Appendix F must be submitted with Supplementary Bid Information no later than 3:00 p.m. local time on the specified Tender Close date.

June 5, 2026

CCDC 2-2020 - SUPPLEMENTARY CONDITIONS

The Standard Construction Document for Stipulated Price Contract, 2020 English version, consisting of the Agreement Between Owner and Contractor, Definitions, and General Conditions of the Stipulated Price Contract, Parts 1 to 13 inclusive, governing same is hereby made part of these Contract Documents, with the following amendments, additions and modifications specifically reference a change to the Agreement Definitions, or General Conditions, these amendments, additions and modifications shall govern.

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.

AMENDMENTS TO AGREEMENT

ARTICLE A-5 – PAYMENT

.1 In paragraph 5.1.1 of Article A-5 add the following words to the end:

"or, where there is no Payment Certifier, jointly by the Owner and Contractor"

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

.1 Delete paragraph 6.5 of Article A-6 in its entirety and replace it with the following:

"6.5 Contact information for a party may be changed by Notice in Writing to the other party setting out the new contact information in accordance with this Article."

AMENDMENTS TO DEFINITIONS

.1 Add the following definition: Proper Invoice**:**

"Proper Invoice means a "proper invoice" as defined in the Payment Legislation, if any, and as may be modified by written agreement between the parties to the extent permitted by such Payment Legislation."

.2 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

- As-built drawings and manuals to provide instructions to the operation and maintenance of the Work."

SUPPLEMENTARY CONDITIONS

PART 1 GENERAL PROVISIONS

GC 1.1 CONTRACT DOCUMENTS

.1 Delete paragraphs 1.1.3 and 1.1.4 in their entirety and replace them with the following:

"1.1.3 The Contractor shall review the Contract Documents for the purpose of facilitating and co-ordination and execution of the Work by the Contractor. The Contractor shall report promptly to the Consultant any ambiguities, design issues or other matters requiring clarification made known to the Contractor or that the Contractor may discover from such a review. Such review by the Contractor shall comply with the standard of care described in paragraph 3.9.1 of the Contract.

1.1.4 Except for its obligation to review the Contract Documents and report the result pursuant to paragraph 1.1.3, the Contractor is not responsible for ambiguities, design issues or other matters requiring clarification in the Contract Documents and does not assume any responsibility to the Owner or to the Consultant for the accuracy of the Contract Documents. Without limiting the foregoing, the Contractor shall not be liable for any damages or costs resulting from any ambiguities, design issues or other matters requiring clarification in the Contract Documents which the Contractor could not reasonably have discovered from such a review in accordance with the standard of care. If the Contractor does discover any ambiguities, design issues or other matters requiring clarification in the Contract Documents, the Contractor shall not proceed with the work affected until the Contractor has received modified or additional information from the Consultant. The impacts of any ambiguities, design issues or other matters requiring clarification in the Contract Documents, including to the Contract Price and Contract Time, shall be addressed by the parties in accordance with Part 6 – Changes

.2 Add the following to the end of subparagraph 1.1.6.2:

"Except to the extent the Consultant is indemnified as a third-party beneficiary as provided in subparagraphs 9.2.7.4 and 9.5.3.4 and in paragraph 13.1.3."

PART 2 ADMINISTRATION OF THE CONTRACT

GC 2.2 ROLE OF THE CONSULTANT

.1 In paragraph 2.2.3 add the following to the end:

"Without limiting the foregoing, the Consultant may appoint one or more authorized representatives in writing who may fulfill the obligations of the Consultant under this Contract."

.2 In paragraph 2.2.8 add the words ", written statements" after the word "interpretations" in both the first and second sentences; and

i. add the following to the end of paragraph 2.2.8:

"The Owner and the Contractor shall waive any claims against the Consultant arising out of its making of any interpretations, written statements or findings in accordance with paragraphs 2.2.6, 2.2.7, 2.2.8, and 7.1.2, but only to the extent that any such interpretations, written statements, and findings are made by the Consultant in an unbiased manner, and in accordance with the Consultant's professional standard of care at law."

.3 In paragraph 2.2.13 add the words "which are provided" before the words "by the Contractor".

GC 2.4 DEFECTIVE WORK

.1 In paragraph 2.4.1:

i. Add after the words "shall promptly correct" the phrase "in a manner acceptable to the Owner and the Consultant"; and

ii. Add after the words "Contract Documents" the phrase "or work that the Contractor discovers to be defective, whether or not the defective work had been identified by the Consultant, and".

.2 Add new paragraph 2.4.4 as follows:

"2.4.4 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."

PART 3 EXECUTION OF THE WORK

GC 3.1 CONTROL OF THE WORK

.1 Add new paragraph 3.1.3 as follows:

"3.1.3 Prior to commencing individual procurement, fabrication and construction activities, the Contractor shall verify, at the Place of the Work, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the Work and shall further carefully compare such field measurements and conditions with the requirements of the Contract Documents. Where dimensions are not included or contradictions exist, 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."

GC 3.2 CONSTRUCTION BY OWNER AND OTHER CONTRACTORS

.1 Add new paragraph 3.2.7 as follows:

"3.2.7 At the commencement of the Work, the Contractor shall prepare for the review and acceptance of the Owner and the Consultant, a schedule indicating the times, within the construction schedule referred to in GC 3.4, that items that are specified to be Owner purchased and Contractor installed or hooked up are required at the site to avoid delaying the progress of the Work."

GC 3.7 LABOUR AND PRODUCTS

.1 Add the following to the end of paragraph 3.7.1:

"The Contractor represents that it has sufficient skilled employees to replace, subject to the Owner's approval, acting reasonably, its designated supervisor and project manager in the event of death, incapacity, removal or resignation."

.2 Add new paragraphs 3.7.4 and 3.7.5 as follows:

"3.7.4 The Owner shall provide the Contractor in a timely manner with all relevant information (including storage, protection, and installation requirements) regarding Products to be supplied by the Owner or other contractors and, prior to delivery of any such Products to the Place of the Work, the Owner shall obtain the Contractor's written approval of the delivery date and proposed storage, protection and installation requirements.

3.7.5 Once the Contractor has accepted delivery of Products, the Contractor shall be responsible for the safe storage and protection of Products as required to avoid dangerous conditions or contamination to the Products or other persons or property. Products shall be stored in locations and at the Place of the Work to the satisfaction of the Owner and the Consultant as agreed and approved by the Contractor pursuant to paragraph 3.7.4.

Notwithstanding the foregoing, the Contractor shall not be responsible for any Products supplied by the Owner or other contractors unless:

(i) the Contract Documents expressly stipulate that such Product is to be the Contractor's responsibility and to be installed by the Contractor as part of the Work;

(ii) the Contractor has or has received from the Owner proof of insurance coverage sufficient, at a minimum, to cover the replacement cost of such Product; and

(iii) the Owner obtained the Contractor's approval as required by paragraph 3.7.4."

GC 3.8 SHOP DRAWINGS

.1 Add the words “AND OTHER SUBMITTALS” to the title of GC 3.8 after the words “SHOP DRAWINGS”.

.2 Add the words “and Submittals” after the words “Shop Drawings” in paragraphs 3.8.1, 3.8.2, 3.8.3, 3.8.3.2, 3.8.5, 3.8.6, and 3.8.7.

.3 Delete paragraph 3.8.2 in its entirety and replace it with new paragraph 3.8.2 as follows: “3.8.2 Prior to the first application for payment, the Contractor and the Consultant shall jointly prepare a schedule of the dates for submission and return of Shop Drawings and Submittals in an orderly sequence.”

.4 Delete the words “with reasonable promptness so as to cause no delay in the performance of the Work” and replace them with the words “within 10 Working Days or such longer period as may be reasonably required” in paragraph 3.8.7.

GC 3.9 PERFORMANCE BY CONTRACTOR

.1 Add new General Condition GC 3.9 as follows:

“GC 3.9 PERFORMANCE BY CONTRACTOR

3.9.1 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.”

PART 4 ALLOWANCES

GC 4.1 CASH ALLOWANCES

.1 Delete paragraph 4.1.7 in its entirety and replace it with the following:

“4.1.7 At the commencement of the Work, the Contractor shall prepare for the review and acceptance of the Owner and the Consultant a schedule indicating the times within the construction schedule referred to in GC 3.4 that items called for under cash allowances are required to be delivered to the Place of the Work to avoid delaying the progress of the Work.”

.2 Add new paragraph 4.1.8 as follows:

“4.1.8 The Owner reserves the right to call, or to have the Contractor call, for competitive bids for portions of the Work to be paid for from cash allowances.”

PART 5 PAYMENT

GC 5.4 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK

.1 Delete all paragraphs of GC 5.4 in their entirety and replace them with the following paragraphs:

"5.4.1 When the Contractor considers that the Work is substantially performed, or if permitted by the lien legislation applicable to the Place of the Work a designated portion thereof which the Owner agrees to accept separately is substantially performed, the Contractor shall, within five (5) Working Days, deliver to the Consultant and to the Owner a comprehensive list of items to be completed or corrected, together with a written application for a review by the Consultant to establish Substantial Performance of the Work or substantial performance of the designated portion of the Work. Failure to include an item on the list does not alter the responsibility of the Contractor to complete the Contract.

5.4.2 The Consultant will review the Work to certify or verify the validity of the application and shall promptly, and in any event, no later than 10 calendar days after receipt of the Contractor's application: .1 advise the Contractor in writing that the Work or the designated portion of the Work is not substantially performed and give reasons why, or .2 state the date of Substantial Performance of the Work or a designated portion of the Work in a certificate and issue a copy of that certificate to each of the Owner and the Contractor.

5.4.3 Where the holdback amount required by the applicable lien legislation has not been placed in a separate lien holdback account, the Owner shall, no later than 10 calendar days prior to the expiry of the holdback period stipulated in the lien legislation applicable to the Place of the Work, place the holdback amount in a bank account in the joint names of the Owner and the Contractor.

5.4.4 Subject to the requirements of any Payment Legislation, all holdback amounts prescribed by the applicable lien legislation for the Place of the Work shall become due and payable to the Contractor no later than 10 Working Days following the expiration of the holdback period stipulated in the lien legislation applicable to the Place of the Work, as certified or verified by the Consultant when permitted by any Payment Legislation.

5.4.5 The Contractor shall submit an application for release of the lien holdback amount in accordance with the lien legislation applicable to the Place of the Work. Except to the extent required by any Payment Legislation, such application for release of the holdback shall not constitute an application for payment that is subject to Proper Invoice requirements.

5.4.6 Where legislation permits progressive release of the holdback for a portion of the Work and the Consultant has certified or verified that the part of the Work has been performed prior to Substantial Performance of the Work, the Owner hereby agrees to release, and shall release the holdback for such portion of the Work to the Contractor in accordance with such legislation.

5.4.7 Notwithstanding any progressive release of the holdback, the Contractor shall ensure that such parts of the Work are protected pending the issuance of a final certificate for payment or until the Owner takes early occupancy in accordance

with GC12.2, whichever comes first, and shall be responsible for the correction of defects or work not performed regardless of whether or not such was apparent when the holdback was released."

GC 5.5 FINAL PAYMENT

.1 Add to the end of paragraph 5.5.1 the following sentence:

"The application for final payment shall meet the requirements of a Proper Invoice."

.2 Add the following to the end of paragraph 5.5.3:

"Subject to any Payment Legislation, when the Consultant finds the Contractor's application for final payment to be not valid, the Contractor shall revise and resubmit the application when the Contractor has addressed the reasons given by the Consultant."

PART 6 CHANGES IN THE WORK

GC 6.3 CHANGE DIRECTIVE

.1 Delete the word "and" from the end of subparagraph 6.3.7.18.

.2 Delete the period from the end of subparagraph 6.3.7.19 and replace it with "; and".

.3 Add new subparagraph 6.3.7.20 as follows: ".20 safety measures and requirements."

GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

.1 Add new paragraph 6.4.5:

"6.4.5 The Contractor confirms that, prior to bidding the Project, it carefully reviewed the Place of the Work and applied to that review the degree of care and skill described in paragraph 3.9.1, 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 review undertaken in accordance with this paragraph 6.4.5."

GC 6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE

.1 Add the words "as noted in paragraph 6.6.3" after the words "of the claim" in paragraph 6.6.5 and add the words "and the Consultant", at the end of paragraph 6.6.5.

PART 8 DISPUTE RESOLUTION

GC 8.3 ADJUDICATION

.1 Delete the word “prescribed” from paragraph 8.2.1 and substitute the words “provided for”.

GC 8.3 NEGOTIATION, MEDIATION AND ARBITRATION

.1 Add the following new paragraphs 8.3.9 to 8.3.13:

“8.3.9 Within five days of receipt of the notice of arbitration by the responding party under paragraph 8.3.6, the Owner and the Contractor shall give the Consultant a written notice containing:

.1 a copy of the notice of arbitration;

.2 a copy of supplementary conditions 8.3.9 to 8.3.14 of this Contract, and;

.3 any claims or issues which the Contractor or the Owner, as the case may be, wishes to raise in relation to the Consultant arising out of the issues in dispute in the arbitration.

8.3.10 The Owner and the Contractor agree that the Consultant may elect, within ten days of receipt of the notice under paragraph 8.3.9, to become a full party to the arbitration under paragraph 8.3.6 if the Consultant:

.1 has a vested or contingent financial interest in the outcome of the arbitration;

.2 gives the notice of election to the Owner and the Contractor before the arbitrator is appointed;

.3 agrees to be a party to the arbitration within the meaning of the rules referred to in paragraph 8.3.6, and,

.4 agrees to be bound by the arbitral award made in the arbitration.

8.3.11 Without limiting and subject to the Owner and Contractor’s rights under paragraph 8.3.12 to challenge whether the Consultant has satisfied the requirements of paragraph 8.3.10, if an election is made under paragraph 8.3.10:

.1 the Owner or Contractor may request particulars and evidence of the Consultant’s vested or contingent financial interest in the outcome of the arbitration;

.2 the Consultant shall participate in the appointment of the arbitrator; and,

.3 notwithstanding the rules referred to in paragraph 8.3.6, the time period for reaching agreement on the appointment of the arbitrator shall begin

to run from the date the respondent receives a copy of the notice of arbitration.

8.3.12 The arbitrator in the arbitration in which the Consultant has elected under paragraph 8.3.10 to become a full party may:

.1 on application of the Owner or the Contractor, determine whether the Consultant has satisfied the requirements of paragraph 8.3.10,and;

.2 make any procedural order considered necessary to facilitate the addition of the Consultant as a party to the arbitration.

8.3.13 The provisions of paragraph 8.3.9 shall apply (with all appropriate changes being made) to written notice to be given by the Consultant to any sub-consultant."

PART 9 PROTECTION OF PERSONS AND PROPERTY

GC 9.1 PROTECTION OF WORK AND PROPERTY

.1 Delete subparagraph 9.1.1.1 in its entirety and replace it with the following:

".1 errors or omissions in the Contract Documents which the Contractor could not have discovered applying the standard of care described in paragraph 3.9.1;"

.2 Delete paragraph 9.1.2 in its entirety and replace it with the following:

"9.1.2 Before commencing any Work, the Contractor shall determine the locations of all underground utilities and structures indicated in the Contract Documents, or that are discoverable by applying to an inspection of the Place of the Work the degree of care and skill described in paragraph 3.9.1."

GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

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

"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 the words "and the Consultant" after the word "Contractor" in subparagraph 9.2.7.4.

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

GC 9.5 MOULD

.1 Add the words "and the Consultant" after the word "Contractor" in subparagraph 9.5.3.4.

PART 10 GOVERNING REGULATIONS

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 3.9.1, the".

PART 12 OWNER TAKEOVER

GC 12.1 READY-FOR-TAKEOVER

.1 After the second occurrence of the term "Ready-for-Takeover" insert before the term "Ready for-Takeover" in paragraph 12.1.3 the words "determination of".

GC 12.2 EARLY OCCUPANCY BY THE OWNER

.1 Delete the word "achieve" in paragraph 12.2.4 and replace it with the words "have achieved".

GC 12.3 WARRANTY

.1 Delete the word "The" from the first line of paragraph 12.3.2 and replace it with the words "Subject to paragraph 3.9.1, the ".

PART 13 INDEMNIFICATION AND WAIVER

GC 13.1 INDEMNIFICATION

.1 Add new paragraph 13.1.0 as follows:

"13.1.0 The Contractor shall indemnify and hold harmless the Consultant, its agents and employees from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings by third parties that arise out of, or are attributable to the Contractor's performance of the Contract, provided such claims are:

.1 attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, and

.2 caused by negligent acts or omissions of the Contractor or anyone for whose negligent acts or omissions the Contractor is liable, and

.3 made by Notice in Writing within a period of 6 years from the Ready-for Takeover date or within such shorter such period as may be prescribed by any limitation statute or the Province or Territory of the Place of Work."

.2 Add the words "13.1.0," after the word "paragraphs" in paragraph 13.1.3.

END OF SECTION

1. GENERAL

1.1 DESCRIPTION

1.1.1 CCDC2 2008 Stipulated Price Contract Articles GC No.1 to GC 12 inclusive.

1.2 DRAWING LIST

1.2.1 A complete list of drawings is included in Appendix A – Bid Form.

1.2.2 Any revised drawings issued prior to closing of tenders shall become part of the List of Drawings.

1.3 BUILDING CODES, SAFETY CODES, LAWS, REGULATIONS

1.3.1 Give all required notices and comply with all laws, ordinances, rules, regulations, codes and orders relating to the work which are or come in force during the performance of the work, for the preservation of the public health and construction safety. If the work as shown on the drawings is required to be changed, as per the governing authorities, that shall be brought to the attention of the Architect before starting the work.

1.3.2 Obtain and pay for all necessary permits, licences, certificates, and any other special permits required, except those specified, or which will be obtained and paid for by those subcontractors affected. The Owner will apply and pay for the Building Permit.

1.4 SCOPE OF WORK AND LOCATION

1.4.1 The work of this Contract and Location comprises the work shown on the drawings and as stated in the specifications.

1.4.2 Include all incidental, casual or relatively subordinate work occurring as a necessary but minor result of the major part of the work if not shown on the drawings or specified, but required to complete the contract as intended.

1.5 INTERPRETATION

1.5.1 No oral interpretations shall be effective to modify the provisions of the Contract Documents. Every request for an interpretation shall be made at once to the Architect.

1.5.2 The Architect will not be responsible for oral instructions.

1.5.3 Any questions on finish or colours are to be answered only by the Architect. Submit questions in ample time before the requested information is required.

1.5.4 Take instructions only from the Architect or his appointed consultant or inspection company.

1.6 CHANGE IN THE WORK

1.6.1 Written orders will only be made on official forms as follows:

Contemplated Change Order - to determine the value of additional work to the contract.

Change Order - where the value of contractual obligation has been determined.

1.7 **OWNERS WORK**

1.7.1 The Contractor shall make himself aware of the extent of work performed by Owner's own forces. Refer to the list below of various items which may affect the work of this Contract.

1.7.1.1 Supply and installation of signage.

1.7.2 Cooperate with Owner to facilitate all aspects of this work, and include in Tender allowance for coordination.

1.7.3 The Owner reserves the right to take over any completed portion of the building contract and to proceed with installation of his furnishings and equipment.

1.8 **TERMS**

1.8.1 The term “Owner” for the purposes of this contract shall be understood to mean:

The Municipality of West Nipissing (Municipal Office)
101-225, Holditch Street, Sturgeon Falls, Ontario, P2B 1T1

1.8.2 The term "Architect" shall refer to:

Perry + Perry Architects Inc
69 Young Street, Suite B1, Sudbury, Ontario P3E 3G5

1.8.3 The term "Contractor" and "Subcontractor" shall be as defined in the General Conditions of the Contract Documents.

1.9 **BUILDING CONDITIONS AND WORK SCHEDULE**

1.9.1 **EXISTING BUILDING AND ITS OPERATIONS**

1.9.1.1 Use existing services only by prior arrangements with the Building Owner.

1.9.2 **WORK SEQUENCE**

1.9.2.1 Submit a complete detailed completion schedule, including the estimated time of completion of each separate portion of the work.

1.9.3 **HOARDINGS**

1.9.3.1 Erect temporary exits, hoarding, snow fence or covered walkways to suit general progress of the work and maintain at all times during the construction to the approval of local Building Inspector.

1.9.3.2 The temporary exits, hoarding or covered walkway as required under above, may only be removed at the direction of the Architect, in specific cases.

1.9.4 **PUBLIC ACCESS DAMAGE**

1.9.4.1 Make good all damage done to public sidewalk, street and lanes to the satisfaction of the Local Authorities at no cost to the Owner.

1.10 **OVERLOADING**

1.10.1 Take precautions to prevent the overloading of any part of the existing structure, false work, or scaffolding, during operations, and make good, at own expense, any damage resulting from overloading. Do not cut bore or sleeve load-bearing members, without the written approval through the Architect and Structural Consultant.

1.11 **EXAMINATION OF SITE**

1.11.1 The General Contractor and Subcontractors will be deemed to have examined the drawings and specifications, visited the premises and site so as to compare them with the drawings and specifications and to have satisfied themselves as to the conditions of the premises, the means of access to same, the nature and quantity of works required before delivery of the tenders. Failure on the part of the General Contractor or his Subcontractors to fully acquaint themselves with local conditions will in no sense form the basis for any claims.

1.12 **SETTING OUT OF THE WORK**

1.12.1 On commencement of work, locate all general reference points and take action as is necessary to prevent their destruction; lay out own work, and be responsible for all lines, elevations and measurements of work executed under the contract. Exercise proper precautions to verify figures shown on the drawings, before laying out work, and be responsible for any error resulting from failure to exercise such precaution.

1.12.2 Verify existing conditions on the site and dimensions shown on the drawings and report any errors or inconsistencies to the Architect before commencing work. Note all irregularities affecting the work of any Section of the Specifications.

1.13 **COOPERATION OF PARTIES ON SITE**

1.13.1 The Contractor shall make himself aware of the requirements of every Section of the Specifications and be responsible for assisting and making proper preparations for the work of all trades.

1.13.2 The responsibility as to which subtrade provides required articles or materials to be built in or supplied rests entirely with the Contractor. Differences in interpretation of the Specifications or drawings shall not be grounds for extra payments.

1.13.3 Cooperate and coordinate the proper performance of work, and ensure continuity of the work to the satisfaction of the Contractor and requirements of the Contract.

1.13.4 Cooperate and coordinate the work with the staff.

1.14 **TAXES**

1.14.1 The Contractor to pay all Federal, Provincial and Municipal sales taxes and levies including all custom duties, excise taxes with respect to the contract as specified in the General Conditions of the Contract.

1.15 **MATERIAL, STORAGE AND HANDLING**

1.15.1 Handle and store materials in accordance with manufacturers' and suppliers' recommendations to prevent damage to materials during storage and handling.

1.15.2 Store packaged materials undamaged in their original wrappings or containers with manufacturer's labels and seals intact.

1.15.3 Crating and packing may only be removed to the extent necessary to permit inspection of the contents and replaced after inspection.

1.16 **SHOP DRAWING**

1.16.1 Submit shop drawings in accordance with GC3.10 of General Conditions. The cost of all shop drawings to be paid for under the respective Section.

1.17 **SAMPLES**

1.17.1 Submit in duplicate samples when requested by the Architect showing materials, colour and finish. The materials used in the construction shall correspond to the approved samples. Do not order materials until the samples are approved.

1.17.2 Identify each type of material, manufacturer and sub-contractor.

1.18 **TEMPORARY FACILITIES**

1.18.1 In existing rental premises, light, water, heat, power and other services may be used during construction at cost to the General Contractor.

1.18.2 During any interruptions of services provide adequate temporary light, water, heat and power.

1.18.3 Provide washroom facilities to meet the approval of local Authorities.

1.19 **PROGRESS PHOTOGRAPHS**

1.19.1 Provide monthly dated high resolution digital colour photographs, showing all work in progress and e-mail to Consultant.

2. **PRODUCTS**

2.1 **MATERIAL QUALITY**

2.1.1 Use manufactured products in accordance with specified manufacturer's instructions.

2.1.2 Submit tenders based solely on the various trade names as may be mentioned in that specific section of the Specifications and/or drawings. Trade names are used for the purpose of determining the quality, type or capacity of equipment and/or materials, and shall not be construed as excluding the products of the other manufacturers, except as noted. Comply with specified standards where trade names are not mentioned. The latest edition of specified standards shall apply, whether indicated or not.

2.2 **MATERIAL AVAILABILITY**

2.2.1 Should materials specified not be available for any reason, make recommendations covering the use of alternate materials and/or alternate construction methods to those shown in these documents which could cause earlier completion of the building or result in a cost saving to the Owner, while providing the intended quality of work.

3. **EXECUTION**

3.1 **QUALIFICATION OF WORKMEN AND INSTALLERS**

3.1.1 Provide at least one person with each trade, to be present at all times during execution of the work of that trade, and thoroughly trained and experienced in performing the work, and to direct all work performed under that Section. Continuously inspect all work to ensure it is properly executed.

3.1.2 For operating equipment, use only through trained and experienced operators.

3.1.3 For installation of various items of work, or for finishing work of any trade, use only personnel thoroughly trained and experienced operators.

3.1.4 In the acceptance or rejection of finished work, no allowance will be made for lack of skill on the part of people employed.

3.2 **INSPECTION AND TESTING**

3.2.1 Independent Inspection and Testing Companies where called for in the Specification shall be appointed by the Architect and will be under the technical direction of the Architect, with all costs paid from the cash allowances specified.

3.2.2 The Services performed by the Inspection and Testing Companies are a function to assist in the Architect's review of the work and are not intended to replace the Contractor's responsibility for conforming to the requirements of the Contract Documents. The Contractor shall be responsible for continuous checking and inspection to ensure the Contract performance is in accordance with the specified requirements as the work proceeds.

3.3 **CLEAN-UP**

3.3.1 In addition to the cleaning outlined in other Divisions, undertake the following special cleaning at completion of the work.

3.3.1.1 Clean glass. (Removal of dirt, stains and paint splashing are the responsibility of the trade concerned and are to have been done prior to the trade leaving the job.)

3.3.1.2 Remove all labels from fixtures, glazing, etc., excepting Underwriters and Canadian Standard labels.

3.3.1.3 Remove dust, dirt, stains and fingerprints from newly painted, decorated work, and from all floor and ceiling finishes. Touch up painted surfaces, ceiling tile, etc., where required.

3.3.1.4 Promptly as the work proceeds and upon completion, clean up and remove from premises, rubbish and surplus waste materials. Broom clean exterior walks, steps, ramps, pavements, etc. Remove all surplus materials and tools daily.

3.3.1.5 Remove all temporary facilities previously specified and make good any damaged finishes.

3.3.1.6 Wax or seal floors, as called for in the specifications.

3.4 **TOUCH-UP/REPAIRS/START-UP**

3.4.1 Conduct an inspection of the work and instruct all trades, and own forces to repair, touch-up, adjust, etc., all defective work or damages and leave ready for final review by Architect.

3.4.2 All items of equipment, mechanical or electrical systems, other operating items, parts or systems shall be pre-tested, tried, started up, operated, etc., for a period of time to reveal any faults which shall be promptly corrected and left in a fully operational order or condition prior to final acceptance.

3.4.3 Notify the Architect in writing of any mechanical, electrical or other operating items to be adjusted, balanced or corrected at a later date after completion of the project.

3.5 **TAKE-OVER PROCEDURE**

3.5.1 Prior to inspection, verify the following work is performed.

3.5.1.1 All glass cleaned, and all painted and finished work shall have all marks removed, as Article 3.3.

3.5.1.2 Site - cleaned and free of all construction debris.

3.5.1.3 Work under Electrical Divisions - in full operating condition, when specified in this Contract.

3.6 **RECORD DRAWINGS**

3.6.1 During the progress of the work, together with the Mechanical and Electrical trades, keep on the site at all times, a complete and separate set of black line prints and note thereon clearly, neatly, accurately and promptly, all Architectural, Mechanical and Electrical changes, revisions and additions to the work and deviations from the Contract Documents. Accurate locations, depth, size and type of outside underground utilities are to be included in these record drawings. Drawings are to be presented at each job meeting.

3.7 **PERFORMANCE ASSURANCE**

3.7.1 Guarantees, Warranties and Bonds shall commence from the date of substantial completion of the work.

3.7.1.1 The Contractor shall assemble and prepare two 3-ring binders containing all guarantees called for in the Specifications, including an air balance report enclosed in plastic envelopes, and all maintenance requirements.

3.7.1.2 All guarantees shall be in the name of the Owner and be delivered to the Architect prior to the final inspection of the building.

3.7.1.3 Guarantees, warranties and bonds shall show the following: name and address of project, guaranty commencement date (date of substantial completion), duration of guarantee, clear indication of what is guaranteed and remedial action which will be performed, signature and seal of Contract.

End of Section

Part 1 General

1.1 SECTION INCLUDES

.1 Documents and precedence.

.2 Description of the Work.

.3 Contract method.

.4 Documents provided.

.5 Performance of the Work.

.6 Work sequence.

.7 Work by Owner.

.8 Owner supplied Products.

.9 Work by others.

.10 Future work.

.11 Contractor use of premises.

.12 Owner occupancy.

.13 Building Codes, Safety Codes, Laws, Regulations

1.2 RELATED SECTIONS

.1 Section 01 21 00 - Allowances

.2 Section 01 78 10 - Closeout Submittals.

.3 This section describes requirements applicable to all Sections within Divisions 02 to 33.

1.3 RELATED DOCUMENTS

.1 Agreement, General Conditions, and Supplementary Conditions.

.2 Other Division 1 specification sections.

.3 This section describes requirements applicable to all Sections within Divisions 02 to 33.

1.4 WORDS AND TERMS

.1 Refer to and acknowledge other words, terms, and definitions in CCDC 2 2020 Definitions.

1.5 COMPLEMENTARY DOCUMENTS

.1 Drawings, specifications, and schedules are complementary each to the other and what is called for by one to be binding as if called for by all. Should any discrepancy appear

between documents which leaves doubt as to the intent or meaning, abide by Precedence of Documents article below or obtain direction from the Consultant.

.2 Drawings indicate general location and route of conduit and wire/conductors. Install conduit or wiring/conductors and plumbing piping not shown or indicated diagrammatically in schematic or riser diagrams to provide an operational assembly or system.

.3 Install components to physically conserve headroom, to minimize furring spaces, or obstructions.

.4 Locate devices with primary regard for convenience of operation and usage.

.5 Examine all discipline drawings, specifications, and schedules and related Work to ensure that Work can be satisfactorily executed. Conflicts or additional work beyond work described to be brought to attention of Consultant.

1.6 PRECEDENCE OF DOCUMENTS

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

- .1 Agreement - Between Owner and Contractor,
- .2 Supplementary Conditions (if any),
- .3 General Conditions of the Contract,
- .4 Sections of Division 1 of the specifications,
- .5 Specifications:
  - .1 Sections of Divisions 2 through 33 of the specifications, and
  - .2 Specifications specifically indicated on drawings.
- .6 Schedules and keynotes:
  - .1 schedules within the specifications, then
  - .2 schedules on drawings.
- .7 Drawings:
  - .1 Drawings of larger scale shall govern over those of smaller scale of the same date, then
  - .2 Dimensions shown on drawings shall govern over dimensions scaled from drawings, then
  - .3 Location of utility outlets indicated on architectural detail drawings takes precedence over positions or mounting heights located on mechanical or electrical drawings.
- .8 Later dated documents shall govern over earlier documents of the same type.

.2 In the event of conflict between documents, the decision of the Consultant shall be final.

1.7 DESCRIPTION OF THE WORK

.1 Work of this Contract includes the Lobby Improvements, Pool Upgrades, Fire Alarm Panel Replacement and related work located at the West Nipissing Recreation Centre, Sturgeon Falls, ON and identified as Contract Number #2026-030 (2607).

.2 Division of the Work among other contractors, Subcontractors, suppliers or vendors is solely the Contractor's responsibility. The Owner assumes no responsibility to act as an arbiter to establish subcontract terms between sectors or disciplines of work.

1.8 CONTRACT METHOD

.1 Construct Work under single, CCDC2 2020 Stipulated Price Contract.

.2 Refer to Section 01 21 00 Allowances for cash allowance amounts applicable to assignable contracts.

.3 Assume responsibility for assigned contracts as Subcontracts forming part of the Work.

.4 Contract Documents were prepared by the Consultant for the Owner. Any use which a third party makes of the Contract Documents, or any reliance on or decisions to be made based on them, are the responsibility of such third parties. The Owner or Consultant accepts no responsibility for damages, suffered by any third party as a result of decisions made or actions based on the Contract Documents.

1.9 DOCUMENTS PROVIDED

.1 The Contractor may obtain additional sets of Contract Documents at the cost of printing, handling and shipping.

.2 An electronic set of documents will be provided near the end of the Project for purposes of transferring changed information recorded on as-built documents to the electronic Record Documents.

1.10 SPECIFICATION GRAMMAR

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

.2 The imperative language of the technical sections is directed to the Contractor, unless specifically noted otherwise.

.1 This form of statement requires the Contractor to perform such action or work.

.2 Perform all requirements whether stated imperatively or otherwise.

1.11 PERFORMANCE OF THE WORK

.1 Substantial Performance of the Work is required before October 31, 2026.

1.12 WORK SEQUENCE

.1 Coordinate Progress Schedule and with Owner use during construction.

.2 Maintain fire access and control of fire protection equipment.

1.13 WORK BY OWNER

.1 Reserved

1.14 OWNER-SUPPLIED PRODUCTS

.1 Obtain the necessary shop drawings from the Owner and proceed to coordinate details for installation, expedite, receive, unload, install, connect and test the specified equipment, and be responsible for warranty.

.2 Equipment specifications for pre-purchased items are included at the end of the project specification, printed for confirmation only.

.3 Receive Owner-supplied Products and equipment F.O.B. and store and process Products and equipment until installation.

.4 Owner Responsibilities:

.1 Arrange for delivery of shop drawings, product data, samples, manufacturer's instructions, and certificates to Contractor.

.2 Deliver supplier's bill of materials to Contractor.

.3 Arrange and pay for delivery to the Place of the Work in accordance with Progress Schedule.

.4 Inspect deliveries jointly with Contractor.

.5 Submit claims for transportation damage.

.6 Arrange for replacement of damaged, defective or missing items.

.7 Arrange for manufacturer's field services; arrange for and deliver manufacturer's warranties and bonds to Contractor.

.5 Contractor Responsibilities:

.1 Designate submittals and delivery date for each Product in progress schedule.

.2 Review shop drawings, product data, samples, and other submittals. Submit to Consultant, notification of any observed discrepancies or problems anticipated due to non-conformance with Contract Documents.

.3 Receive and unload Products at site.

.4 Inspect deliveries jointly with Owner; record shortages, and damaged or defective items.

.5 Handle Products at site, including uncrating and storage.

.6 Protect Products from damage, and from exposure to elements.

.7 Assemble, install, connect, adjust, and finish Products.

.8 Arrange for installation inspections required by public authorities.

.9 Repair or replace items damaged by Contractor or Subcontractor on site (under their control).

.6 Schedule of Owner-Supplied Contractor Installed Products.

.1 Reserved.

1.15 WORK BY OTHERS

.1 Work of Project executed prior to start of and/or during Work of this Contract, and which is specifically excluded from this Contract:

.1 Reserved.

.2 Work of Project which will be executed after completion of Work of this Contract, and which is specifically excluded from this Contract:

.1 Reserved.

.3 Work of this Project must include provisions for coordinating additional and/or related work, identified in Contract Documents, for following principal items.

.1 Reserved.

1.16 FUTURE WORK

.1 Reserved

1.17 CONTRACTOR USE OF PREMISES

.1 Contractor has restricted use of site until Substantial Performance of the Work.

1.18 OWNER OCCUPANCY

.1 Owner will occupy the premises during entire construction period.

.2 Cooperate with Owner in maintaining building access to the public during facility hours which is typically after 4:00pm.

.3 Maintain fire and life safety systems and public access to exits during all stages of the Work.

1.19 BUILDING CODES, SAFETY CODES, LAWS, REGULATIONS

.1 Give all required notices and comply with all laws, ordinances, rules, regulations, codes and orders relating to the work which are or come in force during the performance of the work, for the preservation of the public health and construction safety. If the work as shown on the drawings is required to be changed, as per the governing authorities, that shall be brought to the attention of the Architect before starting the work.

.2 Obtain and pay for all necessary permits, licences, certificates, and any other special permits required, except those specified, or which will be obtained and paid for by those subcontractors affected. The Owner will pay for the Building Permit however the Contractor shall prepare the Building Permit Application.

End of Section

1. SUBMISSION OF QUOTATION

1.1 If the Consultant determines that the cost of the work will be affected due to a contemplated change, the Contractor shall submit a quotation to the Consultant in accordance with the instructions specified herein.

2. GENERAL

2.1 Quotations for Contemplated Change Notices must include a detailed breakdown of all labour, material, plant and equipment costs incurred by the Contractor. Quotations from subcontractors involved in the change must also be supported by similarly detailed breakdowns of the subcontractors' costs.

2.2 It is the responsibility of the Contractor to ensure that all subcontractors' quotations included in the Contractor's quotation to the Consultant are fair and reasonable in view of the terms expressed herein.

2.3 The labour hours required for the contemplated change shall be based on the estimated number of hours to perform the work.

2.4 Time spent by a working foreman may be included in the number of labour hours, at a rate agreed to in writing by the Contractor and the Consultant.

2.5 Time attributable to material handling, productivity factors and approved rest periods is to be included in the number of hours required by the contemplated change and will not be paid as a separate item under hourly rates.

2.6 Mark-ups referred to in Sections 5 and 6 below are not to be included in the hourly labour rates.

2.7 Credit for work deleted will only be for the work directly associated with the changes stipulated in the particular Contemplated Change Notice.

2.8 When a change deletes work which has not yet been performed, the Consultant is entitled to an adjustment in the Contract Amount equal to the cost the Contractor would have incurred had the work not been deleted.

2.9 Mark-ups referred to in Sections 5 and 6 below shall not be applied to any credit amounts for deleted work.

2.10 In those cases where the change involves additions and deletions to the work, the percentage mark-ups referred to in Sections 5 and 6 below shall apply only when the cost of the additions minus the cost of the deletions would result in an increase in the Contract Amount. The percentage allowance shall only be applied to that portion of the costs of the additions that is in excess of the cost of the deletions.

2.11 If the contemplated change in the work necessitates a change in the contract completion date, or has an impact on the work, the Contractor shall identify and include the resulting cost in the breakdown of its quotation to the Consultant.

2.12 The work shall conform to the contract documents unless otherwise stated in the Contemplated Change Notice, Change Order or Site Instruction (1) signed by the Consultant.

2.13 Upon acceptance of the Contractor's quotation by the Consultant, the Consultant shall prepare and issue the formal Change Order.

3. HOURLY LABOUR RATES

3.1 The hourly labour rates listed in the Contractor's quotation shall be determined in accordance with the collective agreements that are applicable at the site of the work and shall include:

- .1 The base rate of pay.
- .2 Vacation pay.
- .3 Benefits which includes:
  - .1 Welfare contributions
  - .2 Pension contributions.
  - . .3 Union dues.
  - .4 Training and industry funds contributions.
  - .5 Other applicable benefits, if any, that can be substantiated by the Contractor.
- .4 Statutory and legislated requirements, assessed and payable under statutory authority, which includes:
  - .1 Employment Insurance contributions.
  - .2 Canada Pension Plan or Quebec Pension Plan contributions.
  - .3 Worker's Compensation Board or Commission de la santé et de la sécurité du travail premiums.
  - .4 Public Liability and Property Damage insurance premiums.
  - .5 Health tax premiums.

3.2 In the case of non-union labour, all rates claimed shall be in accordance with the terms of the Labour Conditions forming part of this contract and the Contractor must provide satisfactory proof of the rates actually paid. Non-union rates shall not exceed rates payable under any applicable collective trade agreement unless approved in writing by the Consultant.

4. MATERIAL, PLANT AND EQUIPMENT COSTS

4.1 The costs of all purchases and rentals must be based on the actual amount paid to the suppliers by the Contractor or subcontractor and said costs are to include all applicable discounts.

5. ALLOWANCE ON WORK BY OWN FORCES

5.1 Contractor's mark-up on its own work:

Overhead/Profit	Change Value
20%	between $0 to $1,999.99
15%	between $2,000.00 to $9,999.99
10%	over $10,000.00

The mark-up shall include all of the costs of all labour, material, plant and equipment furnished or supplied by the Contractor or subcontractor that is required by the contemplated change, shall be added to the Contractor's or subcontractor's quotation as full compensation for:

- .1 All supervision, coordination, administration, overhead, margin and the risk of undertaking the work within the stipulated amount.
- .2 Miscellaneous additional costs related to:
  - .1 The purchase or rental of material, plant and equipment.
  - .2 The purchase of small tools and supplies.
  - .3 Safety and protection measures.
  - .4 Permits, bonds, insurance, Consultanting, as-built drawings,

commissioning and site office.

6. ALLOWANCE ON WORK BY SUBCONTRACTORS

6.1 Contractor's mark-up on each individual Subcontractor's work:

Overhead/Profit	Change Value
15%	between $0 to $1,999.99
10%	between $2,000.00 to $9,999.99
5%	over $10,000.00

The mark-up shall include the total of all quotations received from subcontractors, shall be added to the Contractor's quotation as full compensation for:

.1 All supervision, coordination, administration, overhead, margin and the risk of undertaking the work within the stipulated amount.

.2 Miscellaneous costs related to:

- .1 Safety and protection measures.
- .2 Permits, bonds, insurance, engineering, as-built drawings, commissioning and site office.

.3 Subcontractor's mark-up on its own work:

- .1 Overhead: 10%
- .2 Profit: 5%

.4 Subcontractor's mark-up on sub-subcontractor's work:

- .1 Overhead: 5%
- .2 Profit: 5%

End of Section

Part 1 General

1.1 SECTION INCLUDES

.1 Connecting to existing services.

.2 Special scheduling requirements.

1.2 RELATED SECTIONS

.1 Section 01 01 00 – General Conditions.

.2 Section 01 33 00 - Submittal Procedures.

.3 This section describes requirements applicable to all Sections within Divisions 02 to 33.

1.3 EXISTING SERVICES

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

.2 Where Work involves breaking into or connecting to existing services, give Owner, 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work.

.1 Keep duration of interruptions minimum.

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

.3 Provide for personnel and vehicular traffic.

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

1.4 SPECIAL REQUIREMENTS

.1 Perform noise generating work:

.1 from Monday to Friday from 08:00 to 17:00 hours, and

.2 on Saturdays, Sundays, and statutory holidays to Owner approval.

.2 Municipal Operations: The building shall remain operational and functional at all times except for the construction phase of September 1, 2026 to October 31, 2026.

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

1.5 SPECIAL DATES

.1 The following dates and/or events are considered to be dates that construction work cannot proceed unless approved by the Owner:

.1 Prior to September 1, 2026 or after October 31, 2026.

End of Section

Part 1 General

1.1 SECTION INCLUDES

.1 Words and terms.

.2 Complementary documents.

.3 Specification grammar.

1.2 RELATED DOCUMENTS

.1 CCDC2 2020 - Agreement and Definitions.

.2 CCDC2 2020 - General Conditions.

.3 Section 00 73 03 - Supplementary Conditions.

.4 Section 01 10 00 - Summary of Work.

.5 This section describes requirements applicable to all Sections within Divisions 02 to 33.

1.3 WORDS AND TERMS

.1 Conform to Definitions and their defined meanings in the Definitions portion of CCDC2 2020 and Section 00 73 03 - Supplementary Conditions for supplementary words and terms.

1.4 COMPLEMENTARY DOCUMENTS

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

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

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

.4 Install piping, conduit or wire conductors and fixtures not shown or indicated diagrammatically in schematic or riser diagrams, to result in an operational assembly or system.

.5 Install components to physically conserve headroom, to minimize furring spaces, or obstructions.

.6 Locate devices with primary regard for convenience of operation and usage.

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

.8 Conflicts or perceived additional work, beyond work described, notify Consultant.

.9 All sections of the Project Manual are affected by the requirements of Division 1 sections.

1.5 SPECIFICATION GRAMMAR

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

.2 Imperative language of the technical sections is always directed to the Contractor as sole executor of the Contract, unless specifically noted otherwise.

.1 This form of statement requires the Contractor to perform such action or Work.

.2 Perform all requirements of the Contract Documents whether stated imperatively or otherwise. Division of the Work among subcontractors, suppliers, or others is solely the Contractor's responsibility. The specification author assumes no responsibility to function or act as an arbiter to establish subcontract scope or limits between sections or divisions of work.

End of Section

Part 1 General

1.1 SECTION INCLUDES

.1 Cash allowances.

.2 Inspection and testing allowances.

.3 Contingency allowance.

1.2 RELATED SECTIONS

.1 Section 01 01 00 – General Conditions.

.2 This section describes requirements applicable to all Sections within Divisions 02 to 16.

1.3 CASH ALLOWANCES

.1 Costs Included in Cash Allowances: Cost of Product to Contractor, less applicable trade discounts; delivery to site, and applicable taxes.

.2 If a Cash Allowance item described in the Allowances Schedule below indicates the inclusion of installation, include in the Cash Allowance amount, provision for Product handling at the site, including unloading, uncrating, storage, protection of Products from elements and from damage, labour for installation and finishing, insurance, labour costs, taxes, bonding if applicable, equipment rental, overhead and profit.

.3 If a Cash Allowance item described in the Allowances Schedule below indicates supply only, include in the Contract Price costs not included in Cash Allowances but included in the Contract Price: Product handling at the site including unloading, uncrating, storage, protection of Products from elements and from damage, labour for installation and finishing, insurance, labour costs, taxes, bonding if applicable, equipment rental, overhead and profit.

.4 Consultant Responsibilities:

- .1 Consult with Contractor for consideration and selection of Products, suppliers, and installers.
- .2 Owner and Consultant to select Products.
- .3 Prepare Change Order.

.5 Contractor Responsibilities:

- .1 Assist Consultant in selection of Products, suppliers and installers.
- .2 Obtain proposals from suppliers and installers and offer recommendations.
- .3 On notification of selection by Consultant or Owner, execute purchase agreement with designated supplier and installer.
- .4 Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
- .5 Promptly inspect Products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.

.6 Differences in costs will be adjusted by Change Order.

1.4 FINISH HARDWARE ALLOWANCE

.1 Include in the Contract, a stipulated price of $5,000.00 for supply of the Finish Hardware as per Specification Section 08710. Finish Hardware Allowance does not include for the supply or installation of automatic power door operators.

.2 Contractor's costs for Products, delivery, installation, labour, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance

1.5 CONTINGENCY ALLOWANCE

.1 Include in the Contract, a stipulated price of $30,000.00 for a Construction Contingency Allowance for use upon Owner's written instruction via Change Order.

.2 Contractor's costs for Products, delivery, installation, labour, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

End of Section

Part 1 General

1.1 SECTION INCLUDES

.1 Shop drawings and product data.

.2 Samples.

.3 Certificates and transcripts.

1.2 RELATED SECTIONS

.1 Section 01 32 00 - Construction Progress Documentation.

.2 Section 01 78 10 - Closeout Submittals.

.3 Other sections requesting submittals.

.4 This section describes requirements applicable to all Sections within Divisions 02 to 16.

1.3 ADMINISTRATIVE

.1 Submit to Consultant submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Work affected by submittal shall not proceed until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in Imperial inch-pound units.

.4 Where items or information is not manufactured or produced in Imperial inch pound units, converted values within the metric measurement tolerances are acceptable.

.5 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.

.6 Submittals not stamped, signed, dated, identified as to specific project, and attesting to their being reviewed will be returned without being examined and shall be considered rejected.

.7 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.8 Verify field measurements and affected adjacent Work are coordinated.

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

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

.11 Keep one reviewed copy of each submission on site.

1.4 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 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.

.3 Allow ten (10) days for Consultant's review of each submission.

.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.

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

.6 Accompany submissions with transmittal letter, containing:

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

.7 Submissions shall include:

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

.9 Single line and schematic diagrams.

.10 Relationship to other parts of the Work.

.8 After Consultant's review, distribute copies.

.9 Submit six (6) prints and electronic copy of shop drawings for each requirement requested in specification Sections and as consultant may reasonably request.

.10 Submit six (6) and electronic copies of product data sheets or brochures for requirements requested in specification sections and as requested by Consultant where shop drawings will not be prepared due to standardized manufacture of product.

.11 Delete information not applicable to project.

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

.13 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and re-submission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.5 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 Consultant's business address.

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

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

.5 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.

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

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

1.6 MOCK-UP

.1 Erect mock-ups in accordance with 01 43 00 and 01 45 00.

1.7 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of Contract.

End of Section

Part 1 General

1.1 SECTION INCLUDES

.1 Safety requirements and adherence.

1.2 RELATED SECTIONS

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

.2 Section 01 33 00 - Submittal Procedures.

.3 This section describes requirements applicable to all Sections within Divisions 02 to 16.

1.3 REFERENCES

.1 Occupational Health and Safety Act, Regulation and Code RSO 1990 c.01.

1.4 MUNICIPALILTY REQUIRMENTS

.1 Competent person: Contractor is responsible using their training, knowledge and experience to protect the health and safety of their workers and others, reporting to their supervisor the absence of, or defect in any protective equipment or device, and reporting to their supervisor, any circumstances or conditions that may limit their ability to comply with the requirements of the OHSA and the Municipality of West Nipissing Safety policy.

.2 Equipment & tools: All equipment and tools used by the contractor shall conform to Canadian Standards Association (CSA) or manufacture specifications. The Municipality of West Nipissing reserves the right to prohibit the use of any equipment and methods or practices that do not conform to acceptable standards. Defective equipment and tools shall be removed from the work site premises immediately.

.3 PPE: All workers must wear appropriate CSA approved eye protection, hearing protection, CSA approved hard hats, CSA approved foot protection and CSA approved gloves at all time while working on the job site.

.4 Fall protection: Safety harness and lanyard are required by anyone working more than 3 meters above a surface. The safety harness must be secured to a fixed support so that a worker cannot fall more than five feet. Proof of certification shall be submitted before starting any work at height.

.5 WHMIS: No hazardous material is to be stored or used on work site by the contractor unless the prescribed requirements concerning labelling material safety data sheets (MSDSs) and worker instruction and training are met.

.6 MSDS: Material safety data sheets for all hazardous products shall be kept on site for this project.

.7 Weekly safety meetings: Contractor shall conduct weekly safety meetings with their workers and identify concerns or potential hazards on the job site. Weekly safety meeting shall be signed by all workers and a copy of the safety meeting shall be submitted to the contract administrator weekly.

.8 Proof of training: The contractor shall submit within five (5) calendar days after the contract award, copies of WHMIS, copies of health and safety awareness, first aid

certificate and certificates pertaining to the work being done for all workers working on the job site.

.9 Reporting: Contractor must report immediately to the contract administrator all workplace incidents, near misses, injuries and illnesses and environmental damages. Contractor shall also report accidents/incidents to the ministry of labour or any other appropriate authority required by legislation.

.10 Supervision: Contractor shall comply with OHSA regulations.

.11 Health & Safety Station: Contractor shall provide at all time a dedicated station for workers to have access to the contractors H&S manual, the emergency response plan, the OH&S Pocket book, MSDS sheets, WSIB information, Eye wash stations and emergency aid kit.

.12 WSIB: Contractor shall provide the Municipality with a current WSIB Clearance Certificate within five (5) days of contract award. The successful Bidder shall submit material safety data sheets for all trades to the Owner's Consultant for review by the Owner, in accordance with the Canada Labour Code regulations for toxic and hazardous substances that will be used on the project. Material safety data sheets must be submitted to the Owner's Consultant at least three weeks prior to the hazardous substances being delivered to the site. The successful Bidder shall keep on site at all times copies of the material safety data sheets in a binder which will be handed over to the Owner at completion of the project.

1.5 SAFETY PLAN

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to commencing any site Work and continue to implement, maintain, and enforce plan until final demobilization from site. 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.

1.6 RESPONSIBILITY

.1 The Prime Contractor according the the Act, is responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

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

.3 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, and follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction. Advise Consultant verbally and in writing.

1.7 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00.

.2 Submit site-specific Health and Safety Plan: Within seven (7) 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 [found in work plan].

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

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

.5 Submit copies of incident and accident reports.

.6 Submit Material Safety Data Sheets (MSDS) to Consultant.

.7 Medical Surveillance: Where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Consultant.

.8 On-site Contingency and Emergency Response Plan: Address standard operating procedures to be implemented during emergency situations.

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

1.8 SAFETY ACTIVITIES

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

.2 Schedule and administer Health and Safety meeting with Consultant prior to commencement of Work.

.3 Perform Work in accordance with Section 01 41 00 - Regulatory Requirements and this section.

1.9 HEALTH AND SAFETY COORDINATOR

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

.1 Have minimum two (2) years' site-related working experience specific to activities associated with the scope of the work.

.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 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.10 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.

1.11 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.

1.12 PROJECT/SITE CONDITIONS

.1 Work at site will involve contact with:

.1 Reserved.

1.13 HAZARDOUS WORK

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

.2 Use powder actuated devices only after receipt of written permission from Consultant.

1.14 WORK STOPPAGE

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

1.15 FIRE PROTECTION

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

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

.3 Maintain placed or installed fire resistive construction, fireproofing, firestopping, to protect the portions of the Work during construction.

End of Section

Part 1 General

1.1 SECTION INCLUDES

.1 Field engineering survey services to measure and stake site.

.2 Recording of subsurface conditions found.

.3 Survey services to determine measurement inverts for the Work.

.4 Requirements and limitations for cutting and patching the Work.

1.2 RELATED SECTIONS

.1 Section 01 62 00 - Product Exchange Procedures.

.2 This section describes requirements applicable to all Sections within Divisions 02 to 33.

1.3 REFERENCES

.1 Owner's identification of existing survey control points and property limits.

1.4 SUBMITTALS

.1 Submit name and address of Surveyor to Consultant.

.2 On request of Consultant, submit documentation to verify accuracy of field engineering work.

.3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

1.5 QUALIFICATIONS OF SURVEYOR

.1 Qualified registered land surveyor, licensed to practise in the Place of the Work, acceptable to Consultant.

1.6 SURVEY REFERENCE POINTS

.1 Existing base horizontal and vertical control points are designated on Drawings.

.2 Locate, confirm and protect control points prior to starting site Work. Preserve permanent reference points during construction.

.3 Make no changes or relocations without prior written notice to Consultant.

.4 Report to Consultant when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

.5 Require surveyor to replace control points in accordance with original survey control.

1.7 SURVEY REQUIREMENTS

.1 Establish two (2) permanent bench marks on site, referenced to established bench marks by survey control points.

.2 Record locations, with horizontal and vertical data in Project Record Documents.

.3 Establish lines and levels, locate and lay out, by instrumentation.

.4 Stake for grading, fill and topsoil placement and landscaping features.

.5 Stake slopes and berms.

.6 Establish pipe invert elevations.

.7 Stake batter boards for foundations.

.8 Establish foundation, column locations and floor elevations.

.9 Establish lines and levels for mechanical and electrical work.

1.8 SUBSURFACE CONDITIONS

.1 Promptly notify Consultant in writing if discovered surface or subsurface conditions at Place of Work differ materially from those indicated in Contract Documents.

.2 Advise the Consultant of a reasonable assumption of probable conditions when determined.

.3 After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work .

1.9 EXAMINATION

.1 Inspect existing conditions, including elements or adjacent Work subject to irregularities, damage, movement, including Work during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of the Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

1.10 PREPARATION

.1 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.2 Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

1.11 EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Consultant of findings.

.2 Remove abandoned service lines within 2 metres of structures. Cap or seal lines at cut-off points as directed by Consultant.

1.12 LOCATION OF EQUIPMENT AND FIXTURES

.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Consultant of impending installation and obtain approval for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Consultant.

1.13 SURVEY RECORD

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

.3 Record locations of maintained, re-routed and abandoned service lines.

End of Section

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Requirements and limitations for cutting and patching of Work.

1.2 RELATED SECTIONS

.1 Section 01 10 00 - Summary of Work: Work by Owner.

.2 Individual Product Specification Sections:

.1 Cutting and patching incidental to work of the section.
.2 Advance notification to other sections of openings required in Work of those sections.
.3 Limitations on cutting structural members.

1.3 SUBMITTALS

.1 Submit written request in advance of cutting or alteration which affects:

.1 Structural integrity of any element of Project.
.2 Integrity of weather exposed or moisture resistant element.
.3 Efficiency, maintenance, or safety of any operational element.
.4 Visual qualities of sight exposed elements.
.5 Work of Owner or separate contractor.

.2 Include in request:

.1 Identification of Project.
.2 Location and description of affected Work.
.3 Necessity for cutting or alteration.
.4 Description of proposed Work and Products to be used.
.5 Alternatives to cutting and patching.
.6 Effect on work of Owner or separate contractor.
.7 Written permission of affected separate contractor.
.8 Date and time work will be executed.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Primary Products: Those required for original installation.

.2 Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 01 00.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

.2 After uncovering existing Work, assess conditions affecting performance of work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

.1 Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.

.2 Provide protection from elements for areas which may be exposed by uncovering work.

.3 Maintain excavations free of water.

3.3 CUTTING

.1 Execute cutting and fitting [including excavation and fill] to complete the Work.

.2 Uncover work to install improperly sequenced work.

.3 Remove and replace defective or non-conforming work.

.4 Remove samples of installed work for testing [when requested].

.5 Provide openings in the Work for penetration of mechanical and electrical work.

.6 Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

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

3.4 PATCHING

.1 Execute patching to complement adjacent Work.

.2 Fit Products together to integrate with other Work.

.3 Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.

.4 Employ original installer to perform patching for weather exposed and moisture resistant elements, and sight-exposed surfaces.

.5 Restore work with new Products in accordance with requirements of Contract Documents.

.6 Fit work air tight to pipes, sleeves, ducts, conduit, and penetrations through surfaces.

.7 At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00 to full thickness of the penetrated element.

.8 Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

End of Section

Part 1 General

1.1 SECTION INCLUDES

.1 Inspections and declarations.

.2 Closeout submittals

.3 Operation and maintenance manual format.

.4 Contents each volume.

.5 Recording actual site conditions.

.6 Record (as-built) documents and samples.

.7 Record documents.

.8 Final survey.

.9 Warranties and bonds.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 This section describes requirements applicable to all Sections within Divisions 02 to 16.

1.3 INSPECTIONS AND DECLARATIONS

.1 Contractor's Inspection: Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.

.2 Request Consultant's Inspection.

.2 Consultant's Inspection: Consultant and Contractor will perform inspection of Work to identify defects or deficiencies. Correct defective and deficient Work accordingly.

.3 Completion: submit written certificate that following have been performed:

.1 Work has been completed and inspected for compliance with Contract Documents.

.2 Defects have been corrected and deficiencies have been completed.

.3 Equipment and systems have been tested, adjusted and balanced and are fully operational.

.4 Certificates required by authorities having jurisdiction have been submitted.

.5 Operation of systems have been demonstrated to Owner's personnel.

.6 Work is complete and ready for Final Inspection.

.4 Final Inspection: when items noted above are completed, request final inspection of Work by Owner, Consultant and Contractor. If Work is deemed incomplete by Owner and Consultant, complete outstanding items and request re-inspection.

.5 Declaration of Substantial Performance: when Owner and Consultant consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for Substantial Performance of the Work.

.6 Commencement of Warranty Periods: the date of Substantial Performance of the Work shall be the date for commencement of the warranty period.

.7 Commencement of Lien Periods: the date of publication of the certificate of Substantial Performance of the Work shall be the date for commencement of the lien period, unless required otherwise by the lien legislation applicable at the Place of the Work.

.8 Final Payment: When Owner and Consultant consider final deficiencies and defects have been corrected and it appears requirements of Contract have been completed, make application for final payment.

.9 Payment of Hold-back: After issuance of certificate of Substantial Performance of the Work, submit an application for payment of hold-back amount.

1.4 CLOSEOUT SUBMITTALS

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

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

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

.4 Four weeks prior to Substantial Performance of the Work, submit to the Consultant, four final copies of operating and maintenance manuals in Canadian English.

.5 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

.6 If requested, furnish evidence as to type, source and quality of products provided.

.7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

.8 Pay costs of transportation.

1.5 OPERATION AND MAINTENANCE MANUAL FORMAT

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

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by systems and/or process flow, under Section numbers and sequence of Table of Contents.

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

.7 Text: Manufacturer's printed data, or typewritten data.

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

1.6 CONTENTS - EACH VOLUME

.1 Table of Contents: provide title of project;

.1 date of submission;

.2 names, addresses, and telephone numbers of Consultant and Contractor with name of responsible parties; and

.3 schedule of products and systems, indexed to content of volume.

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

.3 Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00.

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

.5 Certificate of Acceptance: Relevant certificates issued by authorities having jurisdiction, including code compliance certificate, life safety systems performance certificate and pressure vessel acceptance.

.6 Training: Refer to Commissioning.

1.7 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on set of black line opaque drawings, and within the Project Manual.

.2 Annotate with coloured felt tip marking pens, maintaining separate colours for each major system, for recording changed information.

.3 Record information concurrently with construction progress. Do not conceal Work of the Project until required information is accurately recorded.

.4 Contract drawings and shop drawings: legibly mark each item to record actual construction, including:

.1 Measured depths of elements of foundation in relation to finish first floor datum.

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

.5 Specifications: legibly mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

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

1.8 RECORD (AS-BUILT) DOCUMENTS AND SAMPLES

.1 In addition to requirements in General Conditions, maintain at the site for Consultant and Owner one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to the Contract.

.5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store as-built documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label as-built documents and file in accordance with section number listings in List of Contents of the Project Manual. Label each document "AS-BUILT DOCUMENTS" in neat, large, printed letters.

.4 Maintain as-built documents in clean, dry and legible condition. Do not use as-built documents for construction purposes.

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

1.9 RECORD DOCUMENTS

.1 Reserved.

1.10 FINAL SURVEY

.1 Submit final site survey certificate in accordance with Section 01 70 00, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

.2 Inaccurate or neglectful information shall become a liability of the Contractor.

1.11 WARRANTIES AND BONDS

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

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) days after completion of the applicable item of work.

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

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

.6 Co-execute submittals when required.

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

End of Section

Part 1 GENERAL

.1 Make good surfaces and finishes damaged or disturbed due to Work of this Contract to match existing. Ensure that material used to repair damage is compatible with existing work.

.2 Term “make good” to mean repairing or filling operations performed on existing floors, walls, ceiling or any other exposed surfaces. Perform cutting and patching where applicable as specified herein. It is intended that finished surfaces match and line with existing adjoining surfaces.

.3 Restore Site to condition equal to or, if specified elsewhere, to condition better than existing conditions.

.4 Restore lands outside of limits of Work which are disturbed due to Work to original condition in addition to complying with requirements of General Conditions of the Contract.

End of Section

1.1. Conform to Sections of Division 1 as applicable.

1.2. **RELATED SECTIONS**

1.2.1. Non-friable asbestos handling: Type 1 Asbestos Procedures.

1.2.2. Disconnection and sealing off mechanical services to building; demolition, removal and making good of existing mechanical work: Division 15 - Mechanical.

1.2.3. Disconnecting and sealing off electrical services to building; demolition removal and making good of existing electrical work: Division 16 - Electrical.

1.3. **REFERENCES**

CSA S350 M80 (R2003) Code of Practice for Safety in Demolition of Structures

1.4. **QUALITY ASSURANCE**

1.4.1. **Regulatory Requirements:**

1.4.1.1. Conform to The Occupational Health and Safety Act, R.S.O. 1990 c.O.1, Ontario Regulation 213/91, Amended to O.Reg. 85/04 - Construction Projects.

1.4.1.2. Occupational Health and Safety Act Revised R.R.O. 1990,Regulation 838, Amended to O.Reg 278/05, Designated Substance - Asbestos on Construction Projects and in Building and Repair Operations;

1.4.1.3. Conform to OBC, especially Article 2.3.2.3 as applicable.

1.4.1.4. Conform to Fire Code, Regulation under Fire Marshals Act especially Part 8.

1.4.2. **Qualifications:** Employ for this work demolition company having 5 years Canadian experience in this type of work satisfactory to Consultant. If requested, submit proof of experience.

1.5. **SUBMITTALS** – Not Used

1.6. **PROJECT CONDITIONS**

1.6.1. Schedule work as per Item Section 01010 General Requirements.

2. **PRODUCTS**

2.1. Except as indicated on Drawings, materials forming permanent part of structure being demolished shall become property of this Section. Remove from Site.

2.2. Carefully remove, store, protect and re-install materials and equipment scheduled to be reused and/or relocated.

3. EXECUTION

3.1. **PREPARATION**

3.1.1. Conform to requirements of Section 01 01 00, General Requirements, in particular article on Design and Safety Requirements for Temporary Work.

3.1.2. Do not interfere with use and activities of adjacent occupancies. Maintain free and safe passage to and from occupied space. Maintain integrity of existing fire exits.

3.1.3. Protect existing adjacent work against damages which might occur from falling debris or

other causes due to work of this Section.

3.1.4. Erect and maintain dustproof partitions as required to prevent spread of dust, fumes and smoke to other parts of the building. On completion, remove partitions and make good surfaces to match adjacent surfaces of building.

3.2. **PERFORMANCE**

3.2.1. Materials and debris shall not be stacked in building to extent that overloading of any part of structure will occur.

3.2.2. At end of each day's work leave work in safe condition ensuring that no parts of structure are in danger of collapsing.

3.2.3. Carry out demolition in accordance with requirements of CSA S350-M.

3.2.4. Demolish and remove interior partitions, walls, ceilings, flooring down to concrete substrate, except those specified and/or indicated to remain.

3.2.5. **Firestopping and Smoke Seal:** In event that work of this Section impacts on integrity of fire separations, ensure that trade performing firestopping is notified.

3.3. **DISPOSAL OF WASTE MATERIALS**

3.3.1. Conform to requirements of municipality's Works Department regarding disposal of waste materials.

3.3.2. Materials prohibited from municipality waste management facilities shall be removed from Site and dispose of at recycling companies specializing in recyclable materials.

End of Section

PART 1- GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 All miscellaneous metal items not specifically described in other Sections of these specifications but required for a complete and operable facility including all steel angles, supports, brackets, straps, anchors, runners, and other fixing members required by other trades;

1.2 RELATED SECTIONS

.1 Section 06 20 00 - Architectural Woodwork and Millwork

.2 Section 09 91 00 - Painting: Paint finish.

.3 Section 08 71 00 – Finishing Hardware.

.4 Section 08 80 00 - Glass and Glazing

1.3 REFERENCES

.1 ASTM A53/A53M-12 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

.2 ASTM A153/A153M-09 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

.3 ASTM A307-12 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.

.4 ASTM A500/A500M-10a - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

.5 ASTM A501-07 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

.6 ASTM B177/B177M-11 - Standard Guide for Engineering Chromium Electroplating.

.7 ASTM B209-10 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

.8 ASTM B209M-10 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

.9 ASTM B210-12 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes.

.10 ASTM B210-12 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes.

.11 ASTM B211M-12e1 - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire.

.12 ASTM B211-12e1 - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire.

.13 ASTM B221-12a - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.14 ASTM B221M-12a - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.15 CAN/CGSB 1.40-97 - Anticorrosive Structural Steel Alkyd Primer.

.16 CAN/CGSB 1.181-99 - Ready-Mixed Organic Zinc-Rich Coating.

.17 CSA-G40.20-04/G40.21-04 (R2009) - General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steel.

.18 CSA-W47.1-09 - Certification of Companies for Fusion Welding of Steel.

.19 CSA-W47.2-11 - Certification of Companies for Fusion Welding of Aluminum.

.20 CSA-W48-06 (R2011) - Filler Metals and Allied Materials for Metal Arc Welding.

.21 CSA-W55.3-08 - Certification of Companies for Resistance Welding of Steel and Aluminum.

.22 CSA-W59-03 (R2008) - Welded Steel Construction (Metal Arc Welding).

.23 CSA-W59.2-M1991 (R2008) - Welded Aluminum Construction.

.24 SSPC (The Society for Protective Coatings) - Steel Structures Painting Manual.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Shop Drawings:

.1 Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

.2 Indicate welded connections using standard welding symbols. Indicate net weld lengths.

.3 Shop drawings for steel stairs, handrails and guards shall bear the stamp of a Registered Professional Engineer licensed to practice in the Province of Ontario.

.4 Submit for approval, sample sections of various components. Such samples shall be representative of colour, finish and dimension of materials to be supplied on this project. These samples will be retained by the Consultant for comparison with the actual job materials at the time of installation.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIRMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordinate with other work having a direct bearing on work of this section.

.3 Pre-installation Meetings: Convene two (2) weeks before starting work of this section.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

.2 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

.3 Welders' Certificates: Submit to Section 01 33 00, certifying welders employed on the Work, verifying qualification within the previous twelve (12 months).

.4 Requirements of Regulatory Agencies:

.1 Metal fabrications which function to resist forces imposed by dead and live loads shall conform to requirements of jurisdictional authorities.

.5 Submit shop drawings to authorities along with required General Commitments to Review documents signed and sealed by Registered Professional Engineer overseeing the project.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Unless detailed or specified otherwise, standard products will be acceptable if construction details and installation meet intent of Drawings and Specifications.

.2 Include all materials, products, accessories, and supplementary parts necessary to complete assembly and installation of metal fabrications specified in this Section.

.3 Incorporate only metals that are free from defects which impair strength or durability, or which are visible. Install only new metals of best quality, and free from rust or waves and buckles, and that are clean, straight, and with sharply defined profiles.

.4 Rolled steel sections and plates to CAN/CSA-G40.21-M92, grade 300W.

.5 Hollow structural sections to CAN/CSA-G40.21-M92, grade 350W, Class H.

.6 Steel pipe to meet requirements of ASTM Specification 120, extra strong.

.7 Stainless steel to ASTM A269-85, Type 302, Commercial Grade, seamless welded to AISI No. 4 finish, exposed surface to have a No. 4 polished finish.

.8 Welding materials to C.S.A. W59-1989.

.9 Galvanizing: Hot dipped galvanized with minimum zinc coating of 600G/M2 to CAN/CSA-G164-M92.

.10 Shop coat primer to CAN/CGSB 1.40-M89.

.11 Bolts and Anchor Bolts: to ASTM A307-89 and ASTM A325M-89 (high strength) where exposed to view; to match metal anchored.

.12 Fastenings: Steel, cadmium plated screws and bolts.

.13 Grout: non-shrink, non-metallic, flowable 24h, MPa 15, pull out strength 7.9 MPa.

2.2 FABRICATION

.1 General

.1 Fabricate metal fabrications specified in this Section with machinery and tools specifically designed for the intended manufacturing processes and by skilled tradesmen.

.2 Fit and assemble metal fabrications in shop. When this is not possible, make a trial shop assembly.

.3 Incorporate anchors at 600mm (24") o.c. for metal fabrications located in cast-in-place concrete.

.4 Incorporate means for fastening of other installations secured to metal fabrications.

.5 Welding shall conform to C.S.A. Standard W59-M1989 and be undertaken by a fabricator approved by Canadian Welding Bureau to C.S.A. Standard W47.1-1992.

.2 Construction:

.1 Fabricate metal fabrications with materials, component sizes, metal gauges, reinforcing, anchors, and fasteners of adequate strength to withstand intended use, and within allowable design factors imposed by jurisdictional authorities.

.2 Ensure that metal fabrications will remain free of warping, buckling, opening of joints and seams, distortion, and permanent deformation.

.3 Construct railings and balustrades to withstand both required vertical and horizontal loadings of jurisdictional authorities.

.4 Construct items that are part of floor constructions, such as gratings and trench covers to support the same live loads for which surrounding floors are designed unless indicated otherwise.

.3 Assembly:

.1 Accurately cut, machine and fit joints, corners, copes and miters so that junctions between components fit together tightly and in true planes.

.2 Conceal fastenings from view unless otherwise indicated on Drawings.

.3 Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

.4 Weld all connections where possible; bolt where not possible, and cut off bolts flush with nuts. Countersink bolt heads, and provide method to prevent loosening of nuts. Ream holes drilled for fastenings.

.5 Weld joints tight, flush, and in true planes with base metals. Make welds continuous where steel work is exposed, at joints where entry of water into building, or into voids of members or assemblies is possible. Seal exterior steel fabrications to provide corrosion protection in accordance with CAN/CSA-S16.1-M89.

.6 Grind welds smooth where exposed to view.

.7 Provide for differential movements within assemblies and at junctions of assemblies with surrounding construction.

.4 Finish Work:

.1 Incorporate holes and connections for products installed under other Sections of the Specifications and for bolted connections. Burned holes are not acceptable.

.2 Cleanly and smoothly finish exposed edges of materials including holes.

.3 Cap open ends of sections exposed to view, such as pipes, channels, angles, and other similar members.

.4 Machine or grind components to ensure level bearings.

.5 Prime Painting of Steel:

.1 Clean all loose mill scale, rust, dirt, weld flux and spatter from work after fabrication. Grind smooth sharp projections. Unless otherwise specified apply to steel surfaces a shop prime coat of paint. Force paint into corners and cover open areas smoothly with a uniform coating. Deliver metal fabrications to site with primer undamaged. Paint all surfaces except those to be welded in field, encased in concrete, or that are machined or galvanized. Give surfaces that are inaccessible to finish filed painting two coats of primer.

.2 Paint steel members under cover in shop and keep them under cover until paint has dried.

.6 Galvanized Steel:

.1 Hot dip galvanize assemblies following their fabrication except where impossible.

.2 Fabricate items to be galvanized as recommended in Appendix A and Appendix B of CAN/CSA-G164-M92.

.3 Paint galvanized surfaces that are cut, welded or threaded with zinc rich paint to ensure a minimum coating of 0.102mm, immediately following damage to galvanized protection. Prepare and repair surfaces to meet specified requirements of ASTM Practice A780.

.7 Stainless Steel

.1 No. 304 finish.

.2 Provide acid cleaning in shop (pickling) to remove impurities.

2.3 FABRICATION TOLERANCES

.1 Squareness: 3mm (1/8 inch) maximum difference in diagonal measurements.

.2 Maximum Offset Between Faces: 1.6mm (1/16 inch).

.3 Maximum Misalignment of Adjacent Members: 1.6mm (1/16 inch).

.4 Maximum Bow: 3mm in 1.2m (1/8 inch in 4 ft).

.5 Maximum Deviation From Plane: 1.6mm in 1.2m (1/16 inch in 4 ft).

2.4 FINISHES

.1 Prepare surfaces to be primed in accordance with SPCC SP 2.

.2 Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

.3 Do not prime surfaces in direct contact with concrete or where field welding is required.

.4 Prime paint items with one (1) coat.

.5 Structural Steel Members: Galvanize after fabrication to appropriate grade for type and size of steel material indicated.

.6 Non-structural Items: Galvanized after fabrication to appropriate grade for type and size of steel material indicated.

.7 Chrome Plating: ASTM B177, nickel-chromium alloy, satin [Polished] finish.

2.5 PAINTING

.1 All exterior steel, before leaving the shop, shall be thoroughly cleaned and given one coat of steel zinc priming paint meeting CGSB 1-GP-181M + Amdt - Mar - 78 (interior steel to CAN/CGSB 1.40-1989).

.2 All painting shall be done under cover and steel shall remain under cover until the paint is dry. No painting shall be done on wet steel nor in a temperature below 7℃.

.3 Unless otherwise specified, all finished painting of steel shall be as specified under Section 09 91 00, Painting.

PART 3- EXECUTION

3.1 EXAMINATION

.1 Verify existing conditions before starting work.

.2 Verify that field conditions are acceptable and are ready to receive work.

.3 Verify dimensions, tolerances, and method of attachment with other work.

3.2 PREPARATION

.1 Clean and strip aluminum and/or primed steel items to bare metal where site welding is required.

.2 Supply steel items required to be embedded in masonry or cast into concrete with setting templates to appropriate sections.

3.3 INSTALLATION

.1 Install items plumb and level, accurately fitted, free from distortion or defects.

.2 Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

.3 Field weld components indicated on Shop Drawings.

.4 Perform field welding to CSA requirements.

.5 Obtain approval prior to site cutting or making adjustments not scheduled.

.6 After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

.7 Insulate metals where necessary to prevent corrosion due to contact between dissimilar metals and between metals and concrete. Use bituminous paint, butyl tape, paper on other approved means.

.8 Supply all fastenings, anchors and accessories required for fabrication and secure installation of metal fabrications as required by loading and jurisdictional authorities. Make exposed metal fastenings and accessories of same material, texture, colour and finish as base metal on which they occur unless otherwise shown or specified. Keep exposed fastenings to an absolute minimum and inconspicuous, spacing them evenly and setting them out neatly. Make fastenings of permanent type. Make field connections with high tensile bolts to CAN/CSA-S16.1-M89 or weld.

3.4 ERECTION TOLERANCES

.1 Maximum Variation From Plumb: 6mm (¼ inch) per story, non-cumulative.

.2 Maximum Offset From True Alignment: 6mm (¼ inch).

.3 Maximum Out-of-Position: 6mm (¼ inch).

3.5 ADJUSTMENT

.1 Check all movable or removable items to ensure that everything operates correctly and as intended.

.2 After installation of each item, touch up rivets, field welds, bolts and burnt or scratched surfaces with primer. Touch up galvanized surfaces with zinc rich primer where burned by field welding.

3.6 CLEAN-UP

.1 At completion of work, remove all debris, rubbish surplus materials, scaffolding and equipment from the site.

.2 Aluminum finishes shall be thoroughly cleansed, and if necessary, a solution such as mild soap or detergent shall be used.

.3 Under no circumstances should abrasive acidic or alkaline cleansing materials be used.

3.7 SCHEDULES

.1 The following Schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled.

.1 Access Panels

.1 Provide to the various trades concerned all insulated metal access panels and all access doors and frames as shown on the Architectural Drawings.

.2 Access panels shown on Mechanical and Electrical Drawings are specified in their respective sections.

.3 All access panels or doors shall be complete with frames, hinges and approved locking devices and shall be suitable for the wall construction in which they are to be incorporated and shall meet the fire rating requirements of the walls in which they are to be installed.

.4 All of the above metal work shall be delivered to the site with a prime coat of rust inhibitive paint.

.2 Miscellaneous Brackets, Support and Angles

.1 Supply for installation by respective trades, steel brackets, supports and angles, etc., as indicated on drawings. Drill for countersunk screws and anchor bolts. Prime paint for interior installations and hot-dipped galvanize for exterior installations. Items included but not limited to millwork support brackets, wall supports, light shelf brackets at bulkheads, projection screens and VDP ceiling supports etc.

.2 The entire structure shall be assembled in the most substantial manner and shall be welded rigid.

.3 Steel stairs and landings shall be connected to and supported from the structure of the building.

.4 The stairs and landings shall be designed to support a live load of 4800 N/m^2

END OF SECTION

1 GENERAL

1.1 GENERAL REQUIREMENTS

.1 The General Conditions of the Contract, Supplementary Conditions, and the General Requirements of Division 1, form part of this section, and must be read in conjunction with the requirements of this section, and all related sections.

.2 The work of this section, and related work specified in other sections shall comply with all requirements of Division 1 – General Requirements.

1.2 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to provide rough carpentry work, including but not limited to, the following:
- .1 Miscellaneous furring and blocking,
- .2 Wood nailers, curbs and sheathing for roofing,
- .3 Electrical mounting boards, and
- .4 Rough blocking in walls for support of wall-mounted items.

1.3 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood identification: by grade mark in accordance with applicable CSA standards.

2 PRODUCTS

2.1 LUMBER MATERIAL

.1 Lumber: SPF softwood, NLGA No. 2 Grade or better, S4S, kiln-dried with moisture content 19% or less in accordance with CAN/CSA-O141.

.2 Machine stress-rated lumber is acceptable for all purposes.

.3 Glued end-jointed (finger-jointed) lumber is not acceptable. Products certified under NLGA Special Products Standard 1-81 are acceptable except for material for "A" appearance framing to be left unfinished or to be finished with transparent or translucent type coating.

.4 Furring, blocking, nailing strips, grounds, rough bucks, curbs, fascia backing, and sleepers:
- .1 S2S is acceptable.
- .2 Board sizes: "Standard" or better grade.
- .3 Dimension sizes: "Standard" light framing or better grade.

.5 Pressure Preservative Treated Lumber: SPF softwood, NLGA No. 2 Grade or better, S4S, kiln-dried with moisture content 19% or less in accordance with CAN/CSA-O141; pressure preservative treated with Copper Azole (CBA-A or CA-B), or Alkaline Copper Quaternary (ACQ) to CSA-O80 Series.

2.2 PANEL MATERIALS

.1 Douglas Fir Plywood (DFP): to CSA-O121, standard construction, thickness as indicated.

.2 Canadian Softwood Plywood (CSP): to CSA-O151, standard construction, thickness as indicated.

.3 Pressure Preservative Treated Plywood: Canadian softwood plywood (CSP) to CSA-O151, standard construction; pressure preservative treated with Copper Azole (CBA-A or CA-B), or Alkaline Copper Quaternary (ACQ) to CSA-O80.9 and kiln-dried to a moisture content of 15% or less. Thickness as indicated.

.4 Fire Retardant Treated Plywood: Douglas Fir Plywood (DFP) to CSA-O121, standard construction; fire retardant treated to CSA-O80.27, kiln-dried to a moisture content of 15% or less, Flame Spread Rating of less than 25 to CAN/ULC-S102. Product must be UL or ULC labeled. Thickness as indicated.

2.3 ACCESSORIES

.1 Polyethylene Film: to CAN/CGSB-51.34, 6mil (0.15mm) thick.

.2 Sealants: in accordance with Section 07900.

.3 General Purpose Adhesive: to CSA-O112 Series.

.4 Surface-applied wood preservative: to CAN/CSA-O80 Series; Copper Azole (CBA-A or CA-B) or Alkaline Copper Quaternary (ACQ).

2.4 FASTENERS

.1 Nails, Spikes And Staples: to CSA-B111.

.2 Proprietary Fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

.3 Nailing Discs: flat caps, minimum 1" (25mm) diameter, minimum 0.015" (0.4mm) thick, sheet metal or plastic, formed to prevent dishing. Bell or cup shapes not acceptable.

.4 Fastener Finishes

.1 Hot-dip galvanized connectors and fasteners to CAN/CSA-G164 minimum 2.00oz/ft^2 (610g/m^2) coating for:

.1 Exterior work (outside of building vapour barrier)

.2 Interior highly humid areas

.2 Stainless Steel: use Type 304 stainless steel fasteners for:

.1 Pressure-preservative treated wood, and

.2 Fire-retardant treated wood.

3 EXECUTION

3.1 PREPARATION

.1 Treat cut surfaces of pressure preservative treated material exposed by cutting, trimming, or boring with wood preservative before installation.

.2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.

3.2 INSTALLATION

.1 Install members true to line, levels and elevations, square and plumb.

.2 Construct continuous members from pieces of longest practical length.

.3 Select exposed framing for appearance. Install lumber and panel materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.

.4 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding, electrical equipment mounting boards, and other work as required.

.5 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.

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

.7 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

.8 Install wood nailers, curbs, and other wood roof supports as required and secure using galvanized steel fasteners. Install sleepers and curbs with top set level as indicated.

.9 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

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

End of Section

PART 1- GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Supply and install all finish carpentry items including all related millwork hardware and accessories.

1.2 RELATED SECTIONS

.1 Section 05 50 00 – Metal Fabrications.

.2 Section 06 10 00 – Rough Carpentry.

.3 Section 07 92 00 – Joint Sealants.

.4 Section 08 11 00 - Doors and Frames.

.5 Section 08 80 00 - Glass and Glazing.

.6 Section 09 21 16 Wall Board Assemblies.

.7 Section 09 91 00 - Painting.

1.3 REFERENCES

.1 AHA A135.4-2004 - Basic Hardboard.

.2 ASTM E84-12c - Standard Test Method for Surface Burning Characteristics of Building Materials.

.3 BHMA A156.9-2010 - Cabinet Hardware.

.4 CAN/CGSB 11.3-M87 - Hardboard.

.5 CAN/CGSB 11.5-M87 - Hardboard, Pre-coated, Factory Finished, for Exterior Cladding.

.6 CAN/CSA-O80 Series-08 (R2012) - Wood Preservation.

.7 CSA-O121-08 (R2013) - Douglas Fir Plywood.

.8 CSA-O141-05 (R2009) - Softwood Lumber.

.9 CSA-O151-09 - Canadian Softwood Plywood.

.10 CSA-O153-13 - Poplar Plywood.

.11 NPA A208.1-2009 - Particleboard.

.12 NPA A208.2-2009 - Medium Density Fiberboard (MDF) for Interior Applications.

.13 NAAWAS – North American Architectural Woodwork Standards– Most current edition.

.14 CHPVA (Canadian Hardwood Plywood and Veneer Association) - Official Grading Rules for Canadian Hardwood Plywood-2010.

.15 NEMA LD3-2005 - High Pressure Decorative Laminates (HPDL).

.16 NLGA (National Lumber Grades Authority) - Standard Grading Rules for Canadian Lumber, 2010 edition.

.17 NHLA (National Hardwood Lumber Association).

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Provide data on fire retardant treatment materials and application instructions.

.3 Shop Drawings:

.1 Indicate materials, component profiles, fastening methods, jointing details, accessories, and plastic laminate types, to a minimum scale of 1:8 (38mm = 0.3m) (1½ inch = 1 ft).

.2 List all finish hardware being used.

.4 Samples:

.1 Submit two (2) samples of each plastic laminate selected.

.2 Submit two (2) samples of finish plywood, 305mm (12 inch) square in size illustrating wood grain and specified finish.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Procedures for submittals.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordinate with other work having a direct bearing on work of this section.

.3 Pre-installation Meetings: Convene two (2) weeks before starting work of this section.

1.8 QUALITY ASSURANCE

.1 Perform work to North American Architectural Woodwork Standards, most current edition, Premium Grade.

.2 Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three (3) years documented experience.

.3 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

.4 Certification: Upon award of contract, register Work under this Section with the AWMAC Quality Certification Program, and provide at the end of the project certificates indicating that products and installation comply with the grades specified.

1.9 REGULATORY REQUIREMENTS

.1 Conform to applicable code for fire retardant requirements.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01 60 00 – Material and Equipment

.2 Protect work from moisture damage.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Maintain building and millwork temperature between 19 and 21℃ for a period of at least 72 hours before and until takeover of project by Owner.

1.12 WARRANTY

.1 The warranty shall cover making good any defects in Millwork due to faulty workmanship or defective materials supplied by the Millwork Contractor which appears during a two (2) year period following Substantial Completion of the building contract.

.2 Submit three (3) copies of signed and written guarantee for incorporation in the Project Record Document Manuals in accordance with Section 01 77 00, Close-Out Procedures.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Hardwood Lumber:

.1 Shall conform to AWMAC Premium Grade, AWS Section 3, conforming to NHLA requirements; Moisture Content: Kiln dried to 8% or less and of uniform grain and colour.

.2 Refer to Architectural Drawings for sizes and profiles.

.3 All hardwood lumber to receive paint finish will be Birch, custom grade.

.4 All hardwood lumber to receive clear finish will be maple, premium grade.

.2 Softwood Lumber:

.1 Shall conform to CAN/CSA-O141, and AWMAC, Premium Grade, AWS Section 3, Ontario White Pine, Yellow Pine or other Pine species.

.3 Framing Lumber (Concealed Framing): Select Merchantable Western White Spruce, kiln dried, or other sound material of other species for framing concealed members, free from sap, shakes, knots, splits and other defects. Grade marked by appropriate authorized association by National Lumber Grades Authority. Provide concealed wood of most appropriate grade required to satisfy fabrication, utility and structural requirements.

.4 Architectural Lumber (Exposed Framing): Conform to AWMAC Premium Grade, AWS Section 3. Clear, straight, kiln dried, Maple for fitments and door jambs. Provide kiln dried lumber to 7% moisture content, free from blemishes that would be apparent after finish is applied.

2.2 SHEET MATERIALS

.1 Shall conform to the requirements of AWMAC, Premium Grade, AWS Section

.2 Hardwood Plywood:

.1 Shall conform to the current C.S.A. Standard 0115-M1982 (R2001), the CHPVA Official Grading Rules for Canadian Hardwood and shall be of thickness and sizes as shown on details.

.2 Where two sides are exposed to view, provide interior type, medium density fiberboard, sound two sides with both veneers of Canadian Birch, without patches, all for stain finish.

.3 Where one side is exposed to view, provide interior type, medium density fiberboard, sound one side with exposed face veneer of Canadian Birch without patches, all for stain finish.

.4 All exposed edges shall be faced with veneer.

.3 Veneers:

.1 Open-grain species: minimum 0.71mm thick.

.2 Close-grain species: minimum 0.61mm thick.

.3 Matching edge banding on all edges exposed to view.

.4 Marine Grade Plywood: 19mm (¾") thick. to be used in all locker rooms, shower areas and washrooms.

.5 Plywood Backs:

.1 Shall be 6mm (¼") veneer core, good one side, with face veneer of Canadian Birch, to Architectural Woodworks Standard, Custom Grade.

.6 Medium Density Fiberboard (MDF):

.1 NPA A208.2; composed of fire retardant wood fibers, medium density, balanced designed, manufactured from 100% recycled materials, without the use of added formaldehyde resins. Finish and Texture: To match Consultant's sample.

.2 Provide industrial grade MDF certified to meet Class 1 surface burning characteristic of ATSM E84, CAN/ULC-S102 with a maximum Flame Spread rating of 25 and maximum Smoke Developed of 50.

.3 Do not use MDF panels in moist areas.

.4 Acceptable Products:

.1 Decorative panels, "Medite FR®" by Sierra Pine Ltd; www.sierrapine.com or approved equivalent products manufactured by Flakeboard Company Limited; www.flakeboard.com, Uniboard Canada Inc.; www.uniboard.com, or Tafisa Canada and Company, Ltd.; www.tafisa.ca.

.7 Hardboard: CAN/CGSB 11.3, Type 2; pressed wood fiber with resin binder, tempered grade, 6mm (¼"), minimum destiny 476 Kg/m^3.

.8 Banding:

.1 Door, drawers, shelving, gables and other exposed edges of plywood shall be finished on all exposed edges with matching solid T-edge hardwood 10mm (3/8") thick minimum, unless otherwise specified, applied using a hot glue process.

2.3 PLASTIC LAMINATE

.1 Products of the following manufactures are acceptable to conformance to requirements of Drawings, Schedules and Specifications:

.1 Abet Incorporated; www.abetlaminati.com

.2 Arborite; www.arborite.com

.3 Formica Inc.; www.formica.com

.4 Nevamar Company, LLC; www.nevamar.com

.5 Wilsonart Canada; www.wilsonart.com

.6 Pionite Decorative Laminates: www.pionite.com

.7 Uniboard; www.uniboard.com

.2 Provide following types and thicknesses conforming to NEMA LD3 and AWS Section 4, Item 4.2c:

.1 Horizontal General Purpose:HGS - 1.2mm (0.048").

.2 Vertical General Purpose:VGS - 0.7mm (0.028").

.3 Postforming Horizontal: HGP - 1.0mm (0.039").

.4 Postforming Vertical:VGP - 0.7mm (0.028").

.5 Fire Rated: HGF - 1.2mm (0.048")
.6 Cabinet Liner:CLS - 0.5mm (0.020").
.7 Backer Sheet: BKV - 0.7mm (0.028").
.8 Backer Sheet:BKH - 1.2mm (0.048").
.9 Special Purpose:HSM - 1.5mm (0.059").
.10 Flooring Grade, High Wear: HDS - 1.2mm (0.048").
.11 Flame Retardant:HGF - 1.2mm (0.048").

.3 Thermofused Decorative Overlay (Melamine): NEMA LD3, melamine-impregnated decorative paper thermally fused to MDF core; white colour.

.1 Shall be manufactured by the same manufacturer as facing sheet or approved equal.

.4 Backer sheet shall be supplied by the same manufacturer as facing sheet.

.5 Colours and Finishes:

.1 PLAM1:

.1 Manufacturer: TBD
.2 Style: TBD
.3 Colour: TBD

2.4 PLASTIC LAMINATE CABINETRY

.1 Cabinet Construction: Flush overlay, adjustable shelving MDF core.

.2 Exposed Surfaces: High pressure laminate.

.3 Drawers and Drawer Fronts: High pressure laminate.

.4 Edges: PVC.

.5 Semi-exposed Surfaces:

.1 Surfaces (other than drawer bodies): Thermofused melamine.
.2 Shelves: Thermofused melamine.
.3 Edges: PVC.
.4 Drawer Sides and Backs: Edgebanded, thermofused Melamine.
.5 Drawer Bottoms: Edgebanded, thermofused Melamine.

2.5 PLASTIC LAMINATE COUNTERTOPS

.1 Comply with AWMAC Quality Standards, Premium grade requirements for counter construction supplemented as follows:

.1 High Pressure Laminate: NEMA LD3, high pressure laminate, Grade HGL; with gloss textured finish.
.2 Postformed OR Square edge Laminate: NEMA LD3, high pressure laminate, Grade HGP.
.3 Edge Treatment: Same as laminate cladding on horizontal surfaces.
.4 Core Material: MDF.

2.6 SOLID SURFACING

.1 Products of the following manufacturers are acceptable subject to conformance to requirements of drawings, schedules and specifications.

.1 Corian; https://www.corian.com/

.2 Or approved alternate.

.2 Solid Acrylic Resin Surface: Solid, nonporous, homogeneous surfacing material consisting of natural minerals bound together with a matrix of acrylic resin (polymethyl methacrylate) and complying with the "Physical Characteristics of Materials": Article of ANSI SS1.

.1 Solid Surfacing (SS1): manufactured by Corian Solid Surface:

.1 Colour: Antarctica

.2 Thickness: 13mm (1/2").

.3 Location: Refer to Architectural drawings for details.

.2 Solid Surfacing (SS2): manufactured by Corian Solid Surface:

.1 Colour: Deep Titanium

.2 Thickness: 13mm (1/2").

.3 Location: Refer to Architectural drawings for details

2.7 QUARTZ SURFACING

.1 Reserved.

2.8 ACCESSORIES

.1 Adhesives:

.1 Polyvinyl adhesive to C.S.A. 0112.5-M1977. All wood and laminate adhesives must be free of added urea-formaldehyde.

.2 Plastic Laminate Adhesive: As recommended by plastic laminate manufacturer.

.3 Laminated Plastic Core Sealer: Water resistant sealer or glue as recommended by laminate manufacturer.

.4 Non Flammable Adhesive: Required where Fire Rated, Fire Retardant or Fire Resistant millwork is specified.

.2 Plastic Edge Trim (PVC): To be used only when approved by the consultant

.3 Aluminum Edge Trim: Extruded flat shape; smooth surface finish; self-locking serrated tongue; of width to match component thickness; clear anodized finish.

.4 Door bumpers.

.5 Glass: As specified in Section 08 80 50.

.6 Nails And Staples:

.1 Shall conform to the current C.S.A. Standard B111-1974 (R2003) plain finish. Use non-corrosive hardware for exterior applications.

.7 Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; Stainless steel finish were exposed.

.8 Concealed Joint Fasteners: Threaded steel.

.9 Bench seat cushion: Shall consist of high density 1850 foam with a fiber layer on top.

.10 Cushion upholstery shall be from the Softside collection as manufactured by J. Ennis Fabrics Ltd. Colour to be selected from full range of colours

.11 Sealant:

.1 Flexible plastic corrosion resistant silicone to CGSB-19-GP9. Colour to be selected by Consultant.

2.9 HARDWARE

.1 Door Hinges: Hafele 329.07.609 and 329.07618, as required.

.2 Drawer Slides: Ball bearing, carrier, fully extendable, heavy duty to operate adequately for size and capacity of drawer, Accuride or Hettiche.

.3 Pilaster Strips: Hafele 283.07.011 and 283.61.926.

.4 Door and Drawer Pulls. Silver coloured anodized finger pull 70mm wide x 42mm deep, Hafele 124.02.920

.5 Locks:

.1 Doors: Corbin 02067 x 7/8 x 125 C15

.2 Drawers: Corbin 02066 x 7/8 x 125 C15.

.6 Hanging file slides:

.1 Hafele 422.71.901

.7 Plastic grommets for data wiring (black)

.8 Metal pegs for adjustable shelves, polished chrome.

.9 Coat rod: 40 mm diameter, polished chromed steel with matching chromed metal brackets.

.10 Metal Hooks, polished chromed steel.

.11 Hook Rack: Richelieu Contemporary Hook Rack 700, BP700210, Aluminum, 8.5” long, 3 hooks each rack.

.12 Other: as noted on drawings.

2.10 COUNTER SUPPORT BRACKETS

.1 Products of the following manufacturers are acceptable subject to conformance to requirements of drawings, schedules and specifications:

.1 CounterBalance, www.counterbalanceshop.com Extended Concealed Flat Brackets, black powder coated (ECFLAT12-2.0 and ECFLAT24-2.0 to suit counter depth)

.2 Or approved alternate.

.2 Spacing of concealed supports is 16” o/c or as recommended by manufacturer.

.3 Install full height wood studs inside of or beside metal studs, secured top and bottom and independent of metal stud. Attach vertical leg to side of support wood stud.

.4 Load capacity per bracket 2400 pounds.

.5 Installation: Coordinate installation of concealed brackets with application of wall board finish specified in Section 09 21 16 – Wall Board Assemblies. Ensure that the brackets are delivered to site and installed in a timely manner to allow for vertical bracket leg to be concealed by wall board.

PART 3- EXECUTION

3.1 FABRICATION

.1 Standards: Fabricate all millwork to Architectural Woodwork Standard, Edition 1, 2009, Premium Grade – Flush Overlay.

.2 Finishing: Sand work smooth with the grain, set all nails and screws, apply wood filler, and leave ready to receive finish. Prepare all work which will be covered or otherwise hidden or inaccessible after installation ready for sealing.

.3 Plastic Laminate: Shop apply plastic laminate finish to units by pressure bonding. Adhere plastic laminate over entire surface. Make corners with hairline joints. Use full-sized laminate sheets. Make joints only where approved. Flat surfaces not fastened down rigidly to a frame shall have a bonded plastic laminate backing sheet.

.4 Banding: Fit all exposed plywood edges with hardwood banding.

.5 Hardware: Supply and install finish cabinet hardware.

.6 Miscellaneous Interior Finish: All members shall be finish sizes as shown. Trim members for application on flat surfaces shall normally have the reverse side "backed-out", except such members as will have exposed ends.

.7 Wood Cabinets, Cupboards and Drawers:

.1 Millwork shall be constructed of medium density fiberboard material to C.S.A. Standards with plastic laminate bonded to all fronts, backs and 3mm PVC nosing to the edges of all millwork members including shelving unless specified with a solid edging. The PVC edging will match the face materials all as selected by the consultant.

.2 Shelves shall be 19mm (¾") in thickness and supported in lengths not exceeding 1000mm (40").

.3 Open ends or skeleton frames against walls are not permitted.

.4 Web frames shall be mortised and tenoned, grooved and stub tenoned, or doweled, glued, and sanded.

.5 Face frames shall be fully glued and nailed to case bodies, with allowance made for scribing where required.

.6 Adjustable shelves shall normally be supported by metal standards, set flush.

.7 The finished case shall present first-class workmanship, with face nails countersunk and with all exposed surfaces sanded and free from tool marks or similar blemishes.

.8 Cases shall be protected with skids, bracing, or any other means as may be required for delivery in good condition.

.8 Plastic Laminate Counter Tops And Window Stools:

.1 Core material shall be dense particle board manufactured to C.S.A. Standards.

.2 The laminated plastic covering shall be glued to the core material with adhesive as specified.

.3 Plastic laminate tops requiring more than one sheet of laminate shall have the plastic pre-matched to minimize colour variations and shall be fabricated using 2400mm (96") minimum length stock.

.4 Where backsplashes are required, they shall be a minimum of 100mm (4") in height except where indicated otherwise or where job conditions do not permit.

.5 Plastic laminate shelves shall be fabricated as tops except face laminate shall be used on all surfaces.

.6 Where counter tops are continuous they shall be post-formed in one contoured piece with 6mm (¼") cove at junction between top and backsplash; with self-edged square nosing where open end occurs and with self-edged flat backsplash returns returned to counter front where unit ends butt against vertical surfaces. Square edge, self-edges with laminate. Top surface laminate shall overlap edging laminate and all corners and edges shall be chamfered. Exposed corners in plan shall be square.

.7 Make all cut-outs for sinks, services and other fittings with minimum 3mm (1/8") radiused corners and chamfered edges free from chips. All cut-outs shall be sealed with two coats of black waterproof paint. Reinforce at cut-outs as necessary.

.9 Refer to Architectural drawings for details.

3.2 INSTALLATION

.1 Install Work to AWMAC Premium Grade.

.2 Set and secure all materials and components in place, rigid, plumb and square.

.3 Use fixture attachments in concealed locations for wall mounted components.

.4 Use concealed joint fasteners to align and secure adjoining counter tops and cabinet units.

.5 Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.

.6 Secure counter bases to floor using appropriate angles and anchorages.

.7 Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

.8 At junction of plastic laminate counter or backsplash and adjacent wall finish, apply small bead of silicon rubber sealant.

.9 Provide heavy fixture attachments for wall mounted cabinets.

.10 After installation, fit and adjust all operating hardware, for doors, drawers and shelves.

.11 Apply bituminous coating to wood materials in contact with masonry or cementitious construction and on exposed edges of cut-outs for sinks, drains, or water pipes in plastic laminate finished cabinet tops and backsplashes.

3.3 INSTALLATION OF SOLID SURFACES

.1 Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.

.1 Provide product in the largest pieces available.

.2 Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.

.1 Exposed joints/seams shall not be allowed.

.3 Reinforce field joints with solid surface strips extending a minimum of 25mm on either side of the seam with the strip being the same thickness as the top.

.4 Cut and finish component edges with clean, sharp returns.

.5 Rout radii and contours to template.

.6 Anchor securely to base cabinets or other supports.

.7 Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in colour to match countertop.

.8 Carefully dress joints smooth, remove surface scratches and clean entire surface.

.9 Install countertops with no more than 1/8" (3mm) sag, bow or other variation from a straight line.

.2 Coved backsplashes and sidesplashes:

.1 Provide coved backsplashes and sidesplashes at all walls and adjacent millwork.

.2 Fabricate radius cove at intersection of counters with backsplashes to dimensions shown on the drawings.

.3 Adhere countertops using manufacturer's standard colour-matched Joint Adhesive.

3.4 INSTALLATION TRIM

.1 Install in lengths as long as possible stagger joints and locate over solid blocking.

.2 Finish returns of stools and open ends to match faces.

.3 Install in accordance with details shown on drawings.

3.5 INSTALLATION OF HARDWARE

.1 Install all hardware applicable to work of this Section with the exception of hardware for cabinetwork being installed in the shop. Ensure that all hardware is in perfect working order at the completion of the work of this Section.

3.6 ADJUSTMENT

.1 Adjust hinged doors to swing freely and easily, to remain stationary at any point of swing, to close evenly and tightly against stops without binding, and to latch positively when doors are closed with moderate force. Ensure that when doors are installed with hinged stiles adjacent, both doors can open simultaneously without binding.

.2 Adjust hardware so that latches and locks operate smoothly and without binding, and closers act positively with the least possible resistance in use. Lubricate hardware if required by supplier's instructions. Use graphite powder, not oil or grease, for hinges.

.3 Ensure that door equipped with closers operate to close doors firmly against anticipated wind and building air pressure, and to enable doors to be readily opened as suitable for function, location and traffic.

3.7 CLEAN-UP

.1 Upon completion of work, clean up and dispose of, off site, all debris resulting from the work of this trade.

END OF SECTION

PART 1- GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Surface preparation.

.3 Application of rolled, self-adhering waterproofing membrane system.

1.2 RELATED SECTIONS

.1 Section 07 92 00 – Joint Sealants.

1.3 REFERENCES

.1 American Railway Engineering & Maintenance of Way Association (AREMA) Specification Chapter 29 - Waterproofing.

.2 ASTM D146 - Standard Test Methods for Sampling and Testing Bitumen-Saturated Felts and Fabrics Used in Roofing and Waterproofing.

.3 ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.

.4 ASTM D570 - Standard Test Method for Water Absorption of Plastics.

.5 ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.

.6 ASTM D1876 – Standard Test Method for Peel Resistance of Adhesives. (T-Peel Test).

.7 ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

.8 ASTM E96 (Method B) - Standard Test Methods for Water Vapor Transmission of Materials.

.9 ASTM E154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Manufacturer's data sheets on each product to be used, including:

- .1 Preparation instructions and recommendations.
- .2 Storage and handling requirements and recommendations.
- .3 Installation methods.

.3 Samples: Representative samples of the following:

- .1 Self-Adhered Waterproofing Sheet Membrane: 50 x 76mm (2 inches x 3 inches).
- .2 Waterstop for Concrete Joints: 76mm (3 inches).
- .3 Protection Board: 50 x 76mm (2 inches x 3 inches).
- .4 Drainage Board: 100 x 100mm (4 inches x 4 inches).

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Procedures for submittals.

.2 Site Condition Reports: Indicate ambient and substrate surface temperatures, relative humidity and dew point, wind velocity and precipitation during application.

.3 Contractor Certificate: Approved Applicator status with waterproofing material Manufacturer.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordinate with other work having a direct bearing on work of this section.

.3 Pre-installation Meetings: Convene two (2) weeks before starting work of this section.

.1 Establish procedures to maintain required working conditions.

.2 Coordinate this work with related and adjacent work and trades.

.3 Verify plumbing floor drains are two-stage drains with 76mm (3 inches) flange and clamping ring to receive waterproof membrane.

.4 Review special project details.

.5 Verify with Architect and Contractor that waterproofing and waterstop details comply with waterproofing manufacturer's current installation requirements and recommendations.

.6 Give minimum five day notice to General Contractor and Manufacturer prior to commencing work. Immediately notify parties of changes in work schedule.

1.8 QUALITY ASSURANCE

.1 Installer Qualifications:

.1 Have minimum three years of experience in type of work required by this section.

.2 Comply with manufacturer's warranty requirements.

.3 Be approved applicator as determined by waterproofing/drainage system manufacturer.

.4 Attend necessary job meetings. Provide competent and full time supervision, experienced mechanics, all materials, tools, and equipment necessary to complete, in acceptable manner, the drainage composite installation.

.2 Manufacturer Qualifications:

.1 Capable to supply all components of complete prefabricated drainage composite system.

.2 Minimum of five years of experience in manufacturing of prefabricated drainage composite systems.

.3 Capable of providing product and technical support representation during construction, approving an acceptable applicator and suggesting appropriate installation methods.

.3 Independent Inspection: Owner provided independent inspection service to monitor waterproofing material installation. Inspection to include:

.1 Compliance with project contract documents.

.2 Compliance with manufacturer's published literature and site specific details.

.3 Produce reports and digital photographs documenting each inspection. Make reports available in timely manner to Contractor, Waterproofing Installer, Waterproofing Material Manufacturer and Architect.

.4 Substrate examination at beginning of waterproofing installation, at periodic intervals during waterproofing installation and at final inspection.

.5 Flood testing where applicable.

.6 Electric field vector mapping where applicable.

.7 Authorization to proceed prior to concrete or backfill placement against the waterproofing.

1.9 DELIVERY, STORAGE, AND HANDLING

.1 Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

.2 Store materials in a clean dry area in accordance with manufacturer's instructions

.3 Store adhesives and primers at temperatures of 5°C (40°F) and above to facilitate handling.

.4 Store membrane cartons on pallets.

.5 Do not store at temperatures above 32°C (90°F) for extended periods.

.6 Keep away from sparks and flames.

.7 Completely cover when stored outside. Protect from rain.

.8 Protect materials during handling and application to prevent damage or contamination.

.9 Avoid use of products which contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with waterproofing membrane system.

1.10 ENVIORNMENTAL REQUIRMENTS

.1 Product not intended for uses subject to abuse or permanent exposure to the elements.

.2 Protect rolls from direct sunlight until ready for use

.3 Do not apply membrane when air or surface temperatures are below 4°C (40°F).

.4 Do not apply to frozen concrete.

1.11 WARRANTY

.1 Provide a five (5) year warranty to include coverage for failure to meet specified requirements.

.2 Provide five (5) year manufacturer warranty for waterproofing failing to resist penetration of water, except where such failures are the result of structural failures of building.

.3 Provide five (5) year manufacturer warranty for waterproofing failing to resist penetration of water.

.4 For warranty repair work, remove and replace materials concealing waterproofing.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

.1 Products of the following manufacturers are acceptable subject to conformance to requirements of drawings, schedules and specifications.

.2 W. R. MEADOWS OF CANADA, www.wrmeadows.com.

.3 MAPEI, www.mapei.com.

.4 3M Canada, www.3mcanada.ca.

.5 Or approved alternate.

2.2 SELF-ADHERING SHEET WATERPROOFING MEMBRANE

.1 Polymeric waterproofing membrane protected by release paper on cross-laminated polyethylene carrier film with exposed polymeric membrane strips on both sides protected by pull-off release strips.

.1 Performance Based Specification: Waterproofing membrane shall have the following characteristics:

.1 Compliance: AREMA Specification Chapter 29 - Waterproofing.

.2 Thickness:

.1 Carrier Film: 4 mils.

.2 Polymeric Membrane: 56 mils.

.3 Tensile Strength, ASTM D412, Die C:

.1 Carrier Film: 40.71 MPa (5,900 psi) minimum.

.2 Polymeric Membrane: 3.23 MPa (460 psi) minimum.

.4 Elongation, ASTM D412, Die C: Polymeric Membrane: 971% minimum.

.5 Peel Adhesion, ASTM D903: 2068 N/m (11.8 lbf/in).

.6 Lap Adhesion, ASTM D1876: 1508 N/m (8.62 lbf/in)

.7 Water Vapor Permeability, ASTM E96, Method B: 0.036 perms.

.8 Water Absorption, ASTM D570: 0.1 percent, 72 hours maximum.

.9 Resistance to Hydrostatic Head: Equivalent to 70.3m (230.9 feet) of water.

.10 Puncture Resistance, ASTM E154: 214.6 N (48.2 lbf).

.11 Exposure to Fungi, Soil Test: Pass, 16 weeks.

.12 Color:

.1 Carrier Film: White.

.2 Polymeric Membrane: Black.

.2 Proprietary Based Specification: MEL-ROL Waterproofing System by W.R. MEADOWS.

.1 MEL-ROL: For use at temperatures of 4°C (40°F) and above.

.2 MEL-ROL LT (Low Temperature): For use at temperatures of -7°C (20°F) to 16°C (60°F).

.3 MEL-ROL XLT (Extra Low Temperature): For use at temperatures of -18°C (0°F) to 16°C (60°F).

2.3 WATERPROOFING ACCESSORIES

.1 Surface Conditioner:

.1 Temperatures Above 4°C (40°F): Mel-Prime Water Base Primer.

.2 Temperatures Above -18°C (0°F): Mel-Prime VOC Compliant Solvent Base Primer or Standard Solvent Base Primer. Do not use adjacent to rigid (foam plastic) insulation material.

.2 Flashing and Fillets: MEL-ROL LIQUID MEMBRANE as manufactured by W.R. Meadows.

.3 Pointing Mastic: POINTING MASTIC as manufactured by W.R. Meadows.

.4 Termination Bar: TERMINATION BAR as manufactured by W.R. Meadows.

.5 Corner Tape: DETAIL STRIP as manufactured by W.R. Meadows.

.6 Waterproofing Protection Course: PROTECTION COURSE as manufactured by W.R. Meadows.

.7 Drainage board: MEL-DRAIN Rolled Matrix Drainage System as manufactured by W.R. Meadows.

2.4 PROTECTION BOARD

.1 Shall be PROTECTION COURSE as manufactured by W.R. Meadows, or approved equal.

2.5 BOARD INSULATION

.1 Refer to section 07 21 00 – Building Insulation.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Examine surfaces to receive self-adhering membrane. Notify Architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.2 PREPARATION

.1 Protect adjacent surfaces not designated to receive waterproofing.

.2 Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions.

.3 Do not apply waterproofing to surfaces unacceptable to manufacturer.

.4 Concrete surfaces must be clean, smooth and free of standing water.

.5 Patch all holes and voids and smooth out any surface misalignments.

.6 Apply surface conditioner to surfaces that will be covered within one working day according to manufacturer’s recommended coverage rates.

.7 Install corner tape on all inside and outside corners, including the footing.

.8 Apply a 229mm (9”) strip of self-adhering membrane over construction, control and expansion joints and over cracks greater than 1.59mm (1/16”) wide.

.9 Seal all terminations with pointing mastic.

3.3 APPLICATION

.1 Horizontal Application

.1 Apply waterproofing membrane system in accordance with manufacturer's instructions.

.2 Ensure accessory materials are compatible with membrane and approved by membrane manufacturer.

.3 Remove release paper on edge, then position the membrane.

.4 Pull balance of release paper off, running the roll from low to high points, so all laps will shed water.

.5 Immediately hand-rub the membrane firmly to the surface, removing any bubbles or wrinkles, then pressure roll the complete surface to assure positive adhesion.

.6 Stagger end laps and overlap all seams at least 63.5mm (2½”).

.7 Seal all terminations with pointing mastic.

.8 Inspect membrane before covering and repair as necessary. Cover tears and inadequate overlaps with membrane. Seal edges of patches with pointing mastic.

.2 Vertical Application

.1 Apply waterproofing membrane system in accordance with manufacturer's instructions.

.2 Ensure accessory materials are compatible with membrane and approved by membrane manufacturer.

.3 Remove release paper on edge and position the membrane.

.4 Pull balance of release paper off, running the roll vertically over the top of the corner tape at the footing.

.5 Immediately hand-rub the membrane firmly to the surface, removing any bubbles or wrinkles, then pressure roll the complete surface to assure positive adhesion.

.6 Overlap all seams and stagger end laps at least 63.5mm (2½").

.7 Seal all terminations with pointing mastic. Seal all reverse (negative) laps with mastic

.8 Inspect membrane for tenting, backlaps, fishmouths and delamination before covering and repair as necessary following manufacturers instructions and repair guide. Cover tears and inadequate overlaps with membrane. Seal edges of patches with pointing mastic.

3.4 PROTECTION

.1 Protect membrane on vertical and horizontal applications with immediate application of waterproofing protection course, rolled matrix drainage board.

.2 Backfill immediately using care to avoid damaging waterproofing membrane system.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 The work of this Section comprises the furnishing of all labour, materials and equipment required for the firestopping and smoke seals at penetrations through walls and floor openings as applicable on this Project.

.3 Firestopping and smoke seals, in vertical and horizontal openings in fire-rated assemblies, hereinafter titles "Joint Firestop Systems", will be installed as per U.L.C. numbers.

.4 Firestopping and smoke seals around mechanical assemblies, hereinafter titled "Service Penetration Firestop Systems", will be installed as per ULC numbers.

.5 Firestopping and smoke seals around electrical assemblies, hereinafter titled "Service Penetration Firestop Systems", will be installed as per ULC numbers.

.6 Firestopping and smoke seals within electrical assemblies (i.e. inside ducts, dampers) and electrical assemblies (ie. Inside cable trays) are specified in Division 21 and 26 respectively.

.7 Refer to the schedules attached to the end of this section for ULC data and detailed requirements.

1.2 RELATED SECTIONS

.1 Cross Laminated Timber (Refer to Structural Drawings).

.2 Section 05 21 00 - Steel Joist Framing.

.3 Section 07 25 00 - Weather Barriers.

.4 Section 09 21 16 – Gypsum Board Assemblies.

.5 Division 23 – Heating, Ventilating, and Air-Conditioning (HVAC).

.6 Division 26 – Electrical.

1.3 REFERENCES

.1 ASTM E84-12c - Standard Test Method for Surface Burning Characteristics of Building Materials.

.2 ASTM E119-12a - Standard Test Methods for Fire Tests of Building Construction and Materials.

.3 ASTM E814-11a - Standard Test Method for Fire Tests of Penetration Firestop Systems.

.4 ASTM E1966-07 (2011) - Standard Test Method for Fire-Resistive Joint Systems.

.5 CAN/ULC-S101-07 - Standard Methods of Fire Endurance Tests of Building Construction and Materials.

.6 CAN/ULC-S102-10 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

.7 CAN/ULC-S115-11 - Standard Method of Fire Tests of Firestop Systems.

.8 FM (Factory Mutual) - FM 4991-2001, Approval Standard for Approval of Firestop Contractors.

.9 FCIA (Firestop Contractors International Association) - Manual of Practice.

.10 NFPA 251 - Standard Methods of Tests of Fire Endurance of Building Construction and Materials, 2006 edition.

.11 OPL (Omega Point Laboratories).

.12 UL 263-2011 - Standard for Fire Tests of Building Construction and Materials (14th Edition).

.13 UL 1479-2003 - Standard for Fire Tests of Through-Penetration Firestops (3rd Edition).

.14 UL 1709-2011 - Standard for Rapid Rise Fire Tests of Protection Materials for Structural Steel (4th Edition).

.15 UL 2079-2004 - Standard for Tests for Fire Resistance of Building Joint Systems (4th Edition).

.16 ULC - Building Materials Directory.

.17 WHI (Intertek/Warnock Hershey).

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Provide data on product characteristics, performance and limitation criteria.

.3 System Design Listings: Submit system design listings, including illustrations from a qualified testing and inspection agency that is applicable for each firestop configuration. Submit Engineering Judgement (EJ) as required.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Installation Data: Manufacturer's special preparation and installation requirements.

.3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

.4 MSDS Sheets

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordination: Coordinate with other work having a direct bearing on work of this section.

.3 Pre-installation Meetings: Convene two (2) weeks before starting work of this section.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum ten (10) years' experience.

.2 Contractor Qualifications: Company specializing in performing the work of this section and as follows:

.3 Successfully completed not less than five (5) comparable scale projects.

.4 Single Source Responsibility: Obtain firestop systems for each type of penetration and construction situation from a single primary firestop systems manufacturer.

1.9 SYSTEM DESCRIPTION

.1 Firestopping systems installed to resist spread of fire and passage of smoke and other gases at penetrations through fire resistance rated wall, roof or floor assemblies, materials and components.

1.10 PERFORMANCE REQUIREMENTS

.1 Use only materials, accessories and application procedures listed by cUL, ULC or tested to CAN/ULC-S115 to comply with building code requirements.

.2 Firestopping Materials: CAN/ULC-S101, ASTM E814, ASTM E119 to achieve a fire rating as noted on Drawings.

1.11 REGULATORY REQUIREMENTS

.1 Conform to applicable code for fire resistance ratings and surface burning characteristics.

.2 Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

1.12 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01 61 00: Transport, handle, store, and protect products.

.2 Deliver firestopping products in original, unopened containers with labels intact and legible, identifying product and manufacturer.

.3 Store and handle firestopping materials to manufacturer's instructions.

1.13 ENVIRONMENTAL REQUIREMENTS

.1 Do not apply materials when temperature of substrate material and ambient air is below 15°C (60°F) unless otherwise recommended by the manufacturer.

.2 Maintain this minimum temperature before, during, and for three (3) days after installation of materials.

.3 Provide ventilation to manufacturer's instructions in areas to receive solvent cured materials.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

.1 Products of the following manufacturers are acceptable subject to conformance to requirements of drawings, schedules and specifications.

.1 3M Fire Protection Products; www.solutions.3m.com

.2 Hilti (Canada) Limited; www.ca.hilti.com

.3 A/D Fire Protection System Inc., www.adfire.com .

.4 Nuco Inc., www.firestops.sealantcentre.com .

.5 Tremco Ltd., www.tremco.com .

.6 Specified Technologies Inc, www.stifirestop.com

.7 Or approved alternate.

2.2 MATERIALS

.1 Service penetration firestop systems, if applicable: in accordance with requirements of CAN4-S115 and listed in ULC Guide No. 40U19.

.2 Joint firestop systems: in accordance with requirements of CAN4-S115 and listed in ULC Guide No. 40U19.

.3 Systems are to be of asbestos-free materials, capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of CAN4-S115 and are not to exceed opening sizes for which they are intended.

.4 Primers: To manufacturer's recommendation for specific material, substrate and end use.

.5 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

.6 Damming and backup materials and supports and anchoring devices: to manufacturer's recommendations and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

.7 Sealants for vertical joints: non-sagging.

2.3 ACCESSORIES

.1 Primer: Type recommended by firestopping manufacturer for specific substrate surfaces.

.2 Dam Material: Permanent.

.1 Mineral fiberboard.

.3 Installation Accessories: Clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verify existing conditions before starting work.

.2 Verify opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping are ready to receive the work of this section.

.3 Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

.1 Ensure surfaces to receive firestopping are free of dirt, dust, grease, oil, rust, loose materials, release agents, frost, moisture or any other matter which would impair bond of firestopping material to substrate of penetrating items.

.2 Prime substrates in accordance with manufacturer's written instructions.

.3 Do not apply firestopping and smoke seals to surfaces previously painted or treated with sealers, curing compounds, water repellents or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure that anchoring devices, back-up materials, clips, sleeves, supports and other related materials used in actual fire tests are provided.

.5 Mask where necessary to prevent firestopping materials from contacting adjoining surfaces that will remain exposed upon completion of work. Remove tape as soon as it is possible to do so without damaging firestop material or substrate.

3.3 APPLICATION

.1 Apply primer and firestopping materials to manufacturer's written instructions.

.2 Install material at walls or partition openings which contain penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.

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

.4 Compress fibered material to achieve a density of 40% of its uncompressed density.

.5 Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.

.6 Place intumescent coating in sufficient coats to achieve rating required.

.7 Dam Material: Remove dam material after firestopping material has cured.

.8 Tool or trowel exposed surfaces to a neat finish.

.9 Remove excess compound promptly as work progresses and upon completion.

3.4 CLEANING

.1 Section 01 74 00: Cleaning installed work.

.2 Clean adjacent surfaces of firestopping materials.

3.5 PROTECTION OF FINISHED WORK

.1 Protect installed work. Remove and replace all damaged areas.

.2 Protect adjacent surfaces from damage by material installation.

3.6 SCHEDULES

.1 Provide firestopping of all conduit, duct, piping and other miscellaneous penetrations as required by the Ontario Building Code current edition.

.2 Fire resistance rating of installed firestop system will not be less than the fire resistance rating of surrounding floor and wall assembly.

.3 Alternative U.L.C. Designs are acceptable providing the system complies with the requirements of the specified systems.

.4 If alternative U.L.C. Designs are proposed, the contractor must submit in writing within 30 days of award of contract, the systems intended to be used, along with all U.L.C. Design data.

.5 The contractor is responsible for including an updated schedule, listing all joint firestop systems (JF) and service penetration systems (SP) as part of the as-built drawing submittal. The location of each joint firestop system used will be indicated on the as-built drawings.

END OF SECTION

PART 1- GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Preparing substrate surfaces.

.3 Sealant and joint backing.

.4 Structural sealant for glazing assemblies.

.5 Supply and install all sealants as called for on drawings and in this Section to ensure a weather tight building.

.6 Supply and install all expansion and control joint sealant shown on drawings.

.7 Provide all skilled labour and equipment to perform this work.

.8 Sealing of roofing and drywall shall be supplied and installed under Sections 07 61 13 – Standing Seam Sheet Metal Cladding and 09 21 16 – Gypsum Board Assemblies respectively.

1.2 RELATED SECTIONS

.1 Cast-in-Place Concrete (Refer to Structural Drawings).

.2 Section 04 26 13 – Masonry Veneer.

.3 Section 06 20 00 – Architectural Woodwork and Millwork.

.4 Section 07 46 23 – Wood Siding

.5 Section 07 25 00 - Weather Barriers.

.6 Section 07 61 13 - Standing Seam Sheet Metal Cladding

.7 Section 07 62 00 – Prefinished Metal Flashing.

.8 Section 07 84 00 - Firestopping.

.9 Section 08 11 00 - Doors and Frames.

.10 Section 08 12 00 – Interior Aluminum Doors and Frames

.11 Section 08 44 00 – Curtain Wall and Glazed Assemblies.

.12 Section 08 80 00 – Glass and Glazing.

.13 Section 08 91 19 – Fixed Louvres\

.14 Division 9 - Finishes

1.3 REFERENCES

.1 ASTM C834-10 - Standard Specification for Latex Sealants.

.2 ASTM C919-11 - Standard Practice for Use of Sealants in Acoustical Applications.

.3 ASTM C920-13 - Standard Specification for Elastomeric Joint Sealants.

.4 ASTM C1184-13 - Standard Specification for Structural Silicone Sealants.

.5 ASTM C1193-13 - Standard Guide for Use of Joint Sealants.

.6 ASTM C1401-09a - Standard Guide for Structural Sealant Glazing.

.7 ASTM E330-02 (2010) - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submittal Procedures.

.2 Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, colour availability.

.3 Structural Sealant Joint Design: Provide calculations for structural bite, dead load support, glueline thickness, shear, and other parameters.

.4 Structural Sealant Joint Design: Confirmation that design data provided by Consultant have been reviewed and approved by sealant manufacturer.

.5 Shop Drawings: Indicate sealant joints and dimensions, materials, structural bite, glueline thickness, joint profile, and support framing.

.6 Samples: Submit samples in accordance with Division 01. Provide cured, colour samples of manufacturer's standard range of colours in each type of sealant and caulking compound for colour selection by Consultant. Submit samples of primer, bond breaker tape and joint backing material, if requested.

.7 Colour: Submit sealant colours for acceptance in accordance with following general colour hierarchy. Between 2 dissimilar materials, colour the sealant to match the material with the higher relative position on the colour hierarchy scale (highest is at ".1"):

.1 Concrete.

.2 Masonry.

.3 Metal extrusions.

.4 Metal (formed).

.8 Material Safety Data Sheets: Submit MSDS for inclusion in Operation and Maintenance Manual without limitations for adhesives, sealants and other materials later designated by Consultant.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submittal Procedures.

.2 Installation Data: Manufacturer's special installation requirements.

.1 Indicate special procedures, surface preparation, perimeter conditions requiring special attention.

.3 MSDS Sheets

.4 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordination: Coordinate with other work having a direct bearing on work of this section.

.3 Pre-installation Meetings: Convene two (2) weeks before starting work of this section.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

.2 Applicator Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

.3 Testing Agency Qualifications: Retain an independent testing agency qualified in accordance with ASTM C1021 to conduct testing indicated, as documented according to sealant manufacturer's recommendations. Ensure materials are verified for suitability in accordance with ASTM C719 and ASTM C661.

.4 Perform work to sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

.5 Perform sealant application work to ASTM C1481 ASTM C1193.

.6 Perform structural sealant application work to ASTM C1401.

.7 Perform acoustical sealant application work to ASTM C919.

.8 Single Source Responsibility: Ensure primary materials provided in this Section are obtained from 1 source by a single manufacturer and secondary materials are obtained from sources recommended by primary materials manufacturers.

.9 Comply with ASTM C920 and other requirements indicated for each liquid-applied chemically curing sealant, including those referencing ASTM C920 classifications for type, grade, class, and uses.

.10 Provide joint sealants, primer(s) and backings that are compatible with one another and with joint substrates under conditions of service and application as demonstrated by joint sealant manufacture based on proven test results and field experience.

.11 For sealants to be applied to porous substrates: Provide products that have undergone testing according to ASTM D1245-05 and have not stained porous joint substrates indicated for Work.

.12 Sealants supplied shall not exude any material(s) which travels into adjacent materials, or travels onto surfaces of adjacent materials; causing damage, pr attracting soiling, which becomes apparent during the service life of the building.

1.9 PERFORMANCE REQUIREMENTS

.1 Sealant Design: Design structural sealant to withstand specified loads without breakage, loss, failure of seals, product deterioration, and other defects.

.2 Design installed sealant to withstand:

- .1 Dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall as measured in accordance with ASTM E330.
- .2 Movement and deflection of structural support framing.
- .3 Water and air penetration.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01 61 00: Transport, handle, store, and protect products.

.2 Deliver sealants products in original, unopened containers with labels intact and legible, identifying product and manufacturer.

.3 Store and handle sealant materials to manufacturer's instructions.

.4 Check that sealant tubes or sausages have not exceeded their shelf life prior to use.

.5 Store sealant so that it is not being subjected to extreme temperatures or variations.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.12 WARRANTY

.1 Section 01 78 10: Warranties.

.2 Provide a five (5) year warranty to include coverage for failure to meet specified requirements.

.3 Include coverage for installed sealants and accessories which fail to achieve water tight seal, air tight seal and, exhibit loss of adhesion or cohesion, or do not cure.

.4 Include coverage for installed sealants and accessories which fail to achieve water tight seal, air tight seal and, exhibit loss of adhesion or cohesion, or do not cure.

.5 Provide manufacturer's twenty (20) year material warranty for installed silicone sealant.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

.1 Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:

.1 ChemRex Inc.; www.chemrex.com
.2 CPD Construction Products; www.cpd.com
.3 Dow Corning; www.dowcorning.com
.4 Euclid Chemical Canada Ltd.; www.euclidchemical.com
.5 Momentive Performance Materials; www.gesilicones.com
.6 Sika Canada Inc.; www.sikacanada.com
.7 Tremco Canada; www.tremcosealants.com
.8 W. R. Meadows; www.wrmeadows.com
.9 Pecora Corporation: www.pecora.com
.10 Hilti: www.hilti.ca

2.2 SEALANTS

.1 Exterior Weatherseal and Structural Glazing Sealant: Low dirt pick-up, non-sag type, 1 component medium-modulus, pre-pigmented, neutral cure elastomeric silicone sealant conforming to ASTM C920, Type S, Grade NS, Class 50, Use NT, G, M, A and O. Supply in standard colours as selected. Supply 1 of following:

.1 “Dow Corning 756 SMS Building Sealant” by Dow Corning.
.2 “GE SilPruf NB SCS9000" by Momentive Performance Materials.

.2 Exterior Weatherseal Sealant: Non-sag type, 1 component ultra-low-modulus, pre-pigmented, neutral cure elastomeric silicone sealant conforming to ASTM C920, Type S, Grade NS, Class 100/50, Use NT, G, M, A and O. Supply in standard colours as selected. Supply 1 of following:

.1 “Dow Corning 790 Silicone Building Sealant” by Dow Corning.
.2 “GE SilPruf LM SCS2700" by Momentive Performance Materials.
.3 “Spectrem 1" by Tremco Canada.

.3 Exterior All-purpose Weatherseal Sealant: Non-sag type, 1 component medium-modulus, pre-pigmented, neutral cure elastomeric silicone sealant conforming to ASTM C920, Type S, Grade NS, Class 50, Use NT, G, M, A and O. Supply in standard colours as selected. Supply 1 of following:

.1 “Dow Corning 795 Silicone Building Sealant” or “791 Silicone Weatherproofing Sealant” or Contractor’s Weatherproofing Sealant [CWS]” or “Contractor’s Concrete Sealant [CCS] by Dow Corning.

.2 “GE SilPruf SCS2000” or “GE Silpruf SCS9000" or “UltraPpruf II SCS2900” or "Silicone Weatherproofing Sealant [SWS]" by Momentive Performance Materials or by Dow corning.

.3 “Spectrem 2" or “Spectrem 3" or ”Tremsil 400" by Tremco Canada.

.4 Cast-In-Place Concrete Walls, Architectural Precast Panels and Exterior Unit Masonry Wall; Exterior Joints in Pre-cast and Cast In Place Concrete Horizontal Surfaces and Interior Joints of Underside of Precast Components:

.1 “790 Silicone Building Sealant” by Dow Corning.

.2 “Spectrem 1" by Tremco Canada.

.3 “GE SilPruf LM SCS2700" by Momentive Performance Materials

.5 Composite Metal Panels and Joints:

.1 “795 Silicone Building Sealant” by Dow Corning.

.2 “Spectrem 2" by Tremco Canada.

.3 “GE SilPruf SCS2000" by Momentive Performance Materials.

.6 Interior Sealants:

.1 VOC limit: Less than 250g/L.

.2 Interior sealant at Vertical Movement and Non-Movement Joints, no detectible odour: One-component sealant in accordance with the following:

.1 ASTM C920, Type M or S, Grade NS, Class 25.

.2 CAN/CGSB 19.13-M87.

.3 SWR Institute Sealant Validation Program.

.3 Interior Sealant at Horizontal Pedestrian Trafficable Movement Joints: one-component low modulus sealant in accordance with the following:

.1 ASTM C920, Type S, Grade NS, Class 100/50.

.2 CAN/CGSB 19.13-M87.

.3 SWR Institute Sealant Validation Program.

.4 Interior Sealant Mildew Resistant: One part silicone sealant in accordance with the following:

.1 ASTM C920, Type S, Grade NT, Class 25

.2 CAN/CGSB 19.22-M89.

.5 Interior Sealant Pick Proof: Two part 100% solids, hi9gh modulus epoxy resin security sealant for non-moving joints in accordance with the following:

.1 Shore D hardness to ASTM C661: 70.

.2 Compressive strength to ASTM D695: 75 MPa.

.3 Tear strength to ASTM D624: 178 gm/cm.

.6 Interior Sealant Tamper Resistant: One part polyurethane security sealant in accordance with the following:

.1 Shore A ultimate hardness to ASTM C661: 55.

.2 Tensile ultimate strength to ASTM D412: 2MPa.

.3 Tear strength to ASTM D624: 178gm/cm

.4 ASTM C920-08, Type S, Grade NT, Class 12.5.

.7 Interior Sealant Acoustical Sealing Materials: for sound isolation and for interior joints.

.1 Acoustic Sealant: ASTM C834 and ASTM C919, Non-hardening. Provide 1 of following:

.1 "QuietZone Acoustic Sealant" by Owens-Corning Canada Inc.

.2 "Smoke and Acoustic Sealant CP 506" by Hilti

.3 "QuietSeal" by Serious Materials or QuietSeal 350 by Serious Materials.

.2 Gaskets: Closed cell neoprene, 3mm (1/8") thick x 64mm (2½") wide.

.3 Asphalt Felt: CSA A123.3; No. 15 Type.

2.3 COMPONENTS

.1 Joint Backing: Preformed, compressible, resilient, non-waxing, non-extruding, non-staining strips of closed cell polyethylene or urethane foam, compatible with joint substrates and are approved by sealant manufacturer based on field experience and laboratory test. Sizes and shapes to suit various conditions, diameter 25% greater than joint width. Backing shall be compatible with sealant, primer and substrate.

.2 Bond Breaker Tape: As recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

.3 Joint Primer: Non-staining, suitable for substrate surfaces, compatible with joint forming materials and as recommended by sealant manufacturer for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

.4 Masking Tape: Provide non-staining, non-absorbent tapes and sheets which effectively mask sealant without leaving an adhesive residue compatible with joint sealants and surfaces adjacent to joints.

.5 Cleaning Material: Non-corrosive, non-staining, solvent type, xylol, methyl-ethyl-ketone (MEK), toluol, isopropyl alcohol (IPA) (Do not use IPS to clean concrete substrate) or as recommended by sealant manufacturer and acceptable to material or finish manufacturers for surfaces adjacent to sealed areas free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way and formulated to promote optimum adhesion of sealants with joint substrates.

2.4 ACCESSORIES

.1 Primer: Non-staining type, recommended by sealant manufacturer to suit application.

.2 Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

.3 Joint Backing: ASTM C1330, round, closed cell polyethylene foam rod, oversized 30% to 50% larger than joint width.

.4 Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

.5 Masking tape: Non-staining, non-absorbent type compatible with sealant and adjacent surfaces.

.6 Setting Blocks and Spacers: Compatible with silicone sealant and recommended by sealant manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Examine joints for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealant performance. Ensure joints are suitable to accept and receive sealants.

.2 Verify that joint surfaces are clean, sound, free of defects and that dimensions are within sealant manufacturer's size requirements.

.3 Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of work implies acceptance of surfaces and conditions.

.4 Do not apply sealant to masonry until mortar has cured.

.5 Before any sealing work is commenced, test materials for indications of staining or poor

.6 Notify Consultant in writing of any conditions which would be detrimental to the installation. Commencement of work implies acceptance of previously completed work.

3.2 PREPARATION

.1 Ensure joint interfaces are clean.

.2 Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

.3 Clean joints and spaces which are to be sealed and ensure they are dry and free of dust, loose mortar, oil, grease, oxidation, coatings, form release agents, sealers and other foreign material.

.4 Clean porous surfaces such as concrete, masonry or stone by wire brushing, grinding or blast cleaning, mechanical abrading or combination of these methods as required to obtain clean and sound surfaces.

.5 Remove laitance by grinding or mechanical abrading.

.6 Remove oils by sandblast cleaning.

.7 Remove loose particles present or resulting from grinding, abrading or sandblast cleaning by thorough brushing.

.8 Clean ferrous metals of rust, mill scale and foreign materials by wire brushing, grinding or sanding.

.9 Wipe non-porous surfaces such as metal and glass to be sealed, except pre-coated metals, with cellulose sponges or clean rags soaked with ethyl alcohol, ketone solvent, xylol or toluol and wipe dry with clean cloth. Where joints are to be sealed with silicone based sealants clean joint with methyl-ethyl-ketone (MEK) or xylol. Do not allow solvent to air-dry without wiping. Clean pre-coated metals with solutions or compounds which will not injure finish and which are compatible with joint primer and sealant. Check ferrous metal surfaces are painted before applying sealant.

.10 Examine joint sizes and where depth of joint exceed required depth of sealant correct to achieve proper following width/depth ratio:

.11 Maintain 2:1 width/depth ratio: minimum joint size to be 6mm x 6mm (¼" x ¼"), maximum depth of sealant to be 13mm (½").

.12 Install joint backing material to achieve correct, uniform joint profile and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

.13 Do not leave gap between ends of sealant backing; do not stretch, twist, puncture, or tear sealant backings; remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

.14 Where joint design or depth of joint prevents use of joint backing material, apply bond breaker tape to prevent 3-sided adhesion.

.15 Do not stretch, twist, puncture or tear joint backing. Butt joint backing at intersections. Install bond breaker tape at back of joint where joint backing is not required or cannot be installed.

.16 On horizontal traffic surfaces, support joint filler against vertical movement which might result from traffic loads, including foot traffic.

.17 Where surfaces adjacent to joints are likely to become coated with sealant during application, mask them prior to priming and sealing.

.18 Do not exceed shelf life and pot life of materials and installation times, as stated by manufacturer.

.19 Be familiar with work life of sealant to be used. Do not mix multiple component materials until required for use.

.20 Use materials as received from manufacturer, without additions, deletions and adulterations of materials.

.21 Mix multiple component sealants and bulks sealants using mechanical mixer capable of mixing without mixing air into material, in accordance with manufacturer’s directions and recommendations. Continue mixing until material is homogeneously blended, uniform in colour and free from streaks of unmixed material. Install compound prior to start of hardening or curing cycle.

.22 Seal joints in surfaces to be painted before surfaces are painted. Where surfaces to be sealed are prime painted in shop before sealing check to make sure prime paint is compatible with primer and sealant. If they are incompatible, inform Consultant and change primer and sealant to compatible types approved by Consultant.

.23 Where irregular surface or sensitive joint border exists, apply masking tape at edge of joint to ensure joint neatness and protection.

.24 Prime exterior horizontal joints. Prime sides of joints for type of surface being sealed prior to application of joint backing, bond breaker or sealant as recommended by sealant manufacturer.

3.3 APPLICATION

.1 Apply in accordance with manufacturer's directions and recommendations unless more stringent requirements apply.

.2 Apply sealant by proven techniques using hand operated guns or pressure equipment fitted with suitable nozzle size and equipment approved by sealant manufacturer.

.3 Force sealant into joint and against sides of joints to obtain uniform adhesion. Use sufficient pressure to completely fill all voids in joint regardless of variation in joint widths and to proper joint depth as prepared. Ensure full firm contact with interfaces of joint. Superficial pointing with skin bead is not acceptable.

.4 Finish face of compound to form smooth, uniform beads. At recesses in angular surfaces, finish compound with flat face, flush with face of materials at each side. At recesses in flush surfaces, finish compound with concave face flush with face of materials at each side.

.5 Compound may be tooled, provided such tooling does not damage seal or tear compound. Avoid pulling of sealant from sides.

.6 Tool sealant as soon as possible after sealant application or before any skin formation has occurred, particularly when using silicone sealants.

.7 Ensure joint surfaces are straight, neatly finished, free from ridges, wrinkles, sags, dirt, stains, air pockets and embedded foreign matter or other defacement and be uniform in colour, free from marbling and/or colour streaking due to improper mixing or use of out of shelf-life Products.

.8 Do not use solvent curing sealants indoors.

3.4 EXTERIOR SEALANT SCHEDULE

.1 Include in work of this section joint sealants in exterior assemblies to seal open joints in surfaces exposed to view, and to make building weather-tight and air-tight, as applicable, as indicated, and as otherwise specified, expect where specified under work of other sections.

.2 Install exterior sealant to:

- .1 Perimeters of exterior openings where frames meet exterior façade of building.
- .2 Movement and control joints in exterior surfaces.
- .3 Exterior joints between façade cladding materials.
- .4 Exterior joints in horizontal wearing surfaces.
- .5 Exterior control and expansion joints in masonry and concrete.

.3 Joint designation in preceding paragraphs and fact that Drawings do not show all locations to be sealed does not limit responsibility of this Section to seal all locations except those indicated in other Sections of work, required to create and ensure continuous enclosure.

3.5 INTERIOR SEALANT SCHEDULE

.1 Include in work of this section sealants to seam open joints in all surfaces exposed to view, and to make building weather-tight and air-tight, as applicable, as indicated, and as otherwise specified, expect where specified under work of other sections.

.2 Install Interior sealant to:

- .1 Movement and control joints on exposed insitu concrete walls.
- .2 Interior control and expansion joints in floor and wall surfaces.
- .3 Raked out joints at junctions of masonry with concrete walls and columns, and at intersection of masonry walls and partitions where joint reinforcement is installed
- .4 Perimeters of door and window frames
- .5 Joints at tops of non-load bearing masonry walls at the underside of decking or slab.
- .6 Exposed interior control joints in gypsum board.
- .7 Millwork junctions with walls.
- .8 Joints between dissimilar materials exposed to view.
- .9 Interior control joints in masonry.

.3 Mildew Resistant sealant to:

- .1 All interior locations listed above in all wet areas.
- .2 Urinals
- .3 Water closets
- .4 Around washroom accessories
- .5 Showers
- .6 Between millwork and wall.

.4 Acoustical sealant to:

.1 Apply acoustical sealant to every air gap, such as gaps around perimeter of wall, between wall panels and around any penetrations made for plumbing or electrical wiring. Seal off any piping, electrical output boxes, and duct work with acoustical treatments. Treat junction boxes with acoustic putty, treat piping and duct work either with fiberglass duct liner or damping material or both. Treat frame with gasket material (weather-strip) and Install security flap on bottom of door to seal it off.

.2 Apply acoustical sealant around partition cutouts including, but not limited to, gaps between wall stud plates and subfloor, electrical outlets and boxes, plumbing and duct outlets, air ducts and boots, doors, windows and other miscellaneous wall and floor penetrations or gaps.

.3 Apply sealant between track or runner, walls, floors and ceiling; areas may require pre-moulded, loose-cell filler between tracks and drywall at top and bottom edges to meet design requirements.

.4 Apply minimum 13mm (½") diameter bead of acoustic sealant continuously around periphery of each face of partition to seal wall board/structure junction where partitions abut fixed building components in accordance with recommendations of “CGC Drywall/Steel Framed Systems, Folder SA923 09250".

.5 Pick Proof sealant to:

.1 Reserved

.6 Tamper Resistant sealant to:

.1 Reserved

.7 Joint designation in preceding paragraphs and fact that Drawings do not show all locations to be sealed does not limit responsibility of this Section to seal all locations except those indicated in other Sections of work, required to create and ensure continuous enclosure.

.8 Firestopping and Smoke Seal: Sealants part of firestopping systems and smoke seals provided within fire rated assemblies shall be part of work of Section 07 84 00 and shall be carried out under supervision of this Section.

3.6 FIELD QUALITY CONTROL

.1 Section 01 45 00: Quality Control.

.2 Independent inspection and testing company may be appointed to carry out inspection and testing as directed by Consultant.

.3 Inspect joints for complete fill, for absence of voids and for joint configuration complying with specified requirements. Record results in a manner acceptable to Consultant.

.4 Tests may include sampling of installed Product where adhesion, cohesion or reversion failure is suspected.

.5 Where work or materials fail to meet requirements as indicated by test results, pay costs of additional inspection and testing required for new replacement work or materials.

.6 Confirm in writing by manufacturer’s representative to be on site throughout construction period work to inspect application of sealant and surface preparation.

3.7 MANUFACTURER'S FIELD SERVICES

.1 Notify the product manufacturer prior to commencement of the application and obtain instructions as to recommended use of materials.

3.8 CLEANING

.1 Section 01 74 00: Cleaning installed work.

.2 Clean adjacent soiled surfaces.

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

.4 Remove all packaging and debris from project area.

3.9 PROTECTION OF FINISHED WORK

.1 Protecting installed work.

.2 Remove masking tape and excess sealant.

.3 Protect sealants until cured.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Work included: Provide doors and frames including but not limited to following:

- .1 Steel door frames.
- .2 Steel transom panels.
- .3 Steel frames and mullions for borrowed lights and glazed screens.
- .4 Glazing stops.
- .5 Steel doors, swing flush type.
- .6 Wood solid core doors.
- .7 Exterior steel doors.
- .8 Preparation of steel and wood doors and frames for security system CSA approved wiring and/or conduit for electronic hardware. Include junction boxes and conduit for electronic hardware. Refer to Section 08 71 00 Door and Hardware for openings that require electrified hardware.

.3 Refer to Door Schedule for door and screen frame locations, types and required fire ratings.

.4 Refer to Section 08 71 00 for conditions of the Hardware Allowance.

.5 Refer to Room Finish Schedule and Drawings for painted and stained finishes.

1.2 RELATED SECTIONS

.1 Section 07 92 00 - Joint Sealants.

.2 Section 08 71 00 – Finishing Hardware.

.3 Section 08 80 00 – Glass and Glazing.

.4 Section 09 21 16 – Gypsum Board Assemblies.

.5 Section 09 91 00 - Painting.

.6 Division 21 and 26.

1.3 REFERENCES

.1 ANSI/BHMA A156.115-06: Hardware Preparation in Steel Doors and Frames.

.2 ANSI/DHI A115.IG-94: Installation Guide for Doors and Hardware.

.3 ANSI A250.4-01: Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing.

.4 ASTM A568-M-09a: Standard Specification for Steel, Sheet, Carbon, Structural and High-Strength, Low Alloy, Hot Rolled and Cold Rolled, General Requirements for

.5 ASTM A653/A653M-09a Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-iron Alloy Coated (Galvannealed) by the Hot Dip Process.

.6 ASTM A924/924M-10: Standard Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot Dip Process.

.7 ASTM C177-10: Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-plate Apparatus.

.8 ASTM C518-10: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

.9 ASTM C578-10: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

.10 ASTM C665-06: Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.11 ASTM C1289-10: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

.12 ASTM D1622-03: Standard Test Method for Apparent Density of Rigid Cellular Plastics.

.13 ASTM E90-09: Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

.14 ASTM Classification for Rating Sound Insulation.

.15 CGSB 41-GP-19Ma: Rigid Vinyl Extrusions for Windows and Doors.

.16 CAN/CGSB 82-5-M88: Insulated Steel Doors.

.17 CSA W59-03(08): Welded Steel Construction (Metal Arc Welding)

.18 CAN/ULC S14-10: Standard Method for Fire Tests of Door Assemblies CAN/ULC S104-M80: Standard Method for Fire Tests of Door Assemblies.

.19 CAN/ULC S105-09: Standard Specification for Fire Door Frames Meeting The Performance Required by CAN/ULC-S104.

.20 CAN4 S106-M80 (92): Standard Method for Fire Tests of Window and Glass Block Assemblies.

.21 CSDMA: Canadian Steel Door Manufacturers Association: Recommended Specifications for Commercial Steel Door and Frame Products, 2006.

.22 NAAMM: National Association of Architectural Metal Manufacturers.

.23 HMMA: Hollow Metal Manufacturer's Association.

.24 NAAMM/HMMA 840-99: Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames.

.25 NFPA 80-10: Standard for Fire Doors and Other Opening Protectives.

.26 NFPA 252-08: Standard Methods of Fire Tests of Door Assemblies.

.27 NFPA 257-07: Standard on Fire Test for Window and Glass Block Assemblies.

.28 AWMAC most current edition

.29 CAN/CGSB-71.19: Adhesive, Contact, Sprayable.

.30 CAN/CGSB-71.20: Adhesive, Contact, Brushable.

.31 CSA O115, harcwood and Decorative Plywood.

.32 CAN/CSA O132.2 Series, Wood Flush Doors.

.33 CAN/CSA-O132.5, Stile and Rail Wood Doors.

1.4 SUBMITTALS FOR REVIEW

.1 Submit under provisions of Section 01 33 00.

.2 Product Data: Submit manufacturer's Product specification, construction details, material, finish descriptions and dimensions of individual components. Submit manufacturer's literature, data sheets for each type of material provided under this Section for Project. Data sheets shall provide all required information.

.3 Shop Drawings:

.1 Show each type of frame, door, core, metal thicknesses and finishes, openings (glazed and/or louvered), fire ratings, location of exposed fasteners, cutouts, hardware blanking, reinforcing, tapping and drilling arrangements. Show large scale frame sections and anchoring details. Submit door and frame schedule identifying each unit. Ensure each unit bears legible identifying mark corresponding to that listed in Door and Frame Schedule. Fabrication shall not proceed without receipt of reviewed submittal drawings and reviewed hardware schedule.

.4 Samples:

.1 Provide 1 cut-away corner sample minimum 300mm (12") square for each type of door to indicate following:

.1 Core

.2 Reinforcing

.3 Facing

.4 Frame

.5 Test Reports: Submit following test reports:

.1 Steel door and frame assemblies supplied under this Section meet acceptance criteria of ANSI A250.10 and ANSI A250.4, Level "A".

.2 Insulated door cores supplied in exterior doors under this Section meet specified thermal resistance rating.

.3 Ensure reports include name of testing authority, date of test, location of test facility, descriptions of test specimens, procedures used in testing and indicate compliance with acceptance criteria of test.

.4 Submit in addition to fire label, certificate to substantiate design and construction of fire-rated screen assemblies, if required by Consultant or authorities having jurisdiction.

.5 Submit a schedule indicating each door and frame related to Door and Frame Schedule.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Installation Data: Manufacturer's special installation requirements.

.3 MSDS Sheets.

.4 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordinate with other work having a direct bearing on work of this section.

.3 Coordinate work to ensure timely placement of insulation within construction spaces.

.4 Pre-installation Meetings: Convene two (2) weeks before starting work of this section.

.5 Sequencing: Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

1.8 QUALITY ASSURANCE

.1 Qualifications: Execute work of this Section by a manufacturer who is a member of CSDFMA.

.2 Manufacturer's Qualification: Upon request, manufacturer shall provide evidence of having fabricated type of work under this Section for projects of similar size and scope, for a continuous period of not less than five (5) years prior to award of Contract, has personal and plant equipment capable of fabricating steel door and frame Product of types specified and has a written quality control and system in place.

.3 Product Supplier shall have Architectural Hardware consultant or person of equivalent experience, available at reasonable times to consult with Consultant, Contractor and/or Owner.

.4 Provide work of this Section executed by competent installers with minimum 5 years' experience in the application of Products, systems and assemblies specified and with approval and training of Product manufacturers.

.1 Be knowledgeable of manufacturers specified in this Section and be familiar with ANSI/NFPA 80 requirements relating to installation of labelled fire rated steel doors, frames and hardware covered under this Section and Section 08 71 00.

.5 Quality Criteria:

.1 All door and frame Product shall meet appropriate requirements of Testing and Performance of these Specifications. Fabricate assemblies on strict accordance with approved submittal drawings.

.2 Door and frame Product not in compliance with this Specification may be grounds to reject entire shipment, Supplier and/or manufacturer. Rejected Product shall be replaced at no cost to Owner. Extensions of time or additions to Contract Price will not be considered due to rejection of Product.

1.9 SYSTEM DESCRIPTION

.1 Design Requirements: Ensure Product is manufactured by a firm experienced in design and production of standard and custom commercial door and frame assemblies, integration of builders' or electronic hardware and glazing assemblies and other items affecting work.

.2 Test and Performance Requirements:

.1 Physical Endurance Performance Test for Steel Doors.

.2 Test 914mm (3’0") x 2134mm (7’0") x 45mm (1¾") thick normal size door, representative of construction and material provided.

.3 Test specimen in accordance with ANSI A250.4, Cycle and Twist Test procedures.

.3 Cycle Test Acceptance Criteria:

.1 Steel stiffened core, continuously welded edge seam doors specified with 16 gauge and heavier face sheets shall be tested to 4,000,000 cycles.

.2 Test doors with 18 gauge and heavier face sheets to 1,000,000 cycles.

.3 Twist Test Acceptance Criteria: Maximum deflection under 300 pound (126.08kg) load.

.4 Steel stiffened core, continuously welded edge seam doors specified with 16 gauge and heavier face sheets shall not exceed 15.88mm (0.625") deflection and maximum permanent deflection shall not exceed 1.57mm (0.062").

.5 Doors specified with 18 gauge and heavier face sheets shall not exceed 31.75mm (1.25") deflection and maximum permanent deflection shall not exceed 3.18mm (0.125").

.6 Provide Test Reports or Certificates of Companies including description of test specimen, procedures used in testing and indicate compliance with specified acceptance criteria.

.4 Labelled Fire-Rated or Temperature Rise Rated Doors and Frame product:

.1 Provide fire and temperature rise rated steel doors and frame products for those openings as determined and scheduled by Consultant.

.2 Provide label of a recognized testing agency having factory inspection service, and constructed as listed or classified for labelling.

.3 Test doors provided for openings requiring fire rating only, or fire and temperature rise rating in accordance with CAN/ULC S104.

.4 Test frames, transom and sidelight assemblies provided for openings requiring fire-rating, in accordance with CAN/ULC S104.

.5 Test window frames provided for openings requiring fire-rating in accordance with CAN/ULC S106.

.6 Label in accordance with ANSI/NFPA 80, listing organization's policies, and Follow-Up Service Procedures/Manuals.

.7 Fire rated door or frame component, not qualifying for labelling due to design, hardware or any other reason, shall be noted in submittal documents, or prior to manufacture of product if hardware, glazing or other options affecting fire-rating are not available at time of submitted Shop Drawings preparation.

.5 Ensure core materials for exterior doors attains thermal resistance of RSI 1.9 (R 11) when tested in accordance with ASTM C177 or ASTM C518.

.6 Product quality shall meet standards set by (CSDMA) Canadian Steel Door and Frame Manufacturers Association.

.7 Product quality for wood doors shall meet standards set by (AWMAC) North American Architectural Woodwork Standards.

1.10 DELIVERY, STORAGE AND HANDLING

.1 Protect doors and frames during shipping and storage.

.2 Inspect all materials thoroughly upon receipt and report all discrepancies, deficiencies and/or damages immediately in writing to Supplier. Note all damage on carrier's Bill of Lading.

.3 Make good immediately any damage done. Clean scratches and touch up with rust-inhibitive primer. Replace damaged work which cannot be repaired, restored or cleaned.

.4 Store in a dry, secure location, on planks or dunnage. Doors and frame products shall be stored in a vertical position, spaced with blocking. Materials shall be covered to protect them from damage but in such a manner as to permit air circulation. Site storage and protection of materials shall be in accordance with NAAMM-HMMA 840.

1.11 WARRANTY

.1 Warrant work of this Section for period of 1 year against defects and/or deficiencies in accordance with General Conditions of the Contract. Promptly correct any defects or

deficiencies which become apparent within warranty period, to satisfaction of Consultant and at no expense to Owner. Defects include but are not limited to; buckling, opening of seams, bond failure and extensive colour fading.

.2 Wood doors shall be guaranteed against defects for a period of three (3) years from the date of Deemed Completion of the contract.

.3 Any door found to be defective or unfit for use under normal conditions will be replaced free of charge by the manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

.1 Products of following manufacturers for steel doors are acceptable subject to conformance to requirements of drawings, schedules and specifications:

.1 Artek Door Limited; www.artekdoor.com
.2 Davbar Industries Limited; www.daybar.com
.3 De La Fontaine; www.delafontaine.com
.4 Fleming Door Products Limited; www.flemingdoor.com
.5 Gensteel Doors; www.gensteeldoors.com
.6 Trillium Steel Doors Limited; www.trilliumsteeldoors.com
.7 All Steel Doors 2000 ltd.; www.allsteeldoors.com

.2 Products of following manufacturers for wood doors are acceptable subject to conformance to requirements of drawings, schedules and specifications:

.1 Baillargeon; www.baillargeondoors.com
.2 Premdor; www.masonite.com
.3 Lambton Doors; www.lambtondoors.com
.4 Or approved equal

2.2 MATERIALS

.1 Sheet Steel: Interior use shall be commercial grade steel to ASTM A5568M, Class 1, hot-dip galvanized to ASTM A653M, ZF 180 (A60), known commercially as "Galvanneal". Steel sheet thickness specified are base metal thicknesses prior to galvanizing.

.2 Exterior use shall be Galvanized steel conforming to ASTM A653, Commercial Steel (CS), Type B, coating designation Z275 (G90) for steel door faces sheets and frame product profiles.

.3 Equivalent minimum base steel thicknesses for gauges shall be in accordance with Appendix 1 of CSDMA "Recommended Specifications for Commercial Steel Door and Frame Products".

.4 Steel shall be free of scale, pitting, coil breaks, surface blemishes, buckles, waves and other defects.

.5 Stainless steel, Type 304, conforming to ASTM A 666

.6 Door Cores:

.1 Honeycomb: Structural small cell 2 5mm (1") maximum, kraft paper "honeycomb"; weight 36kg (80 lb) per ram (min.), density; 16.5kg/m^3 (1.03 lbs/cu ft) minimum, sanded to required thickness.

.2 Polyurethane: foamed in place, density 29kg/m^3 (1.8lbs.cu ft) minimum, containing no urea formaldehyde resins and a minimum R-value of RSI 1.9 (R11).

.3 Steel Stiffened, Internally reinforced with 0.64mm (22 ga) interlocking steel stiffeners, securely laminated to each face sheet. Voids between stiffeners shall be injected with polyurethane foam for and a minimum R-value of RSI 1.9 (R11).

.7 Adhesives:

.1 Heat resistant, single component, polyurethane reactive (water) hot melt, thermostat adhesive UL/WH approved.

.2 Interlocking Edge Seams: Resin reinforce4d polychloroprene (RRPC), fire resistant, high viscosity, sealant/adhesive or UL/WH approved.

.3 Honeycomb Cores and Steel Components: Heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.

.4 Polyurethane Cores: Heat resistant, epoxy resin based, low viscosity, contact cement.

.5 Lock-Seam Doors: Fire resistant, resin reinforced polychloroprene (RRPC), fire resistant high viscosity sealant/adhesive.

.8 Primer: Rust inhibitive touch-up only.

.9 Door Silencers (Bumpers): Single stud rubber/neoprene type.

.10 Fasteners for Stops: Cadmium plated steel, counter sunk flat or oval head sheet metal Phillips screws.

2.3 FRAME ANCHORS

.1 Provide Frame anchor Products with anchorage appropriate to floor, wall and frame construction.

.2 Floor Anchors:

.1 Provide each jamb with 1.52mm (16 ga) steel floor anchors where frame product is installed prior to construction of adjacent wall. Provide each anchor with 2 (two) holes for mounting to floor and securely weld to inside of jamb profile.

.3 Wall Anchors:

.1 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.

.2 Provide 2 anchors per jamb for rebate opening heights up to and including 1524mm (60") and 1 additional anchor per jamb for each additional 760mm (30") of height or fraction thereof, except as noted below. For frames in previously placed concrete, masonry or structural steel provide anchors located not more than 150mm (6") from top and bottom of each jamb and intermediate anchors at 660mm (26") on center maximum.

.3 Provide frame products installed in steel stud and drywall partitions with 20 gauge steel snap-in or "Z" stud type anchors. Supply frame anchors to wall board installers with directions for installing steel door frames in wall board partitions.

.4 Locate anchor preparations and guides immediately above or below intermediate hinge reinforcing and directly opposite on strike jamb. Provide each preparation with 16 gauge anchor bolt guides.

.5 Provide anchor bolts and expansion shell anchors for above preparations by Subcontractor responsible for installation.

.6 Provide channel extensions from top of frame assembly to underside of structure above on sidelights or windows exceeding 3m (9'-10") in width when installed in stud partitions. Fabricate extensions from 2.66mm (12 ga) steel formed channels, mounting angles and adjusting brackets, with mounting angles welded to inside of frame head. Deliver loose formed adjusting brackets and fasteners. Connect channels mechanically to mounting angles and adjusting brackets with supplied fasteners, on site, by Subcontractor responsible for installation.

2.4 STEEL FRAMES

.1 Fabricate frames for doors, screens and borrowed lights to profiles indicated.

.2 Reinforce frame as required for surface mounted hardware. For door frames wider than 1500mm (4'-11") reinforce door frame head and jamb and mullions at junction of head.

.3 Prepare each door opening for single stud door silencers; 3 for single door openings placed opposite hinges; 2 for double door openings approximately 150mm (6") each side of meeting stiles of doors.

.4 Reinforce all frames for regular, parallel and top jamb mount closers.

.5 Exterior Frames:

.1 Frames shall be fabricated from 1.5mm (14 ga) steel.

.2 Supply, set up and welded (SUW). Welds shall not cause thermal transfers between interior and exterior surfaces of frame sections.

.3 Sections shall not be assembled by means of screws, grommets or other fasteners.

.4 Closed sections such as mullions or center rails shall be factory insulated with specified insulation.

.5 Install insulation of open sections such as jambs, heads and sills.

.6 Factory apply touch-up primer to areas where zinc coating has been removed during fabrication.

.7 Construct door frames of labelled fire doors as detailed in follow-up service procedure/factory inspection manuals issued by nationally recognized listing agency to individual manufacturers and tested in conformance with CAN/ULC S104-M. Ensure ratings for frames match doors as minimum requirement. Locate label on frame jamb on hinge side, so it is concealed when door is closed.

.8 Provide 4 hinges per door non-symmetrically spaced.

.6 Sidelight and Window Frame Assemblies:

.1 Steel: Minimum 1.5mm thick (16 ga) steel.

.2 Supplied set-up and welded (SUW)

.3 Glazing stops: Minimum 0.9mm thick (20 ga) steel, formed, drilled and countersunk for fastenings.

.7 Welded Type Frames:

.1 Miter corners of frames. Cut frame miters accurately and weld continuously on returns and inside of frame faces.

.2 When required due to site access or due to shipping limitations, fabricate frame product for large openings in sections, with splice joints for field assembly. Indicate joints for field assembly on shop drawings.

.3 Accurately cope and securely weld butt joints of mullions, transom bars, center rails and sills. Grind welded joints to a smooth, uniform finish.

.4 Securely attach floor anchors to inside of each jamb profile.

.5 Weld in 2 temporary jamb spreaders at each frame to maintain alignment during shipment.

.6 Use formed channel glazing stops, minimum 16mm (5/8") in height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.7 Steel frame products shall have frame back boxes provided by section 08 70 00, welded in place by the hollow metal door frame supplier. Refer to section 08 70 00 finish hardware for openings that require electrical hardware

2.5 STANDARD DUTY STEEL DOORS

.1 Standard Duty Exterior Steel Doors:

.1 Doors shall be hollow steel construction having each face of the door formed from sheet steel of minimum 1.5mm (16GA) core thickness commercial grade cold rolled to ASTM A-366 Class I with ZF180 (A60) zinc coating. Longitudinal edges shall be continuously welded, dressed and filled. Doors shall be vertically stiffened with stiffeners laminated to face sheets.

.2 Standard Duty Interior Steel Doors:

.1 Face Sheets: 1.2mm thick (18 ga) minimum uncoated steel sheet.

.2 Core: Honeycomb.

.3 Longitudinal edges: Mechanically interlocked, tack welded at top and bottom of door, 150mm (6") on center and above and below each edge cutout, filled and ground smooth with no visible seams.

.4 Glazing Stops: 0.9mm thick (20 ga) minimum uncoated steel sheet, formed, drilled and countersunk for fastenings.

.3 Standard Duty Interior Fire Rated Steel Doors:

.1 Face Sheets: 1.2mm thick (18 ga) minimum uncoated steel sheet.

.2 Core: Honeycomb

.3 Longitudinal edges: Mechanically interlocked tack welded at top and bottom of door, 150mm (6") on center and above and below each edge cutout, filled and ground smooth with no visible seams.

.4 Doors (Honeycomb Core Construction):

.1 Door faces of all steel doors shall be fabricated without visible seams, free of scale, pitting, coil brakes, buckles and waves.

.2 Fabricate each facer sheet for interior door using a sheet steel laminated under pressure to honeycomb core.

.3 Formed edges shall be true and straight with minimum radius for thickness of steel used.

.4 Lock and hinge edges shall be beveled 3mm in 50mm (1/8" in 2") unless required otherwise to suit finish hardware or door swings.

.5 Top and bottom of doors shall be provided with inverted, recessed, 1.5mm thick (16 ga) steel end channels, welded to each face sheet at 50mm (2") on center maximum.

.5 Glazing:

.1 Interior: 20ga glazing kit, baked on powder coat grey primer for field painting. Size and glazing as indicated on drawings. Air Louvers Inc Slimline or equal.

.2 Exterior: 20ga glazing kit, electro-galvanized baked on powder coat, colour selected from manufacturer's standard colour selection. Size and glazing as indicated on drawings. Air Louvers Inc VSIG-E, or equal.

.6 Prime Painting: Apply factory touch up primer at areas where zinc coating has been damaged during fabrication.

.7 Steel Panels:

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

.8 Finish:

.1 Remove weld slag and spatter from exposed surfaces.

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

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

.4 Primer shall be fully cured prior to shipment.

.9 Sizes and Tolerances

.1 Manufacturing and installation tolerances shall be in accordance with CSDMA "Recommended Dimensional Standards for Commercial Steel Doors and Frames".

.10 Hardware Locations:

.1 Location of hardware on doors and frames products shall be outlined in the finish hardware preamble.

.2 Hardware preparation tolerances shall comply with the ANSI A115 series standards.

.11 Metal Louvres:

.1 Material: Roll formed steel.

.2 Finish: Pre-painted finish, colour to be selected by Consultant.

.3 Louvre Blade: Inverted slat blade, and sight proof.

.4 Fire Rating: Fire rated as indicated with fusible link design to ULC requirements.

.5 Frame: style with tamper proof fasteners.

2.6 HARDWARE REINFORCEMENT AND PREPARATIONS

.1 Door product shall be blanked, reinforced, drilled and tapped at the factory for fully template mortise hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier.

.2 Door products shall be factory blanked and reinforced only for mortised hardware that is not fully templated.

.3 Where surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges or non-templated hardware applies, frame product shall be reinforced only, with drilling and tapping done by others in the field.

.4 Doors shall be prepared for 4.5" (114.3mm) standard weight hinges (minimum).

.5 Hinge reinforcing shall be 3.42mm (10 ga) steel minimum, high frequency type be provided.

.6 Doors in excess of 96" (2450mm) rabbet height shall be prepared for 4.5" (114.3mm) heavy weight (.180"/4.6mm) hinges minimum.

.7 Lock, strike and flush bolt reinforcements shall be 16 gauge steel minimum, with extruded tapped holes that provide equivalent number of threads as 12 gauge.

.8 Closer reinforcing shall be 2.66mm (12 ga) steel minimum.

.9 Reinforce frame product where surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges or non-templated hardware apply, with drilling and tapping done by others in field.

.10 Reinforcements are not required for surface applied hardware supplied with thru-bolts and spacers or sex-bolts.

.11 Cylindrical lock, ASA strike and flush bolt reinforcing shall be 2.66mm (12 ga) steel minimum.

.12 Templated holes 12.7mm (½") diameter and larger shall be factory prepared except mounting and through bolt holes which shall be by Subcontractor responsible for installation on site, at time of application. Templated holes less than 12.7mm (½") diameter shall be factory prepared only when required for function of device (for knobs, levers, cylinders, thumb or turn pieces) or when these holes overlap function holes.

.13 Mortise lock and all other surface mounted hardware reinforcing shall be 1.52 mm (16 ga) steel minimum.

.14 In masonry or concrete partitions with 0.76mm (22 ga) steel grout guards. Where electrified hardware is specified on approved Hardware Schedule, steel door and frame product shall have CSA approved system consisting of CSA approved conduit, junction boxes wire harnesses complete with modular plugs for coordinated connection directly to electrified hardware. Refer to Section 08 71 00 "Door Hardware" for openings that require electrified hardware unless indicated otherwise.

.15 Provide all hardware mortises on perimeter frame members shall be grouted.

.16 Where electrified hardware is specified on approved hardware schedule, steel door product shall be provided with conduit, with pull string, through door from power transfer to electric hardware item which shall be installed in the door prior to shipment to site. Refer to Section 08 71 00 "Finish Hardware" for openings that require electrified hardware.

2.7 STEEL FRAME FABRICATION

.1 Form frames in accordance with details, approved shop drawings, and ULC requirements.

.2 Mortise, reinforce, drill and tap frames and reinforcements to receive hardware using templates provided.

.3 Protect strike and hinge reinforcement completely by guard boxes welded to frame.

.4 Weld in two temporary channel spreaders per frame to ensure proper frame alignment during shipment. Spreader bars to be removed prior to installation of frames.

.5 Where frames terminate at finish floor, provide floor plates for anchorage to structural slab.

.6 Cut miters accurately and weld continuously on inside of frame profile.

.7 Grind welded corners to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

.8 Fill surface depressions and butted joints with metallic paste filler and sand to a uniform smooth finish.

.9 Reinforce heads of frames wider than 1219mm (4'-0") with 3.4mm (10 GA) reinforcing.

.10 Provide ULC labels on frames for fire-rated doors.

.11 Removable glazing stops shall be screw-fixed with countersunk heads.

.12 Touch up frames by priming areas where galvanizing is damaged prior to delivery.

2.8 STEEL DOOR FABRICATION

.1 Provide ULC labels for all fire-rated doors

.2 Make provisions for grilles and glass and provide necessary glazing stops. Removable glazing stops shall be screw-fixed with countersunk heads.

.3 Construct doors in accordance with reviewed shop drawings and ULC requirements Undercut doors where shown on Door Schedule.

.4 Touch up doors with primer where galvanized finish is damaged during fabrication.

.5 Permit access by an approved inspection and testing company for purpose of inspecting at random doors under fabrication.

.6 Welding: CSA W59-M.

.7 Grind exposed welds smooth and flush. Fill open joints, seams and depressions with filler or by continuous brazing or welding. Grind smooth to true sharp arises and profiles and sand down to smooth, true, uniform finish.

.8 Fabricate doors to be swing type flush with 1 continuous face free from joints, tool markings and abrasions and with provisions for glass and/or louvre openings as indicated on Door Schedule and Drawings.

.9 Coordinate louvre openings with Divisions 21, 22 and 23.

.10 Fabricate exterior doors using polyurethane insulated steel stiffened construction.

.11 Fabricate interior doors using honeycomb construction.

.12 For steel stiffened doors longitudinal edges shall have seams continuously welded.

.13 Fabricate doors with top and bottom inverted recessed spot welded channels.

.14 Provide welded in place flush steel top cap on exterior doors.

.15 Reinforce doors for surface mounted hardware.

.16 Fabricate fire rated door assemblies as detailed in Follow-up Service Procedures/Factory inspection. Manuals issued by nationally recognized listing agency to individual manufacturer and tested in conformance with CAN/ULC S104-M. Provide labels for fire rated doors.

.17 Fabricate fire rated doors where indicated in Door and Frame schedule or drawings, to meet required maximum temperature rise on unexposed side of door in accordance with OBC and ULC requirements.

.18 Construct panels to match doors.

.19 Reinforce panels to prevent oil canning. Install panels with concealed fasteners and reinforce to accommodate hardware as required. Provide door top and rebated matching panel where no transom mullion occurs.

.20 Provide overlapping astragals welded in place as noted in door hardware sets in Division 08 71 00 section “door hardware” on one leaf and where required by NFPA-80 for fire performance rated or where indicated. Extended minimum ¾” beyond edge of door on which astragal is mounted.

2.9 SOLID CORE WOOD DOORS

.1 Fabricate doors as per CAN/CSA-0132.2.1-90 and in conformance with the following specifications:

.2 Non Fire-Rated Solid Core: Shall be Baillargeon Extreme (Extra Heavy Duty) 8500-ME Series.

.1 Core: Solid particle board, density of 28-32 lbs psf to conform to CSA Standard 0188.

.2 Crossband: 3mm (1/8") hardwood veneer.

.3 Faces and Edges: Plastic Laminate.

.1 Brand: Wilsonart Engineered Surfaces

.2 Colour: PL1 Linearity Finish – Tan Echo 7941 K-18

.4 Adhesive: Type 1 PVA Cross-link (NAUF).

.5 Stiles: 107mm (4-3/16") width and 22mm (7/8") hardwood edge strip.

.6 Top and Bottom Rails: 85mm (3-5/16") hardwood.

.7 Lock Block: Integrated

.8 Acoustical Doors: Baillargeon SR46 (refer to Door and Frame Schedule)

.3 Vision Lite Kit: Shall be low profile slimline Vision Lite by Air Louvres Inc. Units are 20 gauge cold rolled steel standard factory baked-on powder coat finish. Not thru bolted. Wood to match PL1 by wood door manufacturer.

.4 Glazing Stops:

.1 Non fire-rated doors: shall be hardwood.

PART 3 EXECUTION

3.1 SITE STORAGE AND PROTECTION

.1 Do not remove wraps or covers from doors and frame products until time of installation. The contractor responsible for receiving doors and frame product shall ensure that materials are unloaded, properly stored on planks or dunnage in a dry location and handled in a manner that will prevent damage.

.2 Store door and frame product in a vertical position, spaced by blocking. Cover materials to protect them from damage and in such a manner as to permit air circulation.

3.2 INSTALLATION

.1 The Installer is responsible for the following:

.1 Prior to installation, check the area of floor on which the frame product is to be installed and within the path of the door swing, for flatness and correct as necessary.

.2 Prior to installation, remove temporary spreaders. Check each door and frame product for correct size, swing, fire rating and opening number.

.3 Prior to installation, isolate and protect from grout and antifreeze agents, all interior surfaces of perimeter frame product sections to be installed in masonry or concrete walls.

.4 During the setting of frame product check and correct as necessary for opening width, opening height, squareness, alignment, twist and plumbness. Maintain installation tolerances within the following limits:

.1 Opening Width: measured from rabbet to rabbet at top, middle and bottom of frame; + 1.5mm (1/16 in.) - 0.8mm (1/32 in.).

.2 Opening Height: measured vertically between the frame head rabbet and top of floor or bottom of frame minus jamb extensions at each jamb and across the head; + 1.5mm (1/16 in.) - 0.8mm (1/32 in.)

.3 Squareness: measured on a line from jamb, perpendicular to frame head; not to exceed 1.5mm (1/16 in.).

.4 Alignment: measured at jambs on a horizontal line parallel to the plane of the face; not to exceed 1.5mm (1/16 in.).

.5 Twist: measured at opposite face corners of jambs on parallel lines perpendicular to the plane of the door rabbet; not to exceed 1.5mm (1/16 in.).

.6 Plumbness: measured at the jambs on a perpendicular line from the head to the floor; not to exceed 1.5mm (1/16 in.).

.5 Install hardware in accordance with hardware manufacturer's templates and instructions.

.6 Maintain proper door clearances in accordance with specification above, except for special conditions otherwise noted. Where necessary, metal hinge shims, furnished by installer, are permitted to maintain clearances.

.7 Install door silencers.

.8 Install glazing materials in accordance with Section 08 80 00.

.9 Clearances:

.1 Provide a minimum of 0.8mm (1/32 in.) edge clearance for swinging doors in order to provide for the functional operation of the assembly.

.2 Between doors and frame product at head and jambs 4.7mm (3/16 in.)

.3 Between edges of pairs of doors 4.7mm (3/16 in.).

.4 At bottom of door where threshold is used 9.5mm (3/8 in.) from bottom of door to top of threshold.

.5 At bottom of door where no threshold is used 19mm (¾ in.) above floor.

.6 Between bottom of door and nominal surface of floor coverings at fire-rated openings, as provided in ANSI/NFPA 80 12.7mm (½ in.).

3.3 WORKMANSHIP

.1 All workmanship shall be first-class in every way, the various parts of the work being accurately fitted and fabricated with surfaces free from warp, wave, buckle or other defects.

3.4 ADJUSTING AND CLEAN-UP

.1 At completion of work of this Section, remove all tools, equipment, surplus materials and debris from job site.

.2 Cleaning and touch-up: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer. Remove and replace defective work, including doors or frames that are warped, dented, bowed or otherwise unacceptable.

.3 Adjustment: Adjust doors for proper swing and operation without binding or dragging.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Supply and install multiple security grilles, manually operated, top supported, as indicated on drawings. One set is full height, the other countertop.

.3 Track and operating hardware.

.4 Keyed cylinders will be provided by allowance, factory fitted.

1.2 RELATED SECTIONS

.1 Section 05 50 00 - Metal Fabrications

.2 Section 06 10 00 - Rough Carpentry

.3 Section 06 20 00 – Architectural Woodwork and Millwork

.4 Section 08 71 00 – Finishing Hardware.

.5 Section 09 21 16 – Wall Board Assemblies

1.3 REFERENCES

.1 AAMA 611, Voluntary Standards for Anodized Architectural Aluminum.

.2 ANSI, H35.1M Alloy and Temper Designation Systems for Aluminum (Metric).

.3 ASTM B209M, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

.4 B221M, Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wires, Profiles and Tubes.

.5 ASTM F738M, Specification for Stainless Steel Metric Bolts, Screws, and Studs.

.6 CAN/CGSB-1.108-M, Bituminous Solvent Type Paint.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Shop Drawings: Indicate opening sizes, details of track and required supports, track loads, adjacent construction and finish trim, and stacking sizes. Show imbedded items and cutouts required in other work, including support beam punching template.

.3 Product Data: Provide data on door operation, hardware and accessories, colours and finishes available.

.4 Samples: Submit two (2) samples of surface finish, 300mm x 300mm (12" x 12") size, illustrating quality, weight, colour and texture.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Test Reports: Submit substantiating engineering data, test results of previous tests by independent laboratory which purport to meet performance criteria, and other supportive data.

.3 Installation Data: Manufacturer's special installation requirements.

.4 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordinate with other work having a direct bearing on work of this section.

.3 Coordinate work to ensure timely placement of insulation within construction spaces.

.4 Pre-installation Meetings: Convene two (2) weeks before starting work of this section.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum ten (10) years documented experience.

.2 Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience and approved by the manufacturer.

1.9 REGULATORY REQUIREMENTS

.1 Conform to applicable code for combustibility requirements for materials.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01 61 00: Transport, handle, store, and protect products.

.2 Protect partitions during delivery, storage and handling to comply with manufacturer's direction and as required to prevent damage.

.3 Protect pre-finished surfaces with wrapping.

1.11 WARRANTY

.1 Provide written warranty by manufacturer of partitions agreeing to repair or replace any components with manufacturing defects.

.2 Warranty period: Two (2) years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PACKAGED COILING STEEL COUNTER SHUTTERS

.1 System Description: Shop assembled combination frame, sill and coiling shutter of galvanized steel (Type 304 - No. 4 finish stainless steel) construction, manually operated by (lift handles at shutter bottom) (crank operator with removable hand crank).

.2 Acceptable Products

.1 Kinnear/Wayne Dalton "Integral Frame Counter Shutters"

.2 Atlas Rolling Entry Systems "P-12"

.3 Richards-Wilcox "IPC"

.3 Guides: Extruded aluminum in anodized finish (Type 304 stainless steel), with a slot of sufficient depth to retain curtain in guides.

.4 Frames: Integrally welded consisting of minimum 1.5 mm (16 ga.) galvanized steel (Type 304 stainless steel) jambs and head and minimum 1.9 mm (14 ga.) Type 304 stainless steel sill.

.5 Slats: Minimum .762 mm thick (22 ga.) interlocking flat faced slats, with end locks.

.6 Counterbalance Assembly: Torsion spring counterbalance of 30,000 cycle quality.

.7 Locking Mechanism: Cylinder lock with slide bolts lockable from inside (outside) (inside and outside), and masterkeyed.

2.2 MISCELLANEOUS ACCESSORIES

.1 Supplementary Steel Supports: Steel conforming to Section 05 50 00 of this Specification.

.2 Supplementary Steel Supports: New material conforming to CAN/CSA-G40.20/G40.21-M, Grade 300W.

2.3 FABRICATION

.1 Fabricate work with materials and with component dimensions and gauges, reinforcing, attached anchors and fastenings of adequate strength to prevent warping, buckling, opening of joints and seams, loosening of hardware, distortion and displacement within limits of intended and specified use.

.2 Conceal and weld connections wherever possible.

.3 Fit joints and junctions between components tightly and in true planes.

.4 Isolate from each other dissimilar metals, and metal from concrete or masonry to prevent electrolysis.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Section 01 70 00: Verify existing conditions before starting work.

.2 Verify that field measurements are as indicated on Shop Drawings.

3.2 INSTALLATION

.1 Supply information and templates required for installing work of this Section. Assist and/or supervise setting of anchorage built into work of other Sections.

.2 Perform all drilling, tapping and cutting of frames and other work as required to install new (and relocated) doors, guides, operators, hardware, fittings, etc., and provide all necessary bolts, anchors, inserts, brackets, hangers and supports required to complete the work.

.3 Do not use fasteners which penetrate through walls.

.4 Furnish inserts and anchoring devices which must be set in concrete or built in masonry for the installation of doors. Provide setting drawings, templates and printed instructions for the installation of anchorage devices.

.5 Install units to fit tight at all edges of jambs and heads of frames and ensure smooth and free operation under all conditions of operation. Leave in proper condition in all respects, to the satisfaction of the Consultant.

3.3 ADJUSTMENT AND DEMONSTRATION

.1 Test operate new (and relocated) doors and demonstrate the operation of same to the satisfaction of the Consultant at the time of acceptance of the completed work.

.2 Adjust work to provide free-running, tightly closing and properly counterbalanced operation. Ensure that installation is free from warp, twist or other distortion.

3.4 ADJUSTING

.1 Adjust door assembly to provide smooth operation from stacked to full open position.

3.5 PROTECTION OF FINISHED WORK

.1 Section 01 78 40: Protecting installed work.

.2 Protect specially finished or delicate Work from damage.

3.6 CLEANING

.1 Clean partition surfaces upon completing installation of partitions to remove dust, dirt, adhesives and other foreign materials according to manufacturer's written instructions.

.2 Provide final protection and maintain conditions in a manner acceptable to the manufacturer and Installer that ensure operable partitions are without damage or deterioration at time of Substantial Completion.

END OF SECTION

1 GENERAL

1.1 GENERAL REQUIREMENTS

.1 The General Conditions of the Contract, Supplementary Conditions, and the General Requirements of Division 1, form part of this section, and must be read in conjunction with the requirements of this section, and all related sections.

.2 The work of this section, and related work specified in other sections shall comply with all requirements of Division 1 – General Requirements.

1.2 SECTION INCLUDES

.1 Provision of all labour, materials, equipment and incidental services necessary to supply finish hardware, including the following:

.1 Supply and delivery to the project all items of architectural finishing hardware specified herein,

.2 Supply and installation of all electrical hardware items including, but not limited to; low voltage wire (FT6 plenum-rated when not in conduit), electric strikes, electric exit devices, current transfer devices, power supplies, and

.3 Completion of all low voltage terminations by the hardware supplier.

1.3 DEFINITIONS

.1 Architectural Hardware Consultant (AHC): person or persons skilled in selecting, coordinating and specifying architectural hardware, and certified by the Door and Hardware Institute.

.2 Hardware Supplier: company or group of companies whose purpose is the manufacture and supply of architectural finish hardware.

.3 Hardware Distributor: company whose purpose is the distribution of architectural finish hardware.

1.4 QUALITY ASSURANCE

.1 Products

.1 Products specified herein are minimum standard. Approved substitutions are listed.

.2 Hardware for doors in fire separations and exit doors must be certified by a Canadian Certification Organization accredited by Standards Council of Canada. Supply only ULC and/or CSA listed electrical components.

.2 Hardware Suppliers

.1 Hardware Suppliers must have in their employ a certified Architectural Hardware Consultant (AHC) certified by the Door and Hardware Institute.

.2 The Hardware Supplier will provide following services to the Contract:

.1 preparation of the hardware schedule issued for tender,

.2 review of all shop drawings,

.3 provision of requested samples,

.4 review of hardware substitution submittals, and

.5 provision of all inspections and reports as specified herein.

.3 Hardware Distributors

.1 The Distributor must have a minimum of five (5) years documented experience in the supply of Finish Hardware for similar projects.

.2 Hardware Distributors must have in their employ a certified Architectural Hardware Consultant (AHC) certified by the Door and Hardware Institute.

.3 The Hardware Distributor will assume responsibility that the Products supplied under this section meet or exceed the minimum requirements of the specifications, the hardware schedule, and all authorities having jurisdiction.

.4 Installers

.1 Hardware Installers must have a minimum of five (5) years experience in installation of hardware. The Contractor shall provide verification of installer's qualification to the Consultant for approval. Installers to attend all review meetings with the Hardware Supplier and Distributor.

1.5 SUBMITTALS

.1 Updated Finish Hardware Schedule

.1 Prepare and submit six (6) complete detailed hardware schedules prepared in 8.5"x11" (216mmx279mm) DHI format.

.2 Product Data

.1 Provide in a three ring binder [six (6)] copies of product data sheets with the finish hardware schedule showing all items of hardware to be used on the project.

.3 Samples

.1 When requested in writing, provide one sample of each hardware item requested complete with fasteners to the office of the Consultant. Samples to be clearly labeled with their hardware schedule designation and manufacturers' name and model number. Samples may be incorporated into the Work.

.4 Templates

.1 Provide other sections with two (2) complete sets of hardware templates for related fabricating and installation.

.5 Keying Schedule

.1 Provide three (3) copies of keying schedule for review. Include all special keying notes and stamping instructions. Locks and cylinders are not to be ordered until the key schedule has been approved by the Owner.

.6 Wiring Diagrams

.1 Provide a written description of the functional use of all electrical hardware. Include door and frame elevations showing the location of each item of electrical hardware to be installed, including a diagram showing number and size of all conductors. Include drawings showing all terminal connections. Where electrical hardware is to be supplied and installed provide the Contractor with riser diagrams listing the correct wire runs and back box sizes as well as 115V AC requirements.

.7 Operations and Maintenance Data

.1 Prior to Substantial Performance, provide two (2) copies of the following information for inclusion in Operation And Maintenance Manuals in accordance with Section 01730:

.1 Maintenance instructions for each hardware item,
.2 Catalogue cut sheets and Product Specifications for each product,
.3 Parts list for each product,
.4 Copy of final "as-built" finish hardware schedule, and
.5 Copy of final keying schedule.

.8 Maintenance Materials

.1 Provide the following maintenance materials in accordance with Section 01730:

.1 Five (5) of each installation tool used for locks/passage/privacy, all type of door closers, and all exit devices.

1.6 DELIVERY, STORAGE, AND HANDLING

.1 Deliver each hardware item in its original package complete with all fasteners, keys, templates, and installation instructions required for installation.

.2 Package hardware separately for each door or unit and state clearly on each package the number and description of the door or unit for which the hardware therein is intended. Group items accordingly.

.3 Clearly mark each container with the door opening number and the hardware schedule item or heading number.

.4 Store hardware in a locked room or other secure area, accessible by only the Contractor. Storage area must contain adequate storage provision to hold all hardware off the floor (temporary shelving or wood pallets). Ensure area is kept dry and clean.

.5 When requested, package items of hardware separately for delivery to other fabricators for their installation.

.6 Deliver and assist in unloading and sorting of hardware. All hardware must be checked in on site by the Contractor's Site Supervisor.

1.7 COORDINATION WITH OTHER TRADES

.1 Supply finish hardware to those who are to install it, complete with templates and other complete installation instructions in sufficient time to avoid delaying the progress of the work.

.2 Supply complete templates and instructions to all door and frame manufacturers for factory machining of products to receive Hardware.

1.8 INSPECTION

.1 Hardware Distributor must perform the following inspections:

.1 Check all hardware when it has been installed and notify the Consultant of improper installation, defective materials, or products installed that were not specified. Replace defective hardware promptly.

.2 Check all door closers after they have been installed to make sure that all adjustments such as back-checking degree have been properly made. Notify the Consultant of any closers which have not been properly adjusted.

1.9 MAINTENANCE

Maintenance Service

Following occupancy of the building by the Owner, arrange with the Owner's maintenance staff for instruction of proper use, servicing, adjusting and lubrication of all finish hardware. Submit to the Consultant a list of attendees and meeting date.

1.10 EXTENDED WARRANTIES

.1 Provide the following manufacturer's warranties beyond the date of expiration of the Contract warranty:

.1 Hinges..... Lifetime

.2 Pivot Sets ..... 2 yrs.
.3 Locks (AL or FC Series) ..... 3 yrs.
.4 Exit Devices ..... 3 yrs.
.5 Door closers -mechanical ..... 10 yrs.
.6 Overhead stops/holders ..... 1 yr.
.7 Floor/Wall stops ..... 1 yr.
.8 Electric Strikes/Power Supplies ..... 1 yr.
.9 All other hardware items ..... 1 yr.

2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

.1 Products listed listed below are acceptable for use in finishing hardware groups specified in this section:

HARDWARE ITEM	ACCEPTABLE MANUFACTURERS
Hinges	Stanley, Hager, McKinney, Dorex
Aluminum Door Locks	Adams-Rite (No Alternates)
Tubular Deadlocks	Dorex,Schlage, Medeco
Exit Devices	Von Duprin (No Alternates)
Cylindrical locks, Passage Sets	Schlage, Sargent, Dorex
Cylinders	Medeco
Cylinder Operated Flush Bolts	Adams-Rite (No alternate)
Door Closers	LCN, Sargent, Dorex
Door Pulls/Flatware	Canadian Builders Hardware, Gallery, Canaropa
Wall/Floor Stops	Canadian Builders Hardware, Gallery, Canaropa
Door Weatherstrips/Seals	KN Crowder, National Guard, KM Thomas
Door Sweeps/Thresholds	KN Crowder, National Guard, KM Thomas
Electric Strikes & Power Supplies	Adams-Rite, Von Duprin, Folger-Adam
Push Paddles	Adams-Rite, (No alternate)
Door Viewer	Peeko, Canaropa

2.2 MATERIALS

.1 Fabricate all hardware to template. Provide templates and template hardware together with the instructions necessary for door and frame preparation.

.2 Supply all hardware with necessary screws, bolts or other fastening devices to anchor hardware in position neatly and properly in accordance with best practices.

.3 Only products listed in the hardware schedule or the approved alternates noted in the following list are to be used on this project.

.4 Use one manufacturer's products only for all similar items.

2.3 FASTENINGS

.1 Supply all required bolts, screws, expansion shields, anchors, and other related accessories for satisfactory attaching or installing of all finish hardware.

.2 Exposed fasteners shall match finish of, and be of compatible material with hardware.

.3 Where push/pull hardware is scheduled, door pull must be through-fastened and have fasteners concealed by push plate on opposite side.

2.4 HINGES

.1 Butt Hinges: ANSI/BHMA-A156.1, Grade 1.

.1 Supply hinges with non-removable pin (NRP) option on all doors where the hinge barrel is exposed on the secured side of the door.

.2 Use two hinges on doors up to 5'-0"(1525mm) and an additional hinge for each additional 30"(760mm) or fraction thereof.

.3 Doors 36"(900mm) wide and less; 4½"(114mm) high hinges; doors greater than 36"(914mm) wide; 5"(127mm) high hinges, all heavy weight.

.4 Supply standard weight and heavy weight concealed bearing hinges on all doors equipped with door closers; ferrous (steel) material for all interior and/or fire-rated doors and stainless steel for exterior doors as listed in the hardware groups.

.2 Surface/Flush Bolts: ANSI/BHMA-A156.16, Grade [1].

.1 Surface Bolts

.1 Surface bolts to have 1"(25mm) throw with vandal-resistant concealed mounting. Units to be constructed of heavy duty steel and be cUL listed up to three (3) hours when used on the inactive door of a pair up to 8'-0"(2440mm) in height.

.2 Manual Flush Bolts-Metal Doors

.1 Manual flush bolt for metal doors to be cUL listed for 3-hour fire doors with ½"(13mm) diameter bolt tip, ¾"(19mm) throw. Rod length to be 12"(305mm). Supply dustproof strikes with all flushbolts.

.3 Manual Flush Bolt-Wood Doors

.1 Manual flush bolt for wood doors to be cUL listed for 90min fire doors with ¾"(19mm) throw with a 7/8"(22mm) vertical adjustment. Supply dustproof strikes with all flushbolts.

2.5 LOCKSETS, LATCHSETS, DEADLOCKS

.1 Grade 2 Cylindrical

.1 ANSI/BHMA-A156.2, Grade 2 heavy duty residential, light and medium duty commercial cUL listed for all functions up to 3-hour doors. Precision solid brass 6-pin cylinder with nickel silver keys.

.2 Cylindrical housing internal cold rolled steel mechanism corrosion treated for normal atmospheric conditions. Key removable outside knob for easy cylinder replacement. Snap-on inside rose conceals mounting plate and screws with long spindle bearing surfaces.

.2 Grade 2 Cylindrical-Lever

.1 ANSI/BHMA-A156.2, Grade 2 standard duty commercial exterior and interior cUL listed for all functions up to 3-hour doors. Levers to be solid pressure cast zinc with no plastic inserts. Precision solid brass 6-pin cylinder with nickel silver keys. Grade 2 lever sets to have through bolts to prevent chassis rotation with internal components and chassis constructed of cold rolled steel with zinc dichromate plating to resist corrosion. Lever sets to have independent heavy duty compression springs as well as precision laser cut stainless steel spindles with interlocking on keyed side.

.3 Grade 1 Deadbolt

.1 ANSI/BHMA-A156.5, Grade 1 deadbolt supplied with solid brass or bronze trim rings and 1”(25mm) throw high-strength, steel alloy deadbolt with hardened steel roller resistant to sawing and kick-in attacks. Metal shield protects bolt from attack through the door as well as hardened steel balls that protect mounting screws from drill attack. Exclusive wood frame reinforcer protects wood jamb against kick-in attacks.

.4 Grade 1 Cylindrical

.1 ANSI/BHMA-A156.2, Grade 1 extra heavy duty residential, commercial, institutional and industrial applications. Latch bolts to be steel with minimum ½”(13mm) throw deadlocking on keyed and exterior functions. ¾”(19mm) throw anti-friction latchbolt on pairs of fire doors. Provide manufacturer’s standard wrought box strike for each latch or lock, with curved lip extended to protect frame. Lock case to be steel. Locks to incorporate one piece spring cage and spindle. Precision solid brass 6-pin cylinder with nickel silver keys. All levers to be solid with no plastic inserts. Locks and latchsets tested to exceed 3,000,000 cycles.

.5 Grade 1 Mortise

.1 ANSI/BHMA-A156.13, Grade 1 Operational, Grade 1 Security, mortise lock for commercial and institutional buildings. Lock cases to have a high strength steel alloy cylinder retainer with a captured ¼-20 set screw. Lock case to be field reversible without chassis disassembly. Supply locksets with lock cases manufactured from 12 gauge(2.7mm) steel with internal components of steel with zinc-dichromate plating for corrosion resistance. Case cover to be secured with four screws for increased rigidity. Locks are to feature a full ¾”(19mm) throw two-piece stainless steel mechanical anti-friction latchbolt with 1”(25mm) throw deadbolt constructed of sintered stainless steel. Deadbolt to remain a minimum of 5/8”(16mm) within lock case when fully extended. All mortise locks are to feature external spring cages. Stop works functions to be by turn unit. Lock cases with stop works on edge of lock case will not be accepted. Spindles to be such that if forced it will twist first, then break (approx. 60 lbf(81.3 N/m) of torque).

2.6 EXIT DEVICES

.1 Heavy Duty: ANSI/BHMA-A156.3, Grade 1 cUL listed for panic hardware and fire exit hardware. Supply exit devices and fire exit devices featuring coil compression springs on all device mechanism subassemblies and dead latching mechanisms for all active latchbolts. Supply exit devices with smooth mechanism case and “the quiet one” fluid dampener to eliminate noise associated with exit device operations. Non-handed device with touchpad assemblies with no exposed fasteners and cast end caps, reinforced aluminum with stainless steel touchpad and raised edge to minimize pinching. Roller strikes to be standard on all rim and surface vertical rod devices. Doors greater than 36"(914mm) wide supply long bar exit devices, doors 7'-0"(2134mm) high and greater supply extension rods. [1,000,000cycle testing independently certified by ETL.

.2 Device Trim

.1 Supply device trim featuring recessed cylinder mounting and coil compression spring design with shear pin protection for all lever designs. Similar lever designs for exits as specified for locksets.

.3 Mullions Non-Rated

.1 Aluminum mullions complete with mullion stabilizers prepared with strikes for use with all rim devices to provide single door performance and security on double door applications.

.2 Steel mullion prepared for two strikes for use with all rim devices and key removable kit to provide quick removal to provide single door performance and security on double door applications.

.4 Mullions Rated

.1 Fire rated cUL approved mullion for up to three hour openings up to 8' x 8'(2.4m x 2.4m) using rim devices prepared for strikes. Supply with key removable kit to provide quick removal to provide single door performance and security on double door applications.

.5 Exit devices installed on exterior doors must have dead latching bolts to ensure tamper proof security.

2.7 DOOR CLOSERS

.1 Door closers to be Grade 1 ANSI/BMHA A156, and have the following features:

.1 fully hydraulic, rack and pinion action with high strength cast iron cylinders and one piece forged steel pistons.

.2 hydraulic fluid of a type requires no seasonal adjustments, and has constant temperature control from 120°F to –31°F (49°C to –35°C).

.3 hydraulic regulation controlled by tamper-proof, non-critical screw valves, adjustable with a hex wrench.

.4 separate adjustments for backcheck, general speed and latch speed.

.5 include high efficiency, low friction pinion bearings.

.6 size 1 manual door closers to provide less than 8.5 lbf (38N) opening force on a 36"(914mm) door leaf.

.7 closers with painted finishes shall exceed a minimum 100-hour salt spray test, as described in ANSI/BHMA-A156 and ASTM B117.

.8 closers detailed with plated finishes shall include plated covers (or finish plates) , arms and visible fasteners.

.9 provided with all mounting plates required to mount on any special door and frame conditions.

2.8 OVERHEAD DOOR STOPS/HOLDERS

.1 Heavy Duty Surface Mounted

.1 ANSI/BHMA-A156.8, Grade 1. Surface overhead stops/holders shall be non-handed for single-acting doors with a heavy-duty channel/slide-arm design and offset jamb bracket to allow for simple field modifications of functions. Channel to be surface mounted to the door with thru bolts and the jamb bracket is surface mounted to the jamb.

2.9 PULLS AND PLATES

.1 Supply door trim as listed in hardware schedule. Supply pulls with back to back (BTB) or through bolt mounting as required. When push plates are listed with door pulls, install the push plate to conceal the through bolt.

.2 All kickplates, push plates, and bumper plates must have all sides beveled and corners rounded to ensure no sharp edges. Supply plates with counter sunk screw holes.

.3 Kick plates will be minimum 0.050"(0.127mm) thick unless listed otherwise; size to be door width less 1 3/8"(35mm) for single door, and less 1"(25mm) for pairs of doors. Heights as scheduled.

2.10 DOOR STOPS AND HOLDERS

.1 Floor Stops (Doors without Threshold)

.1 ANSI/BHMA-A156.6. Floor stops to be 1”(25mm) overall height with 3/16”(4.8mm) base height for use on doors without thresholds. Heavy-duty cast dome stop constructed of brass/bronze with gray, non-marring rubber bumper.

.2 Floor Stops (Doors with threshold or undercut doors)

.1 ANSI/BHMA-A156.6. Floor stops to be 1”(25mm) overall height with 9/16”(14.3mm) base height for use on doors with thresholds or undercut doors. Heavy-duty cast dome stop constructed of brass/bronze with gray, non-marring rubber bumper.

.3 Wall Stops (No Button on Locking Hardware)

.1 ANSI/BHMA-A156.6. Wall stops to be constructed of heavy-duty brass base with special retainer cup that makes the rubber stop tamper resistant. Convex design of rubber bumper.

.4 Wall Stops (Projecting Button on Locking Hardware)

.1 ANSI/BHMA-A156.6. Wall stops to be constructed of heavy-duty brass base with special retainer cup that makes the rubber stop tamper resistant. Concave rubber bumper to avoid damage to locks with projecting buttons.

.5 Supply wall stops where wall conditions are sufficient to support impact loads, such as stud partitions with wood blocking, masonry, or concrete. Supply floor stops with sufficient height to suite the floor condition or undercut of doors.

.6 Overhead stops and mechanical holders shall be surface mounted unless a conflict exists with door closers or other hardware. Provide door stays with friction action in locations that do not have door closers. Install all overhead stops and holders for 90° stop unless otherwise specified.

2.11 DOOR SEALS

.1 Supply perimeter seals to fully cover all gaps between door, frame, and floor condition to seal against weather, sound, or smoke as required and scheduled.

.2 Frame gaskets shall be closed cell neoprene. Extruded housing must have a rib to prevent distortion during installation. Aluminum frames will be provided with weather stripping inserts by the frame supplier.

.3 Door bottoms will be heavy-duty and have an adjustment screw to ensure proper contact with flooring. Supply correct drop insert for carpet where required.

2.12 THRESHOLDS

.1 Supply extruded aluminum thresholds to ensure the sweep or door bottom makes full contact. Supply thermally broken thresholds for all exterior door openings.

.2 Threshold height shall not exceed ½"(13mm) for barrier-free path of travel.

2.13 ELECTRONIC HARDWARE

.1 Electric Strikes (International projects only, as required)

.1 ANSI/BHMA-A156.31, Grade 1. Electric strikes to be cUL listed burglary-resistant and electric strike for fire doors and frames; "A" label for single doors and "B" label for double doors. Electric strikes to be stainless steel construction, non-handed available in 12V or 24V AC or DC with continuous duty solenoid and accept ¾”(19mm) throw latchbolts. Strike box to be adjustable to compensate for any misalignment of the door or frame with two piece plug connector for ease of installation.

.2 Power Supplies

.1 Power supplies to be Underwriter Laboratories (UL) listed for general-purpose use tested to meet UL1012 specifications. Power supplies to have 12/24V DC field selectable output voltage with output current of 3 amps at 12V DC and 2 amps at 24V DC with supply output voltage filtered and regulated. The power supply to be inherently modular by design for ease of installation and to provide flexibility for future system modifications when necessary.

.3 Include power supplies that are compatible with magnetic lock and have a NFPA-101 fire alarm release. Reset key switch will be centrally located and will re-arm all the magnetic locks in the building.

.4 Request to exit switches at all required fire exits will be frame-mounted, located on the push side for staff use and will include an adjustable time delay module.

.5 Access control will be frame-mounted stand-alone keypad complete with adjustable time delay. Units will have all functions keypad programmable, 12 or 24 volt AC/DC with a code length of 3-6 digits.

.6 Electronic hardware will be supplied and installed by this section, including all low voltage device wiring.

2.14 AUTOMATIC DOOR OPERATOR

.1 General

.1 Provide for the complete installation and connection of automatic door operators at interior and exterior entry doors (active doors only) as indicated on the drawings.

.2 Installation shall include supply of all necessary equipment including operator, and all miscellaneous wiring and accessories.

.2 Components

.1 A regular-duty self-contained system (without "Push-N-Go") as manufactured by Stanley “Magic Access” (Push-N-Go de-activated), Horton “Series 7000” (Push-N-Go de-activated), Besam “Navig-Aider” (Push-N-Go de-activated), Hunter “Autoswing HA8 “or approved equal.

.2 Pushbutton switches to comply with CAN/CSA-B651. Pushbutton to have the International Symbol of Access and text “Push to Open”—(text to be sans serif, between 16 and 50mm high, text and symbol to be raised at least .8mm – 1.5mm) Pushbutton to be operable with closed hand or arm, operable by touch on any part of its surface and require little force for activation. Pushbutton should be positioned as follows:

.1 Clearly visible before reaching the door.
.2 Mounted at barrier-free height.
.3 Mounted clear of door swing and any other fixtures.

.3 Exterior and interior pushbuttons shall be flush mounted. Pushbuttons shall be stainless steel with tamper-resistant fasteners. Provide delay relay interface module.

.3 Operation

.1 Door operators shall normally operate upon activation of exterior or interior pushbuttons. Provide an "on-off" switch so that after hours when in the "off" position, neither the two pushbuttons for the interior vestibule door, nor the exterior pushbutton will function. Switch shall be flush mounted at height above floor to comply with barrier free access requirements.

.2 Time Delays when opened by the automatic door operator:

.1 Door shall take 6 - 8 seconds to move from the closed to the fully open position, and remain in the fully open position for 6-8 seconds.

.2 Door shall close from 90 degrees to 10 degrees 4.5 seconds after the door reaches the fully open position, and from 10 degrees to fully closed in 1.5 seconds.

.3 The interior pushbutton for the exterior door shall be active at all times.

.4 All doors shall open manually or by pushbutton during office hours.

.5 Door operators shall operate, hold open and close doors in accordance with design wind and suction loads of the Ontario Building Code. Automatic operator shall be capable of having power assist mechanism added if necessary to satisfy this requirement.

.6 Provide for manual opening and closing of doors in the event of power failure.

2.15 FINISHES

.1 Finishes are specified as follows:

Item	BHMA#	Finish Description	Base Material(s)
Hinges	630	satin stainless steel	stainless steel
Hinges	626	satin chrome plated	brass/bronze
Hinges	652	satin chrome plated	steel
Lock Trim	626	satin chrome plated	brass/bronze
Exit Devices	626	satin chrome plated	brass/bronze
Dr Closer	689	powder coat aluminum	steel
Dr Pulls	630	satin stainless steel	stainless steel
Protective Plate	630	satin stainless steel	stainless steel
Door Stops/Holders			
Overhead	630	satin stainless steel	stainless steel
Wall/Floor	626	satin chrome plated	brass/bronze
Thresholds	628	anodized aluminum	aluminum
Weatherstrip	628	anodized aluminum	aluminum
Miscellaneous			
Electric Strikes	630	satin stainless steel	stainless steel

2.16 KEYING

.1 General

.1 Architectural Hardware Consultant (AHC) will meet with the Owner to obtain and finalize all keying requirements, and will subsequently issue copies of the keying schedule for review.

.2 Provide temporary construction keying system during construction period. Permanent keys will be furnished to the Owner prior to occupancy. The Owner or Owner's Agent will void the operation of the construction keys.

.3 Key Material: Provide manufacturer's standard embossed keys of nickel silver to ensure durability.

.4 Key Quantity: Furnish keys in the following quantities:
.1 Temporary construction keys: 10 each .
.2 Grand Master keys per grand master group: 6 each.
.3 Master keys per master group: 6 each.
.4 Change keys per cylinder or keyed alike group: 4 each.
.5 5 Extractor tools each.

.5 Deliver all permanent key blanks and security keys direct to Owner from factory by secure courier, return receipt requested. Failure to properly comply with these requirements may be cause to require replacement of all or any part of the cylinders and keys involved as deemed necessary at no additional cost to the Owner.

.6 Furnish one key control system complete with indexed door numbers, key codes, bittings, building numbers, room numbers, lock function, design, and finish. In addition, include model numbers, handing, design, and functions of exit devices and door closers. Transmit to the Owner by secure carrier, return receipt requested.

.7 Provide complete cross-index system, place keys on markers and hooks in the cabinet as determined by the finial key schedule. Provide one each key cabinet and hinged panel type cabinet for wall mounting as noted in detailed hardware schedule.

.2 Patented Full Size Cylinder Specifications
.1 Locks, cylinders and keys shall be furnished with patented full-size key sections.

.2 Permanent cylinders to be factory-keyed, combinated in sets or subsets, master keyed or great grand master keyed, as directed by Owner. Permanent keys and cylinders shall be marked with the applicable blind code for identification. These visual key control marks or codes will not include the actual key cuts. Permanent keys will also be stamped “Patented”. Keys and cylinder identification stamping to be approved by Consultant and Owner. Failure to properly comply with these requirements may be cause to require replacement of all or any part of the cylinders and keys involved as deemed necessary at no additional cost to the Owner.

.3 Equip locks and cylinders with patent protected, full size cylinders with nickel silver blocking pin to check for patented feature on keys. Provide a minimum of six pins with nickel silver bottom pins. Cylinders must allow for multiplex master keying, combinated to Owner’s instructions.

3 EXECUTION

3.1 EXAMINATION
.1 Ensure that doors and frames are properly prepared and reinforced to receive finish hardware prior to installation.

.2 Ensure that door frames and finished floor are sufficiently plumb and level to permit proper engagement and operation of hardware.

.3 Submit to Consultant in writing a list of deficiencies determined as part of inspection required in 3.3.1 and 3.3.2, prior to installation of finished hardware.

3.2 INSTALLATION

.1 Install hardware to ANSI/DHI-A115.1G.

.2 Install hardware at mounting heights as specified in the manufacturers templates or specific references in approved hardware schedule or approved elevation drawings. Where mounting height is not otherwise specified herein, install hardware at the following mounting heights:
- .1 Locksets: 40"(1015mm).
- .2 Exit device: 40"(1015mm).
- .3 Push/Pull: 42"(1065mm).
- .4 Deadlock: 47.25"(1200mm).

.3 Install hardware using only manufacturer supplied and approved fasteners in strict adherence with manufacturers published installation instructions.

.4 Ensure that all locksets / latchsets / deadlocks are of the correct hand before installation to ensure that the cylinder is in the correct position. Handing is part of installation procedure.

.5 Ensure that all exit devices are of the correct hand and adjust device cam for proper outside trim function prior to installation. Handing is part of installation procedure.

.6 Follow all manufactures installation instructions. Adjustment is inclusive of spring power, closing speed, latching speed and back-check at the time of installation.

.7 Delayed action door closers are to be adjusted to forty (40) second delay for handicapped accessibility and movement of materials. Time period to be approved by Owner.

.8 Install head seal prior to installation of parallel arm mounted door closers and push side mounted door stops/holders.

.9 Counter sink through bolt of door pull under push plate during installation.

.10 Mount all closers, automatic operators and hold-open devices with through bolts, as indicated in the finish hardware schedule.

.11 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.12 Remove construction locks when directed by Consultant; install permanent cores and check operation of all locks.

.13 Other trades installing hardware must follow all manufacturers instructions including door closer adjustment, handing of locksets as required, and degree of door swing.

.14 Hardware Distributor will include all labour to terminate secondary low voltage wire runs at all door control devices supplied by this section, including but not limited to; door operators, magnetic locks, push button code entry units (keypads), request to exit switches, electric strikes and any associated electrical equipment. Ensure system is tested and complete for Owner’s use. Provide staff training for push button code system (keypads) including all programming function and maintenance.

.15 Hardware Distributor will instruct the installer as to how various newer or unusual items that are required to be installed for proper performance.

3.3 FIELD QUALITY CONTROL

.1 Perform bi-monthly on-site inspections during hardware installation and provide inspection reports listing progress of work, unacceptable work and corrective measures. Repair or replace as directed by the Consultant.

.2 Upon completion of hardware installation, arrange with the Owner to instruct the Owner's personnel in the proper operation, adjustment, and maintenance of all finish hardware supplied under this Contract.

.3 Before completion of the Work but after finish hardware installation has been completed, submit a certificate to the Consultant stating that final inspection has been made and that all hardware has been checked for installation and operation by representatives of both the Hardware Supplier and the Hardware Distributor, and that operation and maintenance of all hardware have been fully demonstrated to the satisfaction of the Owner's personnel.

3.4 ADJUSTING AND CLEANING

.1 Check and make final adjustments to each operating item of hardware on each door to ensure proper operation and function.

.2 All hardware to be left clean and free of disfigurements.

.3 Check all locked doors against approved keying schedule.

3.5 PROTECTION

.1 Protect hardware from damage during construction period by removing and reinstalling or where necessary, using temporary hardware to maintain finish in new condition and maintain manufacturers warranty.

End of Section

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Provide glass and glazing including but not limited to following:

- .1 Float glass.
- .2 Laminated glass.
- .3 Heat-strengthened glass.
- .4 Fire-rated glass.
- .5 Tempered glass.
- .6 Custom decorative window films.
- .7 Sandblasted glass.
- .8 Acid etched glass.
- .9 Mirrors.

.3 Provide glass and glazing for applications non-exhaustively including:

- .1 Glazing for hollow metal doors.
- .2 Fire rated glazing for borrowed lites, screens and doors, aluminum assemblies.
- .3 Glazing for wood core doors.
- .4 Laminated glazing for glazed metal railings.
- .5 Architectural glass railing systems.

.4 Miscellaneous specialty glass, gaskets, tapes and glazing materials.

1.2 RELATED SECTIONS

.1 Section 06 20 00 – Architectural Woodwork and Millwork.

.2 Section 07 25 00 – Weather Barriers.

.3 Section 07 92 00 - Joint Sealants.

.4 Section 08 11 00 – Doors and Frames.

.5 Section 08 44 00 – Curtain Wall and Glazed Assemblies.

1.3 REFERENCES

.1 ASTM C509-06: Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material

.2 ASTM C510-05a: Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants

.3 ASTM C794-10: Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants

.4 ASTM C864-05: Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers

.5 ASTM C920-10: Standard Specification for Elastomeric Joint Sealants

.6 ASTM C1036-06: Standard Specification for Flat Glass

.7 ASTM C1048-04: Standard Specification for Heat-Treated Flat Glass—Kind HS, Kind FT Coated and Uncoated Glass

.8 ASTM C1115-06: Standard Specification for Dense Elastomeric Silicone Rubber Gaskets and Accessories

.9 ASTM C1172-09: Standard Specification for Laminated Architectural Flat Glass

.10 ASTM C1349-04: Standard Specification for Architectural Flat Glass Clad Polycarbonate

.11 ASTM E1300-09a: Standard Practice for Determining Load Resistance of Glass in Buildings

.12 ANSI Z97.1-2004: Safety Glazing Material Used in Buildings - Safety Performance Specifications and Methods of Test.

.13 BS EN 14179-2-2005: Glass in building. Heat-soaked thermally-toughened soda lime silicate safety glass. Evaluation of conformity/product standard

.14 CAN/CGSB 12.1-M90: Tempered or Laminated Safety Glass

.15 CAN/CGSB 12.3-M91: Flat, Clear Float Glass

.16 CAN/CGSB 12.20-M89: Structural Design of Glass for Buildings

.17 CAN/CGSB 19.13-M87: Sealing Compound, One-Component, Elastomeric, Chemical Curing

.18 CAN/ULC S104-10: Standard Method for Fire Tests of Door Assemblies

.19 CAN4 S106-M80 (92): Standard Method for Fire Tests of Window and Glass Block Assemblies

.20 GANA: Glass Association of North America - Glazing Manual

.21 LSGASM: Laminators Safety Glass Association Standards Manual

.22 NFPA 80-10: Standard for Fire Doors and Other Opening Protectives

.23 ULC: Underwriters' Laboratories of Canada Building Materials and Systems Directory, Fire Resistance Directory, Current Edition including Supplements to date

1.4 SUMBITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data:

.1 Submit manufacturer's literature and data sheets for each type of material provided under this Section for Project in accordance with requirements of Division 01. Ensure data sheets Provide required information including detailed instructions for installing as well as maintaining, preserving and keeping materials in clean and safe conditions. Provide adequate warning of maintenance practices or cleaning agents detrimental to specified materials.

.3 Samples:

.1 Submit samples of materials identifying quality and type of glass if required by Consultant before commencing work. Ensure samples are clearly labelled with manufacturer's name and type. Submit following samples:

.1 Insulated glass unit,

.2 Insulated glass unit with film,

.3 Laminated safety glass,

.4 Laminated security glass,

.5 Fire rated glass,

.6 All film types and associated patterns.

.4 Submit test report from an independent testing agency that tempered glass was manufactured at plant which performs in house statistical heat soak program to identify and reduce nickel sulphide inclusions in their glass products

.5 Submit test reports for performance characteristics of IGU, including thermal performance, SHGC, visible transmittance, etc…

.6 Ensure tempered glass is heat soaked in accordance with BS EN 14179.

.7 Maintenance Data: Provide maintenance data indicating cleaning instructions for inclusion into Maintenance Manual.

1.5 SUBMITTAL FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Material Safety Data Sheets: Submit MSDS for inclusion in Operation and Maintenance Manual without limitations for adhesives, sealants, patching and leveling compound, solid polymer and as designated later by Consultant.

.3 Manufactures Certificate: Signed by manufacturers of glass and glazing products meets or exceeds specified requirements.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordinate with other work having a direct bearing on work of this section.

.3 Pre-installation Meetings: Convene two (2) weeks before starting work of this section.

.4 Sequencing: Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

.5 Scheduling:

.1 Prior to commencing work of this section arrange for manufacturer's technical representative to review with Contractor and Consultant, procedures to be adopted and conditions under which work shall be performed. Inspect surfaces to determine adequacy of existing and proposed conditions.

.2 Co-operate fully with other Subcontractors on the work and promptly proceed with work of this Section as rapidly as job conditions permit.

.3 Supply items to be built-in in ample time to be incorporated into work of other Subcontractors, together with measurements and other information required for location of it.

.4 Ensure work which may create dust does not proceed during work related to painting and final finishing.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five (5) years documented experience.

.2 Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience and approved by the manufacturer.

.3 Testing Agencies' Qualifications: Quality assurance protocols and capability of testing agencies to perform designated tests on construction materials shall be evaluated in accordance with ASTM E329 and ASTM E699.

.4 Single Source Responsibility: Ensure primary materials provided in this section are obtained from 1 source by a single manufacturer and secondary materials are obtained from sources recommended by primary materials manufacturers. Ensure consistent quality of performance by providing glazing sealant and seals from single manufacturer.

.5 Preconstruction Testing: Submit to sealant manufacturer, samples of each type of glass, gasket, glazing accessory and glass framing member that will contact or affect glazing sealants for compatibility and adhesion testing. Submit test samples in sufficient time for testing and analysis of results to prevent delay in progress of work.

1.9 PREFORMANCE REQUIREMENTS

.1 Provide glass for work of this Section free from bubbles, waves, discolouration and other defects, of types specified herein for locations indicated on drawings or noted on schedules. Ensure glass bears manufacturer's label indicating quality and testing agency certifications. Leave labels in place until final cleaning.

.2 Design glass and glazing to requirements of these specifications, CAN/CGSB-12.20-M, ASTM E1300, the OBC and regulations of authorities having jurisdiction. In case of conflict, comply with most stringent requirements.

.3 Perform work of this section in accordance with GANA - Glazing Manual; www.glasswebsite.com and LSGASM - Standards Manual for laminated glazing installation methods.

.4 Ensure tempered glass is heat soaked in accordance with BS EN 14179.

.5 Deflection: Limit glass deflection to flexural limit of glass with full recovery of glazing materials.

.6 Design units to accommodate live, dead, lateral, seismic, handling, transportation, and erection loads.

.7 Confirm glazing material thicknesses by analyzing project loads and in-service conditions. Provide glazing material for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths required to meet or exceed performance criteria.

.8 Human Impact Load Resistance: Provide glazing materials listed and labeled as complying with testing requirements of ANSI Z97.1 - Class A.

.9 Attack Resistance: Where indicated, provide glazing materials capable of resisting attack in accordance with performance requirements established by mock-up testing.

.10 Ensure solvents and/or other volatile elements in glazing system do not affect properties and performance of materials used for edge seal and sealant glass bond.

.11 Ensure materials used for edge seals are compatible with other materials they come in contact within glazing system. If required, perform compatibility tests to ASTM C510, ASTM C794 and ASTM C1087, or others as applicable.

.12 Seismic Performance: Design work of this section to withstand seismic motions determined in accordance with requirements of Ontario Building Code and CAN/CSA S832.

.13 Use sealants and other materials in glazing system which are unaffected by long term UV light exposure.

1.10 DELIVERY, STORAGE AND HANDLING

.1 Deliver glass and associated materials to site in original crates and containers with manufacturer's name and brand distinctly marked thereon and with glass labelled as to types. Do not remove labels on glass until after work is accepted by Consultant.

.2 Store materials within the building, in a clean, dry location, acceptable or as designated by Consultant. Fully protect materials from damage until ready for use.

.3 Protect work of other trades from damage resulting from work of this Section.

.4 Identify glazed openings immediately following glass installation. Use coloured tapes or flags suspended near, but not in contact with glass. Attach to frames or surround with suitable non-staining strippable adhesives or tapes.

1.11 ENVIRONMENTAL REQUIRMENTS

.1 Do not carry out glazing when temperature is less than 7°C (44°F) or when sash or frames are wet, damp or frosted.

1.12 WARRANTY

.1 Warrant laminated glass and insulated glass units for period of 5 years against defects and deficiencies in accordance with General Conditions of the Contract. Promptly correct defects or deficiencies which become apparent within warranty period, to satisfaction of Consultant and at no additional expense. Defects include but are not limited to: deterioration, edge separation, delamination, material obstructing vision glass and blemishes exceeding those allowed by GANA (LGSA) standards. Upon notification of such deterioration within the warranty period, provide full replacement of glass units showing defects.

.2 Warrant water-based silicone opacifier for period of 10 years against defects and deficiencies in accordance with General Conditions of Contract. Promptly correct defects or deficiencies which become apparent within warranty period, to satisfaction of Consultant and at no additional expense.

.3 Window film: Provide the manufacturer’s standard limited warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

.1 Products of the following manufacturers are acceptable subject to conformance to requirement of Drawings, Schedules and Specifications.

.1 Glazing:

.1 AGC Flat Glass North America, Ltd.; www.na.agc-flatglass.com

.2 Global Security Glazing; www.security-glazing.com

.3 Guardian Industries Corp.; www.guardian.com

.4 Pilkington Special Glass Limited; www.pilkington.com

.5 Vitro Architectural Glass.; www.vitroglazings.com

.6 Schoff North America Inc.; www.us.schoff.com

.7 Trulite Industries Limited; www.trulite.com

.8 Viracom; www.viracon.com

.2 Fire Rated Glazing:

.1 Fire Rated TGP Fire Rated; www.fireglass.com

.2 Safti First; www.safti.com

.3 Pilkington Special Glass Limited; www.pilkington.com
.4 Glassopolis Specialty Glass; www.glassoplolis.com
.5 Vertotech; www.vertrotech.com

.3 Glazing Sealants and Gaskets:
.1 Dow Corning; www.dowcorning.com
.2 GE Silicones; www.gesilicones.com
.3 Tremco Canada; www.tremcosealants.com

.4 Glazing Films (Decorative including custom and standard):
.1 3Form; www.3-form.com
.2 3M Films; www.3m.com
.3 Pilkington Special Glass Limited; www.pilkington.com

2.2 GLASS TYPES

.1 GL-1: Tempered Glass: shall be 6mm (¼") float glass tempered to meet National Building Code Safety Glass requirements in Sub-Section 3.3.1.13 (1) (2) and to conform to CAN/CGSB-12.1-M90.

2.3 GLAZING COMPOUNDS

.1 Sealant for cap or needle bead, heel (air seal) and toe bead, 1-part neutral cure silicone sealant conforming to CAN/CGSB-19.13-M87 such as Spectrem 2 by Tremco (Canada) Ltd.

.2 Primers, if required, according to sealant manufacturer's recommendations.

.3 Lites of glass under 2540 united mm (8'-4"), tape as shown or indicated shall be polyisobutylene butyl such as Tremco 440 Tape.

.4 Lites of glass over 2540 united mm (8'-4"), Tape as shown or indicated shall be macro polyisobutylene butyl with built-in EPDM shim such as Tremco Polyshim Tape.

.5 Setting blocks to be neoprene with a Shore "A" hardness of 80-90 plus or minus 5 durometer to ASTM D2240. When used in combination with heel or toe bead, they should be first buttered with sealant, then placed prior to installing glass. Length to be 2.5mm (3/32") per 0.09 square meters (12" x 12") of glass, but not less than 100mm (4"). Width for setting block to be 1.6mm (1/16") less than rabbet width and high enough to provide the recommended minimum bite and edge clearance as recommended by glass manufacturer. When thickness of setting block exceeds 19mm (¾") thickness the glass manufacturer must be consulted for size and configuration.

.6 Glazing gaskets to be continuous extruded neoprene design, specifically for use in the window section with a Shore "A" hardness of 60-70, plus or minus 5 durometer, to ASTM D2240.

.7 Edge block shall be a material and hardness to provide proper edge clearance according to glass manufacturer's recommendations.

.8 Cleaning material for surfaces to receive sealant to be xylol, methethylketone, toluol or as recommended by manufacturer of sealant.

.9 Ensure that glazing sealants used are compatible with insulating glass sealant.

2.4 DECORATIVE WINDOW FILM

.1 Mastic Glass Film shall be 3M Fasara – Milky Milky – SH2MAMM (MF-1). Refer to drawings for locations.

2.5 FABRICATION

.1 Fabricate glazing units in sizes required to glaze openings indicated for project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of Product manufacturer and referenced glazing standard, to comply with system performance requirements.

.2 Label each lite of glazing with registered name of product and weight and quality.

.3 Check dimensions on job site before cutting materials.

.4 Grind and chamfer edges of unframed glass and mirrors. Grind and chamfer edges of glass shelves and sliding doors.

.5 Ensure minimum bite or lap of glazing on stops and rabbets as recommended by glazing manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verify actual site dimensions and location of adjacent materials prior to commencing work.

.2 Obtain glass dimensions on the job site. Glass shall not be more than 4mm (3/16") less than the rebate size in either dimension, with allowance for edge spacers, shims and setting blocks as required.

.3 Ensure framing to be glazed is plumb, secure and permanently fixed in position.

.4 Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

.5 Notify Consultant in writing of any conditions which would be detrimental to the installation. Commencement of work implies acceptance of previously completed work.

3.2 PREPARATION

.1 Thoroughly clean glass rebates and glass of dust, dirt, mortar and other foreign materials prior to glazing. Remove oils and grease with non-staining solvents such as Xycol or Methyl Ethyl Ketone solutions.

3.3 INSTALLATION

.1 Comply with glazing lites, sealants, gaskets, and other glazing materials manufacturers' written instructions unless more stringent requirements are indicated herein.

.2 Provide necessary maximum bite on lites, minimum edge and face clearances and adequate sealant thicknesses, with reasonable tolerances to ensure proper performance of glazed assemblies. Adjust as required by project conditions during installation.

.3 If required, thoroughly mix glazing compound as recommended by manufacturer. Thinning of glazing compound will not be permitted.

.4 Carefully remove glazing stops and replace after glazing. Take care to prevent damage to stops. Provide silicone cap beads at every lite where direct contact with patients is expected.

.5 Doors, Screens, Sidelites and View Windows:

.1 Place setting blocks on sill at ¼ points from each corner unless otherwise directed by glazing manufacturer.

.2 Place continuous glazing gaskets on edges of glass.

.3 Centre and space each piece of glass with spacers located and installed according to manufacturer's directions.

.4 Place glass so no voids occur between glass and glazing material, and glazing stops.

.5 Secure glass in place with stops, secured in place with screws.

.6 Fire Rated Hollow Metal Doors and Screens:

.1 Set glass in fire rated metals doors and screens on continuous setting block with 3mm (1/8") gap between glazing stop glass and embed in glazing compound in accordance with NFPA 80 and OBC requirements. Strike and point exposed joints between metal and glass or Install glass in accordance to ULC tested proprietary methods of installation.

.7 Glazing Sealant:

.1 Compatibility: Select sealants with proven compatibility with surfaces contacted in installation and under service conditions indicated, as demonstrated by testing and field experience.

.2 Apply glazing sealant to clean, dry, grease and oil free surfaces. Provide exposed glazing sealant smooth, free from ridges, wrinkles, air pockets and embedded foreign materials.

.3 Prime surfaces if required by glazing sealant manufacturer.

.4 Trim glazing sealant flush with tops of stops and glazing channels.

.5 Remove excess glazing sealant or droppings which would set up or become difficult to remove from finished surfaces. Remove excess sealant immediately. Do not use chemicals, scrapers, or other tools which would affect finished surfaces.

.8 Interior Glazing Methods:

.1 Tape/Tape Method:

.1 Cut glazing tape to proper length and Install against permanent stop projecting 1.5mm (1/16") above sightline.

.2 Place glazing tape on free perimeter of glass projecting 1.5mm (1/16") above sightline.

.3 Trim off excess tape to sightline.

.2 Tape/Sealant Combination Method:

.1 Cut glazing tape to proper length and Install against permanent stop projecting 1.5mm (1/16") above sightline.

.2 Fill gap between glass and applied stop with sealant to depth equal to bite of frame on glass to uniform and level line.

.3 Trim off excess tape to sightline.

.3 Compound/Compound Method:

.1 Apply sealant to back and bottom of rabbet.

.2 Bed glass in position with non-hardening compound sealant.

.3 Position and secure glass of smaller dimension only using spring wire or glaziers' clips. Apply face compound and trim sealant to slope away from lite.

.4 Fill gaps between glass and stops with compound until flush with sightline and tool to smooth straight line.

OR

.4 Dry Method (Gaskets):

.1 Place gasket against permanent stop and position glass sheet.

.2 Apply removable stops. Install gaskets in frame channels.

.5 Two Sided Butt - Joint Glazing:

.1 2 side glazing at head and sill use wet, dry, or wet/dry glazing systems.

.6 Position glazing so that vertical edges are spaced slightly apart and seal with silicone sealant.

.1 Grind vertical joint with slight kerf and polish for aesthetics.

.9 Decorative Film:

.1 Install window film in accordance with manufacturer's printed instructions by experienced film applicators as recommended by glass film manufacturer.

.2 Ensure glass surfaces are clean and ambient temperature is between 16°C and 38°C (61°F and 100°F).

.3 Whenever 2 or more pieces of film are seamed together, they shall be matched to assure uniform reflected Daytime colour and transmitted night appearance. Apply film to create a seamless appearance seamed together with no gaps.

.4 All edges of film at glass stop shall have temper resistant clear sealant.

.10 Mirrors: Install mirrors in locations indicated on drawings.

3.4 PROTECTION

.1 Provide and maintain necessary protection of completed work against damage.

.2 Do not mark or attach anything directly to exposed glass and framing surfaces.

.3 If welding is to take place above or near completed glazing work, protect glass with plywood or other suitable means to reduce likelihood of weld spatter damaging glass surfaces.

.4 Replace cracked, broken, or defective glass at no additional cost and to Consultant's satisfaction.

.5 Protect glass from other trades, workers, tools and other similar materials.

.6 Identification of Glazing: Mark glass lites with temporary, easily removable, large safety markings, immediately after glass installation. Maintain safety markings until final cleanup.

3.5 CLEANING

.1 Clean installed glass and metal frequently during construction. Avoid etching and staining glass and metal during construction.

.2 Clean and polish glass. Do not remove labels until final acceptance is given by Consultant.

.3 Remove sealant and compound droppings from finished surface.

.4 Periodically clean installed glass during construction to avoid permanent etching and staining.

.5 Remove markings at time of final clean-up. Carry out final clean- in accordance with glass and sealant manufacturer's recommendations and to Consultant's satisfaction.

.6 Wash glazing units on both exposed surfaces in each area of Project prior to scheduled inspections. Wash glazing units as recommended by glazing unit manufacturer.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Work Included but not limited to following:

- .1 Supplementary steel supports for ceilings.
- .2 Reinforcement for suspension systems for lighting fixtures, access hatches, etc.
- .3 Metal studs and furring channels.
- .4 Concealed sheet steel reinforcing for grab bars, handrails, millwork, modular furniture etc.
- .5 Ceiling, bulkhead and soffit suspension system.
- .6 Ceilings, partitions, bulkheads and soffits.
- .7 Gypsum wallboard directly applied to masonry and concrete surfaces.
- .8 Cement backer board
- .9 Acoustical Gypsum Board (High NRC)
- .10 Shaft wall.
- .11 Corner beads, casing beads, trim, control joints and corner reinforcement.
- .12 Taping, filling and sanding.
- .13 Acoustically insulated partitions.
- .14 Acoustic caulking for acoustically insulated partitions.
- .15 Fire rated wall assemblies.
- .16 Installation in , access hatches, panels and doors supplied by other trades.
- .17 Reveal / Picture Hanger rail and hangers.

1.2 RELATED SECTIONS

.1 Section 06 10 00 – Rough Carpentry.

.2 Section 07 21 00 - Building Insulation.

.3 Section 07 25 00 – Weather Barriers.

.4 Section 07 84 00 – Firestopping.

.5 Section 07 92 00 – Joint Sealants.

.6 Section 08 11 00 – Door and Frames.

.7 Section 08 12 00 – Interior Aluminum Doors and Frames.

.8 Section 08 44 00 – Curtain Wall and Glazed Assemblies.

.9 Section 09 91 00 - Painting.

1.3 REFERENCES

.1 ANSI A118.9 - Specifications for Test Methods and Specifications for Cementitious Backer Units.

.2 ASTM A153/A153M: Standard Specification for Zinc coating (Hot Dip) on Iron and Steel Hardware

.3 ASTM A641/ A641M: Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire

.4 ASTM A653/653M: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

.5 ASTM A1003/A1003M: Standard Specification for Steel Sheet, Carbon. Metallic and Nonmetallic-Coated for Cold-Formed Framing Members

.6 ASTM C475/C475M-12 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.7 ASTM C645-11a - Standard Specification for Nonstructural Steel Framing Members.

.8 ASTM C665-06 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.9 ASTM C754-11 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

.10 ASTM C840-08 - Standard Specification for Application and Finishing of Gypsum Board.

.11 ASTM C919-08: Standard Practice for Use of Sealants in Acoustical Applications.

.12 ASTM C954-10: Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.

.13 ASTM C1002-07 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.14 ASTM C1047-10a - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

.15 ASTM C1177/C1177M-13: Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing

.16 ASTM C1178/C1178M-08: Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel

.17 ASTM A123/A123M: Stand Specification for Zinc.

.18 ASTM C1278/C1278M-07a - Standard Specification for Fiber-Reinforced Gypsum Panel.

.19 ASTM C1280-09: Standard Specification for Application of Gypsum Sheathing

.20 ASTM C1288-99(2010) - Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets.

.21 ASTM C1325-08b - Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units.

.22 ASTM C1396/C1396M-09a - Standard Specification for Gypsum Board.

.23 ASTM C1658/C1658M-06: Standard Specification for Glass Mat Gypsum Panels.

.24 ASTM D3273-00(05): Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

.25 ASTM E84-10a: Standard Test Method for Surface Burning Characteristics of Building Materials.

.26 ASTM E90-09 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

.27 ASTM E96/E96M-05: Standard Test Methods for Water Vapor Transmission of Materials.

.28 ASTM E119-10b: Standard Test Methods for Fire Tests of Building Construction and Materials.

.29 ASTM E136-12: Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750℃

.30 ASTM E814-10: Standard Test Method for Fire Tests of Penetration Firestop Systems.

.31 CAN4-S114-M: Standard Method of Test for Determination of Non-Combustibility in Building Materials

.32 CAN/CGSB 51.33-M: Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction

.33 CAN/ULC-S101-07 - Standard Methods of Fire Endurance Tests of Building Construction and Materials.

.34 CAN/ULC S115-05: Standard Method of Fire Tests of Firestop Systems.

.35 CAN/CSA-A123.3: Asphalt Saturated Organic Roofing Felt.

.36 CAN/CSA-G164-M: Hot Dip Galvanizing of Irregularly Shaped Articles

.37 CAN/ULC-S102-10 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

.38 CGC Drywall Steel-Famed Folder SA923 09250

.39 CSA G40.20-13/G40.21-13 : General requirements for rolled or welded structural quality steel / Structural quality steel

.40 Gypsum Association GA-214-10e - Recommended Levels of Gypsum Board Finish.

.41 Gypsum Association GA-216-13 - Application and Finishing of Gypsum Panel Products.

.42 Gypsum Association GA-600-12 - Fire Resistance Design Manual.

.43 Gypsum Association GA-801-07 - Handling and Storage of Gypsum Panel Products: A Guide for Distributors, Retailers, and Contractors.

.44 ULC - Fire Resistance Directory.

.45 cUL: Underwriters' Laboratories Inc., Products certified for Canada.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data:

- .1 Submit manufacturer's literature, product data sheets for each type of material provided under this section for project. data sheets shall provide all required information

.3 Shop Drawings:

- .1 Submit Shop Drawings bearing seal of a Professional Engineer specified herein substantiating that partitions, ceilings and bulkheads have been designed to accommodate seismic loads in accordance with Building Code requirements for Post-disaster buildings.
- .2 Ensure Shop Drawings show design, construction, sound attenuating construction, adjacent construction, locations of access panels, elevations, finishes and relevant details of furring, enclosures and partitions which require fire rating.

.4 Samples:

- .1 Each trim accessory minimum 305mm (12") long.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Submit manufacturer's literature, data sheets for each type of material provided under this Section for Project. Data sheets shall provide all required information. Submit detailed instructions for maintaining, preserving and keeping materials in clean and safe conditions and give adequate warning of maintenance practices or materials detrimental to specified materials. Submit manufacturer’s installation instructions.

.3 Material Safety Data Sheets: Submit MSDS for inclusion in Operation and Maintenance Manual without limitations for adhesives, sealants, patching and leveling compound, solid polymer and as designated later by Consultant.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINSTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordination: Coordinate with other work having a direct bearing on work of this section.

.1 Coordinate the Work of this Section with work of other trades for proper time and sequence to avoid construction delays.

.3 Pre-Installation Meeting: Convene pre-installation meeting after Award of Contract and two weeks prior to commencing work of the Section to verify requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's written installation instructions.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.

.2 Installer Qualifications: Provide work of this Section executed by competent installers with minimum of five (5) years' experience in application of Products, systems and assemblies specified.

.3 Comply with ASTM C840 for application and finishing and manufacturer’s written information.

.4 Structural Design and Inspection: Employ a professional structural engineer carrying a minimum $2,000,000.00 professional liability insurance and registered in the province of Ontario in accordance with requirements of Division 01:

.1 design components of the work of this section requiring structural performance.

.2 be responsible for full assemblies and connections

.3 be responsible for determining sizes, joint spacing to allow thermal movement and loading of components in accordance with applicable codes and regulations.

.4 be responsible for production and review of Shop Drawings.

.5 inspect work of this section during fabrication and erection.

.6 stamp and sign each Shop Drawing.

.7 Provide site administration and inspection of this part of the work.

1.9 SYSTEM DESCRIPTION

.1 Steel Thickness:

.1 Base Steel Thickness: Thickness of bare steel exclusive of coatings.

.2 Design Thickness: Target or "nominal" thickness used to determine structural properties of the cold formed Products.

.3 Minimum Thickness: Design thickness minus minimum allowable under-tolerance required by CSA S136 (95% of design thickness) or material specification; whichever is more stringent.

.4 Designation Thickness: For the purposes of this specification; thicknesses provided will be minimum base steel thicknesses in accordance with CSA S136 and determined by the following table:

Designation Thickness	**Minimum Base Steel Thickness**		**Gauge No. (For reference Only)**	**Colour**
(mils)	**(in)**	**(mm)**	**Ga**	
18	0.0179	0.455	25	Not Painted
33	0.0329	0.836	20	White
43	0.0428	1.087	18	Yellow
54	0.0538	1.367	16	Green
68	0.0677	1.72	14	Orange

.2 Design Requirements:

.1 Obtain services of professional engineer with experience in type of work of comparable complexity and scope, licensed to practice in Province of Ontario to design, review and provide professional services for work of this section.

.2 Design ceiling suspension system in accordance with manufacturer's printed directions and conforming to ASTM C754 requirements. Do not suspend any items from structural steel deck. Do not support work of this section from, nor make attachments to, ducts, pipes, conduits or support framing of other trades.

.3 Design metal ceiling suspension system and metal framing for partitions to sustain loads imposed to L/240 deflection limit in any direction. Use grid of hangers, runner and furring channels securely anchored to structure above. Allow for thermal movement. Design suspended ceiling system for adequate support of electrical fixtures as required by current bulletin of Electrical Inspection Department of Ontario Hydro.

.4 Design hanger anchor and entire suspension system static loading not to exceed 25% of their ultimate capacity including lighting fixture dead loads.

.5 Design suspension system to support weight of mechanical and electrical items such as air grilles, lighting fixtures, drapery track, drapes and with adequate support to allow rotation / relocation of light fixtures.

.6 Design sub-framing as necessary to accommodate, and to circumvent, conflicts and interferences where ducts or other equipment prevent regular spacing of hangers.

.7 Design ceiling connections and components to support gravity loads and seismic restraints to meet force and displacement requirements stipulated in OBC; provide wider wall moulding on all sides to support individual panels around perimeter. Minimum size: 50mm (2”).

.8 Design metal stud reinforcements from hollow structural steel, stud, angle and steel plate sections, galvanized sheet steel minimum 1.005mm (designation

thickness 20ga 33mils/ minimum base steel base steel thickness 0.84mm (0.033in) colour white where required to support of manufactured components without limitations items such as washroom accessories, expansion control covers and similar items. Design weld connections ensuring rigid and secure installation capable of offering resistance to minimum 227kg (500 lbs) pull force. Galvanize items in moist areas. Do not design using wood blocking for this purpose.

.9 Design fire rated construction including ceiling, partition or fire protective membranes and furring in accordance with OBC, Supplementary Standards SB-3 and to approved ULC design or other design acceptable to authorities having jurisdiction, to provide design fire rating indicated and/or required. Submit written evidence of acceptable test design.

.10 Provide sound rated construction having STC rating indicated in accordance with OBC, Supplementary Standards SB-3 and tested in accordance with ASTM E90.

1.10 DELIVERY, STORAGE AND HANDLING

.1 Comply with GA-801.

.2 Deliver materials to site with manufacturer's original labels intact. Do not remove wrappings until ready for use.

.3 No outside storage permitted. Store in clean, dry area, off ground. Provide adequate ventilation to avoid excess moisture, surface relative humidity and mould or fungal growth. Remove immediately any board showing signs of mould, mildew or fungal growth.

.4 Stack flat on level and dry surface without overhanging boards. Prevent sagging and damage to edges, ends and surfaces. Protect bagged products from moisture or wetting.

1.11 ENVIORMENTAL REQUIRMENTS

.1 Cooperate and coordinate with sections applying wet trades and trades installing mechanical and electrical services. Do not install work of this section in any area unless satisfied that work in place has dried out and that no further installation of materials requiring wetness, moisture or dampness is contemplated. Relative humidity in area of work of this section shall not exceed 55% for duration of Project. Coordinate stud layout at partitions accommodating wall mounted fixtures by other trades.

.2 Ensure temperature of surrounding areas is min 13℃ (55℉) and max 21℃ (70℉) for 7 Days before and during application of; maintain for 4 days thereafter. Ensure heat is provided at appropriate time before work has started to bring surrounding and adjacent materials up to required temperature and maintained as specified. Avoid concentrated or irregular heating during drying by means of deflectors or protective screens.

.3 Ensure ventilation is provided for proper drying of joint filler and adhesive and to prevent excessive humidity. Do not force dry adhesives and joint treatment.

.4 Provide protection of materials and work of this section from damage by weather and other causes. Perform work in areas closed and protected from damage due to weather. Protect work of other trades from damage resulting from work of this section. Make good such damage immediately.

.5 Coordinate installation and cooperate with mechanical and electrical trades to accommodate mechanical electrical items and any other work required to be incorporated into or coordinated with ceiling and soffit systems.

PART 2 PRODUCTS

2.1 MANUFACTURERS

.1 Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:

.1 Bailey Metal Products Ltd.; www.bmp-group.com
.2 CertainTeed Gypsum Canada Inc.; www.certainteed.com
.3 Chicago Metallic; www.chicagometallic.com
.4 CGC Inc; www.cgcinc.com
.5 Dietrich Metal Framing; www.detrichmetalframing.com
.6 Georgia-Pacific Canada, Inc.; www.gpgypsum.com
.7 Gordon Incorporated; www.gordongrid.com
.8 Roll Formed Specialty; www.rollformed.com
.9 Fry Reglet: www.fryreglet.com
.10 Trim-Tex Inc.; www.trim-tex.com
.11 Unifix Inc.; www.unfixinc.ca

2.2 FRAMING MATERIALS

.1 Galvanized sheet steel: Conforming to ASTM A653/A653M, structural and commercial quality sheets; specially treated by phosphate conversion process if steel is to be exposed and finish painted.

.2 Hot-Dip Galvanizing: Conforming to ASTM A123/A123M, for galvanizing steel and iron Products; and ASTM A153/A 153M, for galvanizing steel and iron hardware.

.3 Cold-Rolled Sheet Members: ASTM A1003/A1003M, 33 mils (0.0329 in – 0.836mm – 20ga – White) galvanized sheet steel unless otherwise indicated as required to support manufactured components such as washroom accessories, expansion control covers and similar items.

.4 Interior Non- Load Bearing Steel Studs: Shall be Bailey B18 (hard Board Stud) as manufactured by Bailey Metal Products. Steel shall have metallic coatings of Z120 that conform to ASTM A653/A653M or ASTM A792/A792M respectively. Alternative coatings shall be permitted to be used if provided to have equivalent corrosion protection. Provide knockout openings in web at 460mm (18") oc to accommodate (if required) horizontal mechanical and electrical service lines and bracing.

.5 Heavy Duty Steel Studs: ASTM C645, galvanized sheet steel, 54 mils Heavy Duty Steel Studs (at Openings and Unrestrained Heights): ASTM C645, galvanized sheet steel, 68 mils (0.0538” – 1.367mm – 16ga – Green) where indicated on drawings and schedules. Steel shall have metallic coatings of Z120 that conform to ASTM A653/A653M or ASTM A792/A792M respectively. Alternative coatings shall be permitted to be used if provided to have equivalent corrosion protection. Provide crimped web and returned flange; of depth shown in maximum continuous lengths practicable. Provide heavier gauges where required for unrestrained heights. Provide knockout openings in web at 460mm (18") oc to accommodate (if required) horizontal mechanical and electrical service lines and bracing.

.6 Floor and Ceiling Partition Track for: ASTM C645, galvanized sheet steel, 33 mils (0.0329 in – 0.836mm – 20ga – White) or 18 mils (0.0179” – 0.455mm – 25ga – Not Painted) thick. Steel shall have metallic coatings of Z120 that conform to ASTM A653/A653M or ASTM A792/A792M respectively. Alternative coatings shall be permitted to be used if provided to have equivalent corrosion protection. Minimum Leg Length: 30mm (1¼") legs. Provide top track with longer legs where required to compensate for deflection of structure above. Width: to suit metal studs.

.7 Furring Channels: Galvanized sheet steel, 33 mils (0.0329" – 0.0836mm – 20ga – White) thick. Steel shall have metallic coatings of Z120 that conform to ASTM A653/A653M or ASTM A792/A792M respectively. Alternative coatings shall be permitted to be used if provided to have equivalent corrosion protection. Screw channels: 67mm (2- 5/8") wide x 22mm (7/8") deep.

.8 Stud Spacer Bars: Pre-notched bridging and spacing bar to facilitate erection of interior, non-load-bearing studs and to provide resistance to stud rotation and displacement. Acceptable Product: "Spazzer® 9200 Spacing Bar" by Dietrich Metal Framing or approved equivalent.

.9 Carrying Channels for: ASTM C645, galvanized sheet steel, 54 mils (0.0538" – 1.367mm – 16 ga – Green) Steel shall have metallic coatings of Z120 that conform to ASTM A653/A653M or ASTM A792/A792M respectively. Alternative coatings shall be permitted to be used if provided to have equivalent corrosion protection. Items to be 38mm (1½") high with 19mm (¾") flanges, for primary carrying member in suspended ceilings and as horizontal stiffeners or bracing in metal stud systems.

.10 Core Board Runner: ASTM C645, 33 mils (0.0329 in – 0.836mm – 20ga – White) thick by 35mm x 22mm (1-3/8" x 7/8") galvanized metal angle runner.

.11 Screws for Sheet Steel Members: ASTM C954, self-drilling, self-tapping screws, 25mm (1") long #6 for single layer application, 41mm (1-5/8") long #7 for double layer application and as follows:

.12 For single layer application over metal framing; self-drilling, self-tapping, case hardened, No. 6 contoured Phillips head or Type S bugle head, sized for minimum 15.9mm (5/8") penetration into steel framing. All fasteners shall be corrosion resistant. Use drill point screws for abuse resistant wall fiber panels.

.13 For double layer application over backing and existing; 44mm (1¾") Type G bugle head. For each additional layer of board, increase length of fasteners proportionally.

2.3 SUSPENSION SYSTEM COMPONENTS:

.1 Interior Gypsum Board Ceiling Suspension System: Shall be Drywall Suspension System as manufactured by CGC or approved equal.

.2 Hangers: Comply with ASTM C754-07 for maximum ceiling area and loads to be supported.

.3 Hanger wire: ASTM A641-03, soft, Class 1 galvanized, minimum 3mm (8 AWG).

.4 Provide mild steel with zinc coating, galvanized for exterior applications. [6mm (¼") for cement board areas and] 5mm (3/16") nominal diameter mild steel rod coated with rust inhibitive paint for elsewhere.

.5 Size devices for 5 times load imposed by completed system as determined in accordance with ASTM E488-96.

.6 Power actuated fastening systems are not permitted.

.7 Screws, clips, bolts, concrete inserts or other devices for ceiling hangers whose suitability for use intended has been proven through standard construction practices or by certified test data.

.8 Fasteners exposed to weather, condensation, and corrosion: Zinc-plated or stainless steel fasteners in applicable product lines specified in preceding paragraphs.

.9 Tie wire: 1.02mm (18 AWG) minimum zinc coated, annealed wire.

.10 Inserts for Concrete Slabs: Tie wire anchors, “Red Head TW-1614" by ITW Canada Inc., “Parabolt Wire Hanger” distributed by Acrow-Richmond Ltd., “T-14 Eyebolt” by Ramset Ltd. or “Tie Wire Drive TW-932" by Isometric Ltd.

.11 Furring anchorages: 1.62mm (16 AWG) galvanized wire ties, manufacturer's standard wire type clips, bolts, nails or screws as recommended by furring manufacturer and complying with ASTM C754-09a.

.12 Tie Wire: 1.519mm (designation thickness 54mils/minimum base steel thickness 1.367mm (0.0538")/colour-Green/16 ga) nominal diameter galvanized, soft annealed steel.

2.4 CONCEALED REINFORCING:

.1 Concealed Sheet Steel Reinforcing: 150mm (6") wide 48 mils (0.0478” – 1.214mm – 18 ga) thick, commercial quality cold rolled galvanized sheet steel. Zinc Coating: Z275 (G90) ASTM A653/A653M.

.2 Structural Shapes, Plates, Reinforcements: 3mm (1/8"). New material conforming to CSA G40.20 and CSA G40.21, Grade 300W. Hot dipped galvanizing with minimum zinc coating of 600 g/m^2 to CAN/CSA-G164-M.

.3 Metal Stud Reinforcements: 43 mils (0.0428” – 1.087mm – 18ga – Yellow) galvanized heavy gauge sheet steel stud as specified herein, where required to support manufactured components.

.4 Concealed Knee Brace for Low Wall Partitions: Concealed welded steel assembly made up of 50mm x 50mm (2' x 2") tube and 3mm (1/8") wall and 88mm x 127mm x 9mm (3½" x 5" x 3/8") base plate with 4 holes 10mm (7/16") diameter. Assembly shall be provided with flat black primer to yield corrosive resistant surface compatible with joint compounds and interior finishes. Height to suit low wall partitions. SKB Knee Brace Kit by Pittcon Softforms Corp.

2.5 MATERIALS

.1 Gypsum Board and Fire Rated Gypsum Board:

.1 Conforms to ASTM C1396/C1396M, Type X, 15.9mm (5/8") thick gypsum board 1200mm (4') wide, maximum practical length and tapered edge as required by each fire resistance assembly; complete with Testing Agency Fire Rating Identification Stamp on Each Sheet. “Gyproc Fireguard Type X or Type C” by Georgia-Pacific or “CGC Sheetrock Firecode or Firecode C” by CGC Inc., or “ProRoc Type X or Type C” by CertainTeed Gypsum Canada Inc.

.2 When applied in a ceiling application. Gypsum Board sheets to have anti-sag characteristics.

.2 Flexible Gypsum Board:

.1 Gypsum core panel with enhanced core to allow for flexibility; Complying with ASTM C1396/C1396M, 6.4mm (¼”) thick gypsum board 1200mm (4’) wide, maximum practical length and tapered edge. ¼” Flex by CertainTeed, or ¼” Flexible by CGC, or approved equal.

.3 Abuse-Resistant Gypsum Board:

.1 Heavy Duty - For areas requiring resistance to heavysurface, indentation and penetration damage from people and objects (often intentional damage)

.2 ASTM C1658, moisture-resistant gypsum core and fiberglass mat facers on both sides, 15.9mm (5/8”) thickness. Type X for fire rated assemblies as required by design. Tested to ASTM C1629/ C1629M; Surface Abrasion: Level 3, Surface Indentation: Level 1, Soft-Body Impact: Level 1.

.1 Sheetrock AR Firecode Gypsum Panels, with as manufactured by CGC, or approved equal(Moderate to Medium Duty) SA:3, SI:1, SBI:1

.2 Sheetrock Mold Tough AR Firecode Core Gypsum Panels, as manufactured by CGC, or approved equal. (Medium to Heavy Duty) SA:3, SI:1, SBI:2

.3 Sheetrock Mold Tough VHI Firecode Core Gpysum Panels with as manufactured by CGC or approved equal. (Heavy to Extreme Duty) SA:3, SI:1, SBI:3

.4 Impact Resistant Gypsum Board:

.1 Heavy Duty - For areas requiring resistance to heavysurface, indentation and penetration damage from people and objects (often intentional damage).

.5 Tile Backerboard:

.1 Conform to ASTM C1178M and ASTM C1396M, paperless, glass mat reinforced, water resistant treated core gypsum board. Rating of 10,' no mold growth' as tested for 4 weeks according to ASTM D3273. Permeance of < 1.2 ng/(Pa s m^2) (with no tile or coating) according to ASTM E96, 6mm (¼") for floor, Type X, 15.9mm (5/8") for walls, "DensShield Tile Backer™" by Georgia-Pacific Canada, Inc., or "Diamondback GlasRock® Tile Backer" by CertainTeed Gypsum, Canada Inc.

.6 Moisture Resistant Gypsum Board:

.1 Conforms to ASTM C1658M and ASTM C1396M, glass mat reinforced, silicone treated core gypsum board, ASTM D3273 with a rating of 10, no mold growth after 4 weeks exposure, Type X, 15.9mm (5/8") "Dens Armor Plus High performance Interior Panel" by Georgia-Pacific Canada, Inc. or approved equal.

.7 Cement Board:

.1 15.9mm (5/8") thick water-resistant tile backer board, "Durock Tile Backer Board" by CGC Inc., or "Permbase" by Unifix Coatings Inc., or "FiberCement Backer Board" by CertainTeed Gypsum Canada Inc, or approved equal.

.2 ACOUSTICAL BACKER PANEL

.1 Acoustical Backer Panel: USG Interiors, LLC, "USG Ensemble™ High-NRC Backer Panel".

.1 Classification: Provide un-faced acoustical panels with the following physical attributes:

.1 NRC: Not less than 0.80.

.2 CAC: Not less than 40.

.3 Edge/Joint Detail: SQ Square.

.4 Panel Thickness: [1 inch (25.4 mm)] [2 inch (50.8 mm)]

.5 Modular Size: 23.5 by 48 inches (596.9 by 1220 mm).

.6 Recycled Content: Not less than 66%.

.2 High Recycled Content Product: Classified as containing greater than 50% total recycled content. Total recycled content is based on product composition of post-consumer and pre-consumer post-industrial recycled content per FTC guidelines.

.3 VOC Emissions: Meets CA Specification 01350, CHPS listed for low emitting materials.

.3 WALL PANEL JOINT TREATMENT

.1 Perforated Gypsum Board Joint Treatment.

.1 General: Comply with ASTM C 475/C 475M, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board:

.1 USG Sheetrock® Brand Easy Sand™ Joint Compound

.2 USG Sheetrock® Brand Paper Joint Tape.

.3 USG Sheetrock® Brand All Purpose Joint Compound

.4 USG Sheetrock® Brand Ensemble™ Ceiling Compound

.2 Application:

.1 Joint Compound for Interior Gypsum Board: For each coat, use formulation that complies with USG Ensemble® Acoustical Monolithic Ceiling System applied on previous and or successive coats.

.3 Prefilling:

.1 At open joints or beveled panel edges, use USG Sheetrock® Brand Easy Sand™ Joint Compound.

.4 Embedding and First Coat:

.1 For embedding tape, use USG Sheetrock® Brand All Purpose Joint Compound and embed USG Sheetrock® Brand Paper Joint Tape.

.5 Finish Coat:

.1 For finish coats on joints, fasteners, and trim flanges, as well as all 3 finish coats over joint tape, use USG Sheetrock® Brand Ensemble™ Ceiling Compound. Finish to create a final coat equal to a Level 4 finish. DO NOT SKIM COAT OVER PERFORATIONS.

.4 WALL PANEL SPRAY-APPLIED FINISH

.1 Acoustically Transparent Finish

.1 USG Interiors, LLC, “USG Ensemble™ Spray-Applied Finish”:

.1 Finish: Fine Finish.

.2 Custom Color: As selected by Architect.

.2 Classification: Provide acrylic based spray-applied finish complying with USG Ensemble™ Spray-Applied Finish.

2.6 ACCESSORIES

.1 Joint Treatment for Including Joint Cement, Tape, Topping Compound and Accessories: Conforming to ASTM C475 and manufacturer’s recommendations. Confirm following Products with manufacturer prior to application.

.2 Joint Treatment and Rendering for Cement Board: “Durabond 90 Compound” by CGC Inc., or “High Density 90 - ProRoc” by CertainTeed Canada Inc. and 75mm (3") wide nylon mesh or approved type as recommended by board manufacturer; for ProRoc M2Tech use ProRoc 90 M2Tech Setting Compound.

.3 Mould Resistant Joint Treatment:

.1 Joint Tape: Fiberglass mesh tape,mould resistant;

.2 Joint treatments: Ready mix drywall compound, Mould resistant: ProRoc® Mould Resistant Lite Ready-Mixed Joint Compound;

.4 Setting Compound: ProRoc® Moisture and Mould Resistant 90

.5 Dust Barrier: Minimum 0.152mm (6 mil) polyethylene, CAN/CGSB-51.33-M, Type 2.

.6 Resilient Sponge Tape: Self-sticking adhesive on 1 side, closed cell neoprene sponge tape, “Rubatex” by Rubatex Corp. or “Perma-Stik 122X” by Jacobs and Thompson Inc., foamed vinyl “Arnofoam” by Arno Adhesive Tapes Incorporated or “Greyflex Expanding Foam Sealant” by Emseal Corporation.

.7 Laminating Compound: Asbestos-free, as recommended by manufacturer. Manufacturer's standard, multi-purpose construction adhesive. Sheetrock brand laminating compound by CGC Inc., or Dehydratine 9T by W.R. Grace and Co., or StangardFoamastic by Standard Chemicals Ltd. At fire-rated construction, use adhesive which conforms to that used in applicable fire tests.

.8 Joint Tape: For regular use either kraft paper joint tape with feathered edges and minute perforations 50mm (2") wide or glass fiber tape manufactured by CGC and for MRGB, IRGB, ARGB, use glass fiber tape only. For exterior joints, 50mm (2") and 100mm (4") widths, Durock Tape, open weave, with pressure sensitive adhesive 1 side; for ProRoc M2Tech use FibaTapeMold X10.

.9 Joint Fillers and Topping Compound: Either slow or fast setting, low shrinkage type free of asbestos fillers and as recommended by manufacturer. Use “Gyproc 90" by Georgia-Pacific Canada, Inc. or “Durabond 90" by CGC Inc. at exterior soffits, or “ProRoc 90" by CertainTeed Canada Inc., for ProRoc M2Tech use ProRoc 90 M2Tech Setting Compound.

.10 Dust Control Drywall Compound for Joint Fillers and Topping Compound: “Dust Control Drywall Compound” by CGC Inc or “Dust Away” by CertainTeed Canada Inc.; for ProRoc M2Tech use ProRoc 90 M2Tech Ready Mix Compound. For fire rated assemblies setting compound shall be tested in accordance with ASTM E814 and ULC-S115 for required rating. “Gyproc Fire-Halt Sealant Setting Compound” by Georgia-Pacific Canada, Inc.

.11 Sealant for Moisture Resistant Edges: Water resistant sealant as recommended by manufacturer and type acceptable to Consultant.

.12 Corner Bead: ASTM C1047, “Dur-A-Bead #114" at corners by CGC Inc. at reveals, or similar. Provide custom shapes of similar materials and design as noted.

.13 Corner Reinforcement: “ProRoc® AquaBead™ Corner Reinforcement”, ASTM C1047 and C475. ProRoc® AquaBead™, Class A Flame Spread (<25) and Smoke Developed (<450) in accordance with ASTM E84 used in conjunction with assemblies of wall wallboard to protect edges and corners and to Provide architectural features.

.14 Inside and Outside Corner Flex Tape: CGC Strait-Flex Original.

.15 Metal Trim: BMP D-4411 in lieu of "J" Mould. Do not Provide "J" Mould unless specifically noted on Drawings as 'Exposed "J" Mould'.

.16 Paper Faced Metal Bead and Trim: ASTM C1047, accessories used in conjunction with assemblies of to protect edges, corners and to provide design features including outside bullnose bead; ‘J’ trim.

.17 Flexible Casing Beads: 0.531mm (designation thichness18mils/minimum base steel thickness 0.455mm (0.0179")/25 ga) steel, wipe coated, angle shaped in size to fit over edge of, to suit curved applications.

.18 Extruded Aluminum Inside/Outside Corner Fillets: Aluminum extrusions consisting of aluminum alloy 6063-T5 incorporating continuous fins for fastening and joint compound filling. Punch fins with staggered holes to facilitate screw securement. Ensure aluminum is primed to accept materials associated with wall finishes. Provide following components:

.1 1” Outside Corner: Provide 1 of following:

.1 SoftForms® Model SO-9-100 by Pittcon Industries for 25mm (1") radius.

.2 Final Forms I, 100 Series, Part No. 110-90 by Gordon Incorporated for 25mm (1") radius.

.3 50mm (2”) Outside Corner: Provide one (1) of the following:

.1 Model SO-9-200 by Pittcon Softforms Corp. for 50mm (2") radius.

.2 Final Forms approved equivalent by Gordon Incorporated; www.gordongrid.com for 50mm (2") radius.

.19 Attachment Clips: Revoe Clips by Revoe Manufacturing Ltd., type to suit design requirements complete with screws and other fastening system.

.20 Control Joints: Pre-fabricated control joints prepared to suit site conditions; No. 093 by CGC Inc. zinc alloy control joint.

.21 Eggcrate Grilles: Plastic eggcrate louvres 13mm x 13mm x 13mm (½" x ½" x ½") white acrylic Type 10 by American Louvre of Canada Limited.

.22 Access Doors for Architectural, Mechanical and Electrical:

.1 Where supplied by Division 21, 22, 23 and 26 shall be installed under this Section.

.2 Non-Rated Recessed Access Panels: “R/W Series, Recessed Non-Rated Access Panels” by Nystrom Building Products; www.nystrom.com or “DW-5015" by Acudor Products Inc.; www.acudoracornltd.com, or “Van-Met NDI Series” by Mexam Metal Products; www.maxammetal.com by Zurn Industries Canada Ltd., or by LeHage Industries Ltd., or by A. G. Baird Limited, or by Stelpro Limited sized to suit design requirements, minimum size 406mm x 406mm (16" x 16") or as indicated on drawings, with drywall bead frame and recessed door to accept finish for concealed appearance. Key operated cylinder lock. Access panels shall be flush to edge of frame, concealed continuous rod hinge with key operated cylinder lock to suit design requirements. Non-fire rated shall have 1.9mm (14 ga) galvanized frame and 1.52mm (16 ga) door;

.3 Fire Rated Access Panels: Conform to requirements of authorities having jurisdiction under law and shall be labeled. Non combustibility Classification: CAN/ULC S114, ASTM E136, CAN/ULC S102, ASTM E84, UL723; Flame Spread 0; Fuel Contribution 0; Smoke Developed 0.

.4 Following fire rated access panels are based on Acudor Products Inc.:

.1 Concealed Tile AP-AT5020;

.2 Concealed Gypsum Board BP-58, match thickness of;

.3 Stainless Steel UF-5000 (Stainless Steel);

.4 Fire Rated Panels FW-5050/FB-5060 conforming to fire separation requirements.

.5 Products of above listed manufacturers are acceptable provided they meet design requirements.

.23 Reveals:

.1 Drywall Moulding and Closure: DMEC-4875 as manufactured by Fry Reglet, anodized aluminum finish.

.2 L-Trim Moulding: DRML-625 as manufactured by Fry Reglet, anodized aluminum finish.

.3 Z Reveal: DRMZ-625-75 as manufactured by Fry Reglet, anodized aluminum finish.

.24 Extruded-Aluminum Edge Moldings and Trim:

.1 Where indicated, provide manufacturer's extruded-aluminum edge moldings and trim of profile indicated or referenced by manufacturer's designations, including splice plates, corner pieces, and attachment and other clips, complying with seismic design requirements and the following: Provide manufacturer approved

and tested metal trim that is chemically compatible with the specified ceiling system.

.2 Drywall Ceilings (GB2): USG Compässo™ Elite for Drywall, height: 4” (100).

.3 Drywall to upper grid ceiling: USG Compässo™ Elite Transitions DAS, height: 4” (100).

2.7 SOUND CONTROL MATERIALS

.1 Sound Attenuation Batts: Refer to specification Section 07 21 00 – Building Insulation.

.2 Strip Impalement Clips: 25mm (1") wide strip of Insul-Hold by Insul-Hold Canada Ltd., fabricated from 0.531mm (designation thichness18mils/minimum base steel thickness 0.455mm (0.0179")/25 ga) galvanized sheet metal in 30m (100') rolls with punch-out insulation securement arrows. Alternatively, use special studs with punch-out impalement strips.

.3 Acoustic Sealant: Refer to specification Section 07 92 00 - Joint Sealants.

.4 Elastomeric Sealant: As recommended by manufacturer of fiber-reinforced wall sheathing board.

.5 Acoustical Putty Pads: Refer to specification Section 07 21 00 – Building Insulation.

.6 Gaskets: Closed cell neoprene, 3mm (1/8") thick x 64mm (2½") wide.

.7 Asphalt Felt: CSA A123.3; No. 15.

.8 Resilient Sound Isolation Clips:

.1 Manufactured by Pliteq Inc., or approved alternate. Unibody molded rubber and steel, GenieClip RST resilient sound isolation clips as manufactured by Pliteq inc., or approved equal.

.9 Ceiling Sound Isolation:

.1 Type NC (Neoprene Clips):

.1 Shal be IsoMax Sound Isolation clips, as manufactured by Kinetics.

.2 Clips shall consist of a rubber element into which a standard galvanized steel furring channel is captured. The legs of the furring channel legs shall not make any rigid contact to metal or other building components. The clip and furring channel combination shall have sufficient capacity to support ceiling weights and any attached equipment, as designed. With a 25 gauge furring channel the minimum design load capacity of the clip shall be 16.3kg (36 lbs). With a 22 gauge furring channel the minimum design load capacity of the clip shall be 21.7kg (48 lbs). The design load capacity of the clip shall include a minimum safety factor of 2.5 times the allowable maximum design load. Load failure is defined as the pullout of the furring channel from the clip.

.2 Performance Requirements

.1 Normal Design Load: Calculations for hanger selection and hanger lay-out design shall be based on the weight of the Noise Barrier ceiling plus the weight of any fixtures, piping or ductwork supported by the Noise Barrier ceiling.

.2 Overload Capacity: The isolators shall be capable of supporting a minimum of 2.5 times the normal design load without damage, i.e. the ceiling height shall be restored to within 0.5 mm when the load is released.

.3 Resilient Perimeter Board: For use at perimeter of ceiling and at service penetrations. Use 12 mm glass fiber board with a density of 40-60 kg/m^3 (3 lb/ft^3)

or 12mm (½") closed cell polyethylene foam, Grade SCE 41. Do not use Styrofoam.

2.8 PARTITION FIRE RATING LABELING

.1 Shall be a stencil or sticker with 75mm (3") high UPPER Case lettering, Arial front and of a colour contrast to masonry unit.

.2 Labels to indicate rating of partition

.1 Examples of labelling:

.1 0 HOUR FIRE RATING

.2 45 MINUTE FIRE RATING

.3 1 HOUR FIRE RATING

.4 2 HOUR FIRE RATING

PART 3 EXECUTION

3.1 EXAMINATION/ PREPARATION

.1 Verify existing conditions before starting work

.2 Examine substrate for compliance with applicable requirements, installation tolerances and other conditions affecting installation of or sheathing. Do not proceed until unsatisfactory conditions have been corrected. Beginning of installation shall indicate acceptance of substrate conditions.

.3 Verification of Conditions: Give minimum 48 hours' notice for Consultant's inspection of internal wall insulation, vapour barriers and services prior to concealing with.

.4 The Sub-Contractor shall be responsible for obtaining from other Sub-Contractors the locations of fixtures which are to be attached to or supported by the metal studs. Cooperate with Section 06 10 00 in the installation of all anchors, grounds and backing supplied by other trades to support but not limited to: electrical fixtures, boxes and outlets, plumbing, shelving, toilet compartments, washroom accessories, panels, fire hose cabinets, grab bars, hand rails, cabinets and similar items specified herein.

.5 Provide adequate ventilation to eliminate excessive moisture before commencing and during work to ensure proper drying of joint filler and adhesive. Do not force dry adhesive and joint treatment.

3.2 METAL STUD INSTALLATION

.1 Comply with ASTM C754 and with ASTM C840 requirements that apply to framing installation and recommendations of CGC Drywall Steel-Framed Systems for metal stud partition, ceiling, column fireproofing and bulkhead detailing.

.2 Install members true to lines and levels and to maintain surface flatness with maximum variation of 3mm (1/8") in 3048mm (10'-0") in any direction.

.3 Provide partition tracks at floor and underside of ceiling or structure above. Align accurately. Lay out to partition layout. Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 50mm (2") leg ceiling tracks.

.4 Install stud spacer bars specified herein as required to restrain studs against lateral and torsional movement, and to provide supplementary horizontal bracing.

.5 Provide heavy duty 1.367mm (16 ga) double boxed studs at top and each side of doors openings to extend in 1 piece from floor to underside of structure above.

.6 Provide heavy duty 1.367mm (16 ga) double boxed studs at top, bottom and each side of screens and fire damper openings to extend in 1 piece from floor to underside of structure above.

.7 Co-ordinate erection of studs and installation of service lines.

.8 Provide continuous gasket to separate metal framing from masonry and concrete.

.9 Do not secure studs to exterior window framing, or to ceiling grid members.

.10 Provide continuous gasket between floor tracks and structure.

3.3 WALL FURRING INSTALLATION

.1 Erect furring in accordance with manufacturer's directions and as specified herein.

.2 Provide furring rigid, secure, square, level or plumb, framed and erected to maintain finish dimensions and contours indicated. Allow for thermal movement.

.3 Furr around ducts, pipes and dropped beams occurring in finished areas and for vertical breaks within or at termination of ceilings.

.4 Provide metal furring channels fastened to masonry or concrete surfaces in parallel rows at 400mm (16") oc unless is indicated to be adhered directly to masonry or concrete surfaces. Shim metal furring channels to provide a level surface.

3.4 PARTITION TYPES

.1 Refer to Drawings for partition types and their respective sound attenuation and fire rating requirements.

.2 Provide partitions complete to underside of structure, unless otherwise indicated on Drawings.

.3 Sealant is provided at top, bottom of partitions and around all penetrations unless of otherwise indicated. In STC rated assemblies acoustical sealant is to be provided.

3.5 CURVED PARTITIONS

.1 Erect partial height and curved partitions as indicated. Cut top and bottom runners through leg and web at 50mm (2") intervals for arc length. Bend runners to uniform curve of radius indicated and locate straight lengths tangent to arcs. Support outside (cut) leg of runners by clinching a 25mm (1") high x 0.914mm (designation thickness 33mils/minimum base steel thickness 0.836mm (0.0329 in.)/20 ga) thick sheet steel strip to inside of cut legs using metal lock fasteners. Attach studs to runners with 3/8 inch long pan head framing screws.

On straight lengths at ends of arcs, place studs 150mm (6") on center with last stud left free standing.

.2 Place studs vertically at 400mm (16") oc unless otherwise specified, not more than 50mm (2") from abutting walls, and at each side of openings and corners. Position studs in tracks. Cross brace studs as required to provide rigid installation. Utilize stud spacer bars to position and rigidly hold studs without fasteners.

3.6 CONCEALED REINFORCING

.1 Provide hollow structural steel, stud, angle and steel plate sections, galvanized sheet steel as specified herein, where required to support manufactured components. Weld connections. Ensure rigid and secure installation capable of offering resistance to minimum 227kg (500lbs) pull force. Galvanize stud reinforcements in moist areas. Do not use wood blocking for this purpose. Provide additional reinforcing framing studs or furring channels secured between studs for attachment and support without limitations following:

.1 Washroom accessories.
.2 Fire hose cabinets.
.3 Access panels.
.4 Miscellaneous specialties.
.5 Fitments and fixtures.
.6 System furniture.
.7 Equipment.
.8 Wall mounted equipment.
.9 Grab bars and chair rails.

.2 Cooperate and coordinate reinforcement requirements with Sections requiring concealed reinforcements in partitions. Provide sheet steel reinforcing in locations indicated on Drawings to support grab bars, chair rails and other wall mounted products.

.3 16 Ga vertical studs at each wall mounting fastening. Point to be provided from floor to underside of deck at each fold down shower seat and change table.

.4 Concealed Knee Brace for Low Wall Partitions: Provide Concealed Knee Brace for Low Partitions as specified herein at dwarf wall, cornice height wall, partial height wall and rail height wall. Install as per manufactures written instructions.

.5 Hand Railing Support System: Provide hand rail, bumper rail and millwork support in accordance with Hand Rail Support System by Bailey Metal Products Ltd. as specified herein. Install with studs before gypsum is attached. Install load distribution bridging channel through knockouts in stud, install one sided load transfer bracket or two sided bracket where hand rails, bumper rails or millwork are on both sides of partition. Ensure system accommodates backing plates and mechanical and electrical services.

3.7 ACCESS DOORS AND PANELS

.1 Install access doors and panels supplied as part of work of Divisions 21, 22, 23, and 26 and where required as part of work of this Section in walls, bulkheads, ceilings and soffits.

3.8 ACOUSTICALLY CRITICAL ASSEMBLIES

.1 Keep penetrations to minimum and ensure penetration sizes have maximum 3mm (1/8") gap around openings. Do not seal active pipes and ducts to and ensure active pipes and ducts are not in contact with .

.2 Seal penetrations of acoustical partitions by ductwork. Cover gaps larger than 25mm (1") with lapped minimum 50mm (2") and screwed; before using acoustical sealant or firestopping and smoke seal. Pack gap with soft insulation before performing work.

.3 Provide closed cell polyurethane foam or fire rated silicone at single conduit or multiple conduit penetrations; cable or pipe or sleeve with multiple cables to achieve acoustical partitions. Pack gap with soft insulation before performing work.

.4 Place device backboxes in separate stud spaces, do not install device backboxes back to back. Plug unused knock outs in device backboxes with knock out caps. Where it cannot be avoided and all other efforts are exhausted and device backboxes are placed back to back. Apply Acoustical Putty Pads to each device backbox located within the same stud space.

.5 Provide sound attenuation insulation to completely fill height of stud cavities. Tightly butt ends and sides of blankets within cavities. Cut blankets to fit small spaces. Carefully fit blankets behind electrical outlets, bracing, fixture attachments and mechanical and electrical services.

.6 Staple blankets to back of gypsum board as recommended by gypsum board manufacturer.

.7 Sealant:

.1 Conform to ASTM C919 for use of sealants in sound attenuation partitions.

.2 Apply acoustical sealant to every air gap, such as gaps around perimeter of wall, between wall panels and around any penetrations made for plumbing or electrical wiring. Seal off any piping, electrical output boxes, and duct work with acoustical treatments. Treat junction boxes with acoustic putty, treat piping and duct work either with fiberglass duct liner or damping material or both. Treat frame with gasket material (weather-strip) and Install security flap on bottom of door to seal it off.

.3 Apply acoustical sealant around partition cutouts including, but not limited to, gaps between wall stud plates and subfloor, electrical outlets and boxes, plumbing and duct outlets, air ducts and boots, doors, windows and other miscellaneous wall and floor penetrations or gaps.

.4 At partitions except shaft walls, apply 1 continuous 6mm (¼") bead of acoustical sealant to each side of partition where gypsum board meets dissimilar materials. Where 2 layers of gypsum board per face are required, apply bead of sealant at perimeter of base layer only.

.5 Apply continuous acoustical sealant around edge of frame on both sides of partitions.

.6 Apply minimum 13mm (½") diameter bead of acoustic sealant continuously around periphery of each face of partition to seal gypsum board/structure junction where partitions abut fixed building components in accordance with recommendations of “CGC Drywall/Steel Framed Systems, Folder SA923 09250".

.7 Provide non hardening resilient sealant or firestop putty for cable tray isolation requirements.

.8 Install displacement ventilation ducts in party walls tightly without touching on side of wall being served. Install packing insulation between duct and other side and seal around duct grilles. Follow details where applicable.

3.9 APPLICATION

.1 Provide in accordance with manufacturer's written installation instructions and finish to requirements of ASTM C840. Ensure moisture resistant is installed on any wall/partition containing a plumbing fixture (i.e. water closets, sinks, tubs, etc.).

.2 Provide metal trim casing bead at junctions with dissimilar materials. Provide reveals at junctions with dissimilar materials where indicated.

.3 Provide curved uniform surfaces by wetting or dampening board or scoring back and form to profiles indicated. Provide additional screws and framing members to maintain design curve. Apply joint compound and trowel smooth to provide continuous, smooth radius free from flat spots, facets and trowel marks. Allow s to dry thoroughly before handling.

.4 Provide finished work plumb, level and true, free from perceptible waves or ridges and square with adjoining work.

.5 Cut and fit to accommodate or fit around other parts of Work. Provide work of this Section accurately and neatly.

.6 Butt sheets together in moderate contact. Do not force into place. Place tapered or wrapped edges next to 1 another.

.7 Provide perpendicular to framing and in lengths that will span ceilings and walls without creating end (butt) joints. If butt joints do occur stagger and locate them as far from center

of walls and ceilings as possible. Accurately fit exposed butt joints together and make edges smooth.

.8 Support ends and edges on framing.

.9 installed on partitions above ceilings can be standard. Maintain fire rating of these partitions by using fire rated in locations identified for a rating.

.10 - Single Layer:

.1 Ceilings: Apply to metal furring with screws. Erect board with long dimension parallel to supports. Locate end joints over supporting members. Space screws at 200mm (8") oc. Clean all organic dust and construction debris from panel (both sides) prior to erection.

.2 Partitions: Apply to metal studs with screws. Erect board with long dimension parallel to supports. Locate end joints over supporting members. Locate vertical joints at least 300mm (12") from jamb lines of openings. Space screws at 200mm (8") oc at board edges and 300mm (12") oc on board field. Clean all organic dust and construction debris from panel (both sides) prior to erection.

.3 Ceiling and Partition Fasteners: Ensure perimeter screws are not less than 9mm (3/8") nor more than 13mm (½") from edges and ends are opposite screws on adjacent boards. Drive screws with power screw gun and set with countersunk head slightly below surface of board. Clean all organic dust and construction debris from panel (both sides) prior to erection.

.4 Joints: Finish all joints.

.11 -Double Layer:

.1 Lay out work to minimize end joints on face layer; to offset parallel joints between face and base layers by at least 250mm (10") and to apply face layer at right angles to base layer.

.2 Base Layer: Base layer shall be standard gypsum board except moisture resistant gypsum board is required for partitions indicated for moisture resistance and fire rated gypsum board is required for fire rated partitions. Apply base layer at right angles to framing members. Secure base layer with screws spaced 300mm (12") oc to each member. Ensure perimeter screws are not more than 13mm (½") from edges and ends are opposite screws on adjacent boards. Ensure surface of erected base layer is straight, plumb or level and without protrusions before face layer is applied.

.3 Face Layer: Apply face layer at right angles to base layer with adhesive. Apply adhesive with notched spreader to leave 9mm x 13mm (3/8" x ½") ribbons, 38mm (1½") apart over entire back side of face layer. Erect board immediately after spreading adhesive. Supplement adhesive with screw fasteners. Provide temporary support for board until adhesive bond has fully developed. As alternative to adhesive specified, joint cement mixed with water in accordance with manufacturer's directions may be used. Allow joint cement and water mixture to stand 30 minutes before using.

.4 Joints: Finish joints in face layers only, unless otherwise required to achieve fire resistant ratings and for sound attenuated partitions indicated, as hereinafter specified. Setting compound for fire rated construction shall conform to requirements of authorities having jurisdiction to obtain fire rating shown on Drawings.

.12 - Curved Layer

.1 Provide board length such that one single board covers curved surface. Provide either 2 layers of 6mm or 13mm (¼" or ½") flexible boards for minimum bending radius, for dry application or thickness as recommended by manufacturer for wet

application. If wet application is used, evenly spray water on surface to be compressed when board is hung. Stack boards with wet surfaces facing each other and cover stack with polyethylene sheet. Allow boards to set at least one hour before application. Install boards perpendicular to framing. On concave installations, start fastening board at center of curve and work outward to ends of boards.

.2 On convex installations, begin board installation at one end of curved surface and fasten board to framing as it is wrapped around curve. Do not cut openings for penetrations until boards are installed and thoroughly dry. Clean all organic dust and construction debris from panel (both sides) prior to erection.

.13 Laminated to Concrete and/or Concrete Block Masonry:

.1 Base shall be straight, dry uncoated, clean and free from efflorescence.

.2 Mix laminating adhesive in accordance with manufacturer's directions. Allow to stand 30 minutes before using.

.3 Apply adhesive with notched trowel to leave 9mm x 13mm (3/8" x ½") ribbons, 32mm (1¼") apart over entire back side of face layer.

.4 Erect immediately after spreading adhesive. Use moderate pressure to develop full adhesive contact with substrate.

.5 Temporarily secure in place with concrete nails or bracing. Ensure joints are accurately aligned. Avoid impact or movement of boards until adhesive sets firmly. Remove temporary support when adhesive has set.

.6 Do not treat joints of laminated for at least 24 hrs after lamination.

.14 Cement Board Application

.1 Provide cement board in accordance with manufacturer’s written installation instructions.

.2 Provide finished work plumb, level and true, free from perceptible waves or ridges, square with adjoining parts of work.

.3 Cut and fit as required to accommodate or fit around work of other sections. Provide work of this Section accurately and neatly. Butt sheets together to moderate contact. Do not force cement boards into place.

.4 Where possible apply boards perpendicular to framing and in lengths that will span ceilings and walls. Accurately fit exposed butt joints together and make edges smooth.

.5 Support ends and edges on framing.

.6 Secure cement board to metal furring and metal studs with special screws recommended by cement board manufacturers.

.7 Provide rendering coating to cement board exposed in finished work and feather coating if applicable to be inconspicuous.

.15 Fire Rated Partitions

.1 Ensure materials for fire rated construction conform to requirements of authorities having jurisdiction to obtain fire rating shown on Drawings. Where dissimilar components are built into fire rated assemblies ensure continuity of fire separation by boxing in elements with and framing to suit authorities having jurisdiction. Work in cooperation with Section providing firestopping work.

.2 Provide fire rated enclosures, separations and assemblies as indicated on Drawings conforming to requirements of authorities having jurisdiction.

.3 Where required, secure sound attenuation blanket insulation between studs as specified in Article on Sound Control Partitions.

3.10 CONTROL JOINTS

.1 Provide pre-fabricated, pre-manufactured control joints and/or prepared to suit site conditions control joints and in accordance with manufacturer's instructions and in accordance with ASTM C840.

.2 Set in, supporting control joints with studs or furring channels on both sides of joint. Ensure double studs with discontinuous tracks and double suspended ceiling furring channels have been installed prior to commencing board and bead application at control joints. Provide control joints at following locations:

.1 support construction changes.

.2 partition, ceiling or furring runs exceed 9000mm (30').

.3 Provide control joints full height floor to ceiling or door header to ceiling in partitions and furring runs.

.4 Provide control joints from wall to wall in ceiling areas.

.5 Provide continuous polyethylene dust barrier behind and across control joints.

.6 Obtain Consultant's acceptance of exact locations of control joints.

3.11 METAL TRIMS AND ACCESSORIES

.1 Provide metal trim casing beads at reveals; at ceiling-wall intersections and partition perimeters; and at intersection of dissimilar constructions such as to concrete.

.2 Provide metal trim casing beads where abutts against a surface having no trim concealing junction.

.3 Provide paper faced metal bead and trims for outer and inner corners, L trim, cut to suit design, aligned, using setting and finishing compound in accordance with manufacturer's recommendations. Sand lightly where necessary prior to applying finishing coat. For mechanical fastening use paper faced nail on bead and trim. Install by using commercial staples and screws. Finish as specified herein.

.4 Provide ceiling fascia suspension trims at perimeter of "floating" suspended ceilings as indicated on the Drawings.

.5 Provide a 13mm (½") separation gasket between metal trim casing beads and window frames or other cold surfaces or Provide sponge tape between partition or furring framing, where such framing abuts exterior door or window frame. Tape shall be either full width or 1 strip 9mm (3/8") wide on each side of framing member.

.6 Provide casing bead and sponge tape where abuts materials other than itself and acoustic tile ceilings including at exterior door and window frames, where juncture is not concealed with trim; or elsewhere where indicated on drawings. Unless indicated otherwise, use tape 3mm (1/8") narrower than casing bead to provide recess at exposed side. Compress tape by 25%.

.7 Provide metal trim casing beads where indicated on drawings.

.8 Provide prefinished metal angle trim supports and provide light pockets and eggcrate grilles and/or louvres in accordance with manufacturer's instructions. Install light pockets and eggcrate grilles and/or louvre units square, straight and in 1 piece where possible or with inconspicuous joints at long runs.

3.12 JOINT TREATMENT

.1 Exposed Moisture Resistant Joint Finish: All joints and interior angles shall have fiberglass tape embedded in setting 90 joint compound and 2 separate coats of joint compound applied over all flat joints and 1 separate coat of joint compound applied over interior angles. Cover fasteners heads and accessories with 3 separate coats of joint compound.

Ensure surface is smooth and free of tool marks and ridges. Verify board is firm against framing members and screw heads are properly depressed.

.2 Mix joint compound or ready-to-use compounds according to manufacturer's directions. Use pure, unadulterated, clean water for mixing. Permit mixed material to stand 30 minutes before using. Do not mix more material than can be used within 1 hour. Do not use set or hardened compound. Clean tools and equipment after mixing each batch.

.3 Tape and fill joints and corners in accordance with manufacturer's printed instructions. Fill either manually, using hand tools of trade, or by mechanical taping and filling machine of proven efficiency. Apply thin layer of compound to tapered edge. Press joint tape firmly into compound, while centering it over the seam and embed with a broad knife. Sufficient drywall compound shall remain under tape to ensure proper bond. Allow to dry. Apply a second coat of drywall compound over embedding coat and feather out beyond first coat. Allow second coat to dry thoroughly prior to application of finish coat. Spread finish coat evenly over second coat and feather to a smooth uniform finish.

.4 After each coat has dried, sand or sponge smooth prior to application of ensuing coat. Remove plastic tape from control joints after finishing with joint compound. After final coats of filler have dried at least 24 hours, sand surface lightly with No. 00 sandpaper to leave it smooth, ready for decoration. Provide finished work smooth, seamless, plumb and true, flush and with square plumb neat corners.

3.13 LABELLING OF FIRE RATED PARTITIONS

.1 Apply fire rating labeling above ceiling level to all fire rated assemblies including 0 hour. Labels to be visible to view with no obstruction in front of label. Labels to be spaced at 6m (20’-0”) O.C. with a minimum of 1 label per partition.

.1 Apply labels to both sides of partitions.

.2 Labeling is not required were exposed ceiling are indicated.

3.14 INTERIOR CEILINGS AND SUSPENDED COMPONENTS APPLICATION

.1 Comply with recommendations of CGC Drywall Steel-Framed Systems Folder SA923-09250

.2 Provide hanger wires spaced at maximum 1200mm (4') oc along carrying channels and within 150 mm (6") of ends of carrying channel runs. Secure hanger wires to inserts in structure above. Hanger wires to be straight and plumb.

.3 Provide carrying channels maximum 1200mm (4') oc and within 150mm (6") of walls. Secure with hanger wire saddle-tied along channels. Provide 25mm (1") clearance between runners and walls. Provide splicers behind joints. Level channels to a maximum tolerance of 3mm (1/8") over 3600mm (12').

.4 Provide metal furring channels at right angles to carrying channels at maximum 600mm (24") oc and within 150mm (6") of walls. Provide 25mm (1") clearance between furring ends and abutting walls. Attach furring channels to carrying channels with saddle-tie of double strand tie wire.

.5 Provide additional cross-reinforcing at bulkheads and at other openings.

.6 Provide ceiling, smooth and level.

3.15 ACOUSTICAL GYPSUM BOARD

.1 This product system installation is similar to a conventional drywall installation. However, there are some differences in both materials and methods of installation that make this system unique. Installers should review and follow all directions of the installation instruction guide.

3.16 CUTTING AND PATCHING

.1 Cooperate and coordinate with other Sections to obtain satisfactory finish work. Do all cutting, patching and make good as required by installation of work of other Sections.

.2 It is the responsibility of this section to repair severed service penetration seals in fire-rated assemblies using approved methods.

3.17 PROTECTION AND RESPONSIBILITY

.1 Protect all finished work of other trades from damage or splattering as a result of the performance of this trade.

.2 Before leaving an area, remove all spattering from all finished surfaces without damaging such surfaces. Any damage must be repaired or replaced to the satisfaction of the Consultant.

3.18 CLEANING

.1 Clean off beads, casings, joint cement droppings and similar items and remove surplus materials and rubbish on completion and as directed.

3.19 SITE QUALITY CONTROL

.1 Indoor Air Quality Control Requirements: Perform work in accordance with IAQ requirements specified in Section 01 81 19 and as follows:

.1 Protect building materials from damage by:

.2 Fully covering stored materials.

.3 Elevating stored materials off ground.

.4 Disposing of materials with evidence of moisture damage.

.2 Reduce sawdust contamination by:

.1 Ensuring adjacent HVAC ducts are sealed prior to cutting.

.2 Collecting and bagging sawdust from woodworking tools.

.3 Isolating cutting areas from adjacent workspaces.

.4 Sweeping and/or vacuuming daily.

3.20 TOLERANCES

.1 Maximum Variation of Finished Surface from True Flatness: 3mm in 3m (1/8” in 10’-0”) in any direction.

3.21 LEVELS OF FINISH

.1 Provide following levels of finish in accordance with ASTM C840.

.2 Level 5 finish will be required for all drywall surfaces on the project including above and below ceilings in every room and corridor. All voids, holes, cracks and joints to be completely sealant both below & above ceilings and between floors.

.1 Level 0: No taping, finishing or accessories required for temporary construction or areas where final decoration is not required.

.2 Level 1: Use this level in plenum areas above ceilings, attics, areas where assembly would generally be concealed or in building service corridors and other areas.

.3 Level 2: Use this level where water resistant backing board (ASTM C630M) is used as substrate for tile; may be used in garages, warehouse storage, or other similar areas where surface appearance is not of primary concern.

.4 Level 3: Use this level in appearance areas which are to receive heavy or medium texture spray or hand applied finishes before final painting or where heavy grade wall coverings are to be applied as final decoration.

.5 Level 4: Use this level where flat paints, light textures or wall coverings are to be applied.

.6 Level 5: Use this level to provide a uniform surface and minimize possibility of joint photographing and of fasteners showing through final decoration. Use this Level of finish when using gloss, semi-gloss or enamel paint finish or when working in a critical (severe) lighting areas including but not limited to walls and ceiling areas near windows, skylights, long hallways and atriums with large surface areas exposed to artificial and natural light. Refer to ASTM C840 for additional locations for Level 5 applications.

.7 Exposed Moisture Resistant Joint Finish: All joints and interior angles shall have fiberglass tape embedded in setting 90 joint compound and 2 separate coats of joint compound applied over all flat joints and 1 separate coat of joint compound applied over interior angles. Cover fasteners heads and accessories with 3 separate coats of joint compound. Ensure surface is smooth and free of tool marks and ridges.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Supply and installation of all acoustic tile, metal trims and suspension systems.

1.2 RELATED SECTIONS

.1 Section 07 21 00 – Building Insulation.

.2 Section 07 92 00 – Joint Sealants.

.3 Section 07 95 13 – Expansion Joint Cover Assemblies.

.4 Section 09 21 16 – Gypsum Board Assemblies: Acoustic partition system.

.5 Division 23 - Heating, Ventilating, and Air-Conditioning (HVAC).

.6 Division 26 – Electrical: Light fixtures in ceiling system.

.7 Division 28 – Electronic Safety and Security.

1.3 REFERENCES

.1 ASTM C635/C635M-12 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

.2 ASTM C636/C636M-08 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

.3 ASTM C665-12 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.4 ASTM E580/E580M-11b - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.

.5 ASTM E1264-08e1 - Standard Classification of Acoustical Ceiling Products.

.6 CAN/CGSB-92.1-M89 - Sound Absorptive Prefabricated Acoustical Units.

.7 CAN/ULC-S702-09 - Standard for Mineral Fiber Thermal Insulation for Buildings (Includes Amendment 1, 2012).

.8 AWCCBC (Association of Wall and Ceiling Contractors of British Columbia).

.9 UL - Fire Resistance Directory.

.10 ULC - Fire Resistance Directory.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Provide data on metal grid system components, acoustic units and accessories.

.3 Shop Drawings: Indicate grid layout and related dimensioning, junctions with other work or ceiling finishes, interrelation of mechanical and electrical items related to ceiling system.

.1 Sloped Suspended Ceiling Shop Drawings: Indicate grid layout and related dimensioning, junctions with other work or ceiling finishes, interrelation of

mechanical and electrical items related to ceiling system. Drawings shall bear the stamp of a Registered Professional Engineer licensed to practice in the Province of Ontario.

.4 Samples:

.1 Submit two (2) samples, 300mm (12") in size, illustrating material and finish of acoustic units.

.2 Submit two (2) samples each, 300mm (12") long, of suspension system main runner, perimeter molding and cross runner.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Installation Data: Manufacturer's special installation requirements, including perimeter conditions requiring special attention.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 77 00: Closeout procedures.

.2 Extra Stock Materials: Provide 5% of each tile type to Owner, at the completion of the project.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordination: Coordinate with other work having a direct bearing on work of this section.

.1 Coordinate the Work of this Section with work of other trades for proper time and sequence to avoid construction delays.

.3 Pre-Installation Meeting: Convene pre-installation meeting after Award of Contract and two weeks prior to commencing work of the section to verify requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's written installation instructions.

.4 Sequencing:

.1 Sequence work to ensure acoustic ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

.2 Install acoustic units after interior wet work is dry.

1.8 QUALITY ASSURANCE

.1 Conform to AWCCBC requirements.

.2 Grid Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five (5) years documented experience.

.3 Acoustic Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five (5) years documented experience.

.4 Install ceilings within 3mm (1/8") of dimensional height above floor unless approved otherwise, and level with a maximum tolerance of 3mm (1/8") in 3m (10'-0").

.5 Suspension System: Maximum deflection of 1:360 for acoustic ceiling system including integral mechanical and electrical components.

1.9 REGULATORY REQUIREMENTS

.1 Conform to applicable code for fire rated assembly and combustibility requirements for materials.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Deliver materials in original packages, containers and bundles, bearing brand and manufacturer's name.

.2 Store materials in a covered area, off ground, on flat, smooth, dry surfaces. Protect from moisture. Remove damaged or deteriorated materials from site.

.3 Comply with ceiling panel manufacturer's recommendations regarding temperature and humidity conditions before, during and after ceiling installation.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Continuously maintain rooms or areas scheduled to receive acoustical treatment at not less than 21 deg C (70 deg F), and at occupancy humidity, at least 3 days prior to installation and 3 days after work is completed. Schedule work to eliminate risk of damage to these materials due to adverse environmental conditions in rooms or areas when and after work is installed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

.1 Products of the following manufacturers are acceptable subject to conformance to requirements of drawings, schedules and specifications.

.1 CGC Ceilings, www.usg.com .

.2 Armstrong Ceilings, www.armstrongceilings.com .

.3 Certainteed, www.certainteed.com .

.4 Or approved alternate.

2.2 MATERIALS

.1 General

.1 Acoustic ceiling tiles as manufactured by Armstrong Ceilings or CGC are specified.

.2 Suspension systems shall be as manufactured by Armstrong Ceilings or approved equal.

.2 Acoustic Ceiling Units

.1 Type ACT1 Units (Wall to Wall):

.1 Armstrong Ceilings, Calla Health Zone Airassure, Tegular, 2825BK, White (WH), 24” x 48” x 1”

.3 Suspension System for Lay-In Ceilings:

.1 Components shall be formed from commercial quality cold-rolled steel, electro-galvanized.

.2 Main Tee: Armstrong Ceilings, Calla Health Zone Airassure Suprafine 9/16”. with cross tee holes at 152.4mm (6") o.c.; with hangar wire holes at 50.8mm (2") o.c.; with integral reversible splice.

.3 Cross Tees: design same as main tees, designed to connect at main tees forming positive lock without play, loss or gain in grid dimensions with offset over-ride of face flange over main tee flange to provide flush joint.

.4 Wall Moulding: Standard L-shaped moulding, formed from commercial quality cold rolled steel, electro-galvanized with pre-painted flanges. Flanges shall be 19mm (¾").

.5 Accessories - Splices, clips, wire ties and retainers to complement suspension system components shall be as recommended by system manufacturer.

.6 Hold Down Clips:

.1 Grid hold down clip.

.2 Perimeter trim hold down clip.

2.3 PERIMETER METAL TRIM

.1 Perimeter Prefinished Metal Trim- Shall be 100mm (4") COMPÄSSO trim manufactured by CGC Inc. or approved equal.

.1 100mm (4") wide face, 14.2mm (9/16") horizontal legs with hems formed for attachment to the COMPÄSSO mounting clip; commercial quality cold-rolled 24-gauge steel, factory finished in baked enamel paint finish, to match ceiling tile colour.

.2 Splice plate: steel in finish to match trim pans; formed for snap-fit into 100mm (4") pan ends.

.3 Attachment clips: hot-dipped galvanized steel in finish to match pans formed for snap-fit into 4" pan and attached to DONN DX and MERIDIAN suspension system members.

.4 90° corner trim pieces: to match COMPÄSSO trim.

.5 Refer to Reflected Ceiling Plan drawings for locations.

2.4 ACCESSORIES

.1 Acoustic Batt Insulation: Refer to Section 07 21 00.

.2 Wall Board: Fire rated type X; 16mm (5/8 inch) thick, ends and edges square, paper faced.

.3 Acoustic Sealant: For perimeter moldings, as specified in Section 07 92 00.

.4 Gaskets (for perimeter moldings): Closed cell rubber sponge tape.

.5 Touch-up Paint: Type and colour to match acoustic and grid units.

.6 Hangers

.1 Galvanized annealed steel wire;

.2 2.6mm (12GA) diameter to support a maximum weight of 68kg (150lbs.) per hanger;

.3 3.8mm (9GA) to support a maximum weight of 140kg (308lbs.) per hanger; Galvanized annealed steel rod; 4.9mm (6GA) diameter to support a maximum weight of 250kg (550lbs.) per hanger.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Inspect substrates and previously placed work to determine suitability and completeness. Start of work constitutes an acceptance of existing conditions, and failure of work due to unsatisfactory existing conditions shall be corrected at no cost to Owner. Similarly, if work needs to be removed to correct defects in substrates or previously placed work, both removal and replacement shall be done at no cost to Owner.

.2 Verify that layout of hangers will not interfere with other work.

3.2 INSTALLATION - LAY-IN GRID SUSPENSION SYSTEM

.1 Install suspension system to manufacturer's written instructions, and as supplemented in this section.

.2 Install system to ASTM E580/E580M.

.3 Install system capable of supporting imposed loads to a deflection of 1/360 maximum.

.4 Lay out system to a balanced grid design with edge units no less than 50% of acoustic unit size.

.5 Locate system on room axis according to reflected plan.

.6 Install after major above ceiling work is complete. Coordinate the location of hangers with other work.

.7 Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

.8 Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

.9 Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected carrying channels and/or hangers to span the extra distance.

.10 Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 150mm (6") of each corner; or support components independently.

.11 Do not eccentrically load system, or produce rotation of runners.

.12 Perimeter Molding:

- .1 Install edge molding at intersection of ceiling and vertical surfaces with continuous gasket or into bed of acoustic sealant.
- .2 Use longest practical lengths.
- .3 Miter corners.
- .4 Provide molding at junctions with other interruptions.

.13 Form expansion joints as detailed. If not detailed, form to accommodate plus or minus 25mm (1") movement. Maintain visual closure.

3.3 INSTALLATION - ACOUSTIC UNITS

.1 Install acoustic units to manufacturer's written instructions.

.2 Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.

.3 Lay directional patterned units one way with pattern parallel to longest room axis. Fit border trim neatly against abutting surfaces.

.4 Install units after above ceiling work is complete.

.5 Install acoustic units level, in uniform plane, and free from twist, warp, and dents.

.6 Cutting Acoustic Units:

- .1 Cut to fit irregular grid and perimeter edge trim.
- .2 Double cut and field paint exposed edges of tegular units.

.7 Where bullnose concrete block corners or round obstructions occur, provide preformed closures to match perimeter molding.

.8 Lay acoustic insulation for a distance of 1 200mm (48") either side of acoustic partitions where indicated.

.9 Install hold-down clips to retain panels tight to grid system within 3m (10ft) of an exterior door.

3.4 ERECTION TOLERANCES

.1 Maximum Variation from Flat and Level Surface: 3mm in 3m (1/8" in 10').

.2 Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 1 degree.

3.5 ADJUSTING AND CLEANING

.1 After interior finishing work has been substantially completed, or when directed by Consultant, inspect acoustical treatment work. Replace broken, chipped or damaged work, reset loose units or units out of place and touch up marred surfaces with matching paint. Upon completion of Project, acoustical treatment finished surfaces shall be clean and free from dirt and other markings and in good condition acceptable to Consultant.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Supply and installation of all heavy duty resilient tile flooring and all associated trim and transitions.

.2 Supply and installation of all resilient base.

1.2 RELATED SECTIONS

.1 Section 03 30 00 - Cast-in-Place Concrete.

.2 Section 09 21 16 - Wall Board Assemblies.

.3 Division 26 – Electrical.

1.3 REFERENCES

.1 ASTM E84-10b - Standard Test Method for Surface Burning Characteristics of Building Materials.

.2 ASTM F1066-04(2010)e1 - Standard Specification for Vinyl Composition Floor Tile.

.3 ASTM F1700-04(2010) - Standard Specification for Solid Vinyl Floor Tile.

.4 ASTM F1861-08 - Standard Specification for Resilient Wall Base.

.5 CAN/ULC-S102.2-10 - Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.

.6 ASTM D 2047, Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.

.7 ASTM E 648/NFPA 253, Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.

.8 ASTM E662, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.

.9 ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

.10 ASTM F 970, Standard Test Method for Static Load Limit.

.11 ASTM F1482, Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring.

.12 ASTM F1303, Standard Specification for Sheet Vinyl Floor Covering with Backing.

.13 ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

.14 RFCI Standard Slab Moisture Test Method (Calcium Chloride Method)

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colours available.

.3 Shop Drawings: Indicate layout, profiles, floor accessories detail, finish colours, patterns and textures.

.4 Samples:

.1 Submit two (2) samples, 300 x 300mm (12 x 12") in size illustrating colour and pattern for each floor material for each colour specified.

.2 Submit two (2) 300mm (12") long samples of base material for each colour specified.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Installation Data: Manufacturer's special installation requirements including special procedures, perimeter conditions requiring special attention.

.3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordination: Coordinate with other work having a direct bearing on work of this section.

.1 Coordinate the Work of this Section with work of other trades for proper time and sequence to avoid construction delays.

.3 Pre-Installation Meeting: Convene pre-installation meeting after Award of Contract and two weeks prior to commencing work of the Section to verify requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's written installation instructions.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five (5) years documented experience.

.2 Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience and approved by the manufacturer.

.3 Single Source Responsibility: Ensure primary materials provided in this section are obtained from 1 source by a single manufacturer and secondary materials are obtained from sources recommended by primary materials manufacturers.

1.9 REGULATORY REQUIREMENTS

.1 Conform to applicable code for flame/smoke rating requirements of CAN/ULC-S102.2 and ASTM E84.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Deliver packaged materials in original unopened containers, clearly identify contents.

.2 Keep delivered material dry and free from stains. Store cementitious material off damp surfaces.

.3 Store materials for a minimum of 24 hours immediately before installation at not less than 18°C.

.4 Store materials in a clean, dry, secure, and well-ventilated area free from strong contaminant sources and residues with ambient air temperature maintained above 18°C.

.5 Remove resilient flooring products from packaging to allow ventilation prior to installation. Protect materials from the direct flow of heat from hot-air registers, radiators and other heating fixtures and appliances. Observe ventilation and safety procedures specified in the MSDS. Do not store rubber surface products with materials that have a high capacity to absorb volatile organic compound (VOC) emissions. Do not store exposed rubber surface materials in occupied spaces. Do not store near materials that may off gas or emit harmful fumes, such as kerosene heaters, fresh paint, or adhesives.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Store materials for three days prior to installation in area of installation to achieve temperature stability.

.2 Maintain ambient temperature required by adhesive manufacturer three (3) days prior to, during, and after installation of materials.

1.12 WARRANTY

.1 Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official: Manufacturer's warranty is in addition to, and not a limitation of other rights Owner may have under Contract Documents.

PART 2 PRODUCTS

2.1 MANUFACTURERS

.1 Products of the following manufacturers are acceptable subject to conformance to requirements of drawings, schedules and specifications.

.1 Altro; www.altrofloors.com

.2 Forbo; https://www.forbo.com

.3 Schluter; https://www.schluter.com

.4 Tarkett; https://commercial.tarkett.com

.5 Or approved alternate.

2.2 MATERIALS

.1 Resilient Sheet Flooring:

.1 SF: Shall be Altro Reliance 25 Safety flooring as manufactured by Altro.

.1 Overall gauge: 2.5mm (1/8”)

.2 Backing: Non-woven polyester/cellulose glass fiber reinforcement.

.3 Sheet Width: 2m x 20m long. (6'-6" x 65'-7").

.4 Wax/Cleaning: As recommended by the manufacturer.

.5 Colour: Architect to select from standard colour range.

.6 Location: Refer to Architectural drawings. Maintain flush conditions at change of floor finish materials.

.2 Wall Base:

.1 CB: Shall be Reliance 25 as manufactured by Altro.

.1 Height: 4"

.2 Thickness: 2.5mm (1/8") thick.

.3 Series: Reliance 25 Cove Base

.4 Colour: Architect to select from standard colour range.

.5 Location: Refer to Architectural drawings.

.6 Accessories: C8 Cap Tile Strip.

2.3 ACCESSORIES

.1 Subfloor Filler: White premix latex only; type recommended by adhesive material manufacturer.

.2 Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.

.3 Wet area Adhesive: 30- 2 part polyurethane for areas prone to moisture.

.4 Cleaner: Neutral chemical compound that will not damage tile or affect its colour.

.5 Sealer and Wax: Types recommended by flooring manufacturer.

.6 Floor Protection:

.1 Heavy kraft paper laminated with non-staining adhesive to both sides of glass fiber reinforcing ply, minimum weight of 0.18kg/sq.m.

.2 Provide 6mm thick plywood sheets, butt jointed and all seams continuously taped where construction activities are ongoing. Maintain this flooring protection until all work is completed in the affected area(s).

.7 Transition Strips: At all changes in flooring materials.

.1 Sheet Vinyl to Epoxy Flooring: Schluter “VINPRO-T”, satin anodized aluminum finish.

.2 Sheet Vinyl to Sheet Vinyl: Schluter “VINPRO-T”, satin anodized aluminum finish.

.3 Sheet Vinyl to Sealed Concrete: Schluter “VINPRO-U”, satin anodized aluminum finish.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Ensure floor surfaces are smooth and flat to plus or minus 3mm (1/8") over 3m (10'0"). Ensure that subfloors have been provided as specified without holes, protrusions, cracks greater than 2mm (3/32") wide, unfilled control joints, depressions greater than 3mm (1/8") deep, or other major defects.

.2 Ensure concrete floors are dry (maximum 3% moisture content) and exhibit negative alkalinity carbonization or dusting.

.3 Concrete slabs shall be at least 28 days old and shall be fully cured before work of this Section commences.

.4 Commencement of installation signifies acceptance of surfaces and if repairs to these surfaces or finish materials are required after installation of finishes, they shall be done at no expense to the Owner.

3.2 PREPARATION

.1 Remove dirt, soil, oil, grease and other deposits which would lessen the adhesive bond of flooring, and which would telegraph through flooring.

.2 Remove chalking and dusting from concrete surfaces with wire brushes.

.3 Remove prime paint and wire brush steel surfaces.

.4 Fill minor defects such as cracks, depressions and scars from damage with filler, and level to smooth surface.

.5 Prime subfloors if recommended by adhesive manufacturer, and as he specifies.

.6 Protection: Prevent traffic and work on newly laid floors by barricading until adhesive is cured.

.7 Levelling:

.1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub- floor filler including recess left by removal of existing flooring.

.2 Clean floor and apply, trowel and float filler to leave smooth, flat hard surface. Prohibit traffic until filler is cured.

.3 Feather out filler as indicated on drawings and as required at doorways and at change of floor finish materials to maintain flush conditions at change of floor finish materials.

.8 Priming of Concrete Sub-floors

.1 Apply primer, if required in accordance with the flooring manufacturer's written recommendations.

.2 Primer shall be allowed to dry thoroughly before application of adhesive. Rooms should be well-ventilated to allow dissipation of solvent vapours.

.9 Moisture Testing:

.1 Moisture emissions from concrete subfloors must not exceed 5 lbs. per 1000 sf per 24 hours (2.25 kg H2O/24 hr/93m^2) via the Calcium Chloride Test Method (ASTM F1869) and not exceed 85% internal concrete relative humidity as tested in accordance with ASTM F2170-02.

.2 If subfloor moisture exceeds the allowable maximum, please contact the flooring manufacturer and the Consultant. Independent testing shall be arranged and paid for by this section.

.3 Contractor to supply written reports to the Consultant as they are executed and prior to proceeding with any flooring installation.

3.3 INSTALLATION

.1 General

.1 Lay each material in accordance with manufacturer's full written specification.

.2 Lay flooring with joints closely butted. Scribe, cut and fit around floor outlets and openings, door frames, and heavy equipment supports.

.3 Cut flooring and bases to fit within 0.8mm (1/16") of abutting surfaces where exposed to view.

.4 Avoid abrupt variations in shades between adjacent flooring material. Do not install units that are off-colour or contain untypical pattern variations.

.5 Carry floor patterns through openings.

.6 Roll flooring with three-section, 45kg (100 lbs.) roller, in two directions from center of area.

.7 Maintain rollers clean and polished.

.2 Adhesive

.1 Apply adhesive uniformly over surfaces with a notched trowel, at rate recommended by manufacturer.

.2 Cover only an area into which flooring can be set during working time of adhesive: do not lay flooring over hardened adhesive.

.3 Use only waterproof type adhesive in all areas where plumbing fixtures or floor drains are installed.

.4 Protect adjacent surfaces from soil by adhesive.

.5 Clean trowels and maintain profile of notches as installation of flooring progresses to ensure a constant rate of application.

.6

.3 Resilient Sheet Flooring and Coved Base

.1 Install flooring in full width sheets as per approved shop drawings.

.2 Cut sheets to sized required, lay them out flat and allow them to reach room temperature before installation.

.3 Double cut seams.

.4 Remove all wrinkles and air pockets.

.5 At seams, using a welding rod, butt sheets tightly together and weld together in accordance with manufacturer's full written instructions.

.6 Provide self-coved resilient sheet vinyl base as indicated on the room finish schedule and detailed on drawings.

.4 Reducer Strips

.1 Install strips at terminations of flooring where edges are exposed to view and as detailed.

.2 Install strips in straight lines and relate their terminations to significant building features, and within a tolerance of 3mm (1/8") in 3m (10'-0").

.3 Install strips under doors at openings.

.4 Cut and fit strip terminations to profile of abutting construction.

.5 Secure strips to subfloor with contact bond adhesive to ensure complete bond.

.6 Install metal edge strips at unprotected or exposed edges where flooring terminates and at junction of other floor finishes.

3.4 ADJUSTMENT AND CLEANING

.1 Replace defective resilient flooring installations so that there is no discernible variation in appearance between installed and replaced materials.

.2 Clean off excess adhesive as installation of flooring progresses and before it sets.

.3 Sweep and vacuum floor after installation.

.4 Do not wash floor until after time period as recommend by flooring manufacture.

.5 Damp mop flooring to remove black marks and soil.

.6 Clean resilient flooring no sooner than 72 hours after installation. Use neutral floor cleaner where required and proceed as recommended by manufacture.

3.5 PROTECTION

.1 After materials have set, and until Project completion, coordinate with other Sections to ensure that floors are not damaged by traffic. Ensure that flooring is not subjected to any static loading during the week following installation.

.2 At completion of flooring installation, install floor protection in areas where finishing operations, repair and installation of equipment, and foot traffic will occur. Lap joints of material by 150mm (6") and seal with non-asphaltic tape.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Provide labour, materials, tools and equipment required to install complete resinous flooring system specified in this Section including surface preparation.

1.2 RELATED SECTIONS

.1 Section 03 30 00 – Cast in place Concrete.

.2 Section 04 20 00 – Unit Masonry.

.3 Section 07 92 00 - Joint Sealants.

.4 Section 09 21 16 – Wall Board Assemblies.

1.3 REFERENCES

.1 ASTM C722-04 - Standard Specification for Chemical-Resistant Monolithic Floor Surfacings.

.2 ASTM C811-98(2008) - Standard Practice for Surface Preparation of Concrete for Application of Chemical-Resistant Resin Monolithic Surfacings.

.3 ASTM D905-08e1 - Standard Test Method for Strength Properties of Adhesive Bonds in Shear by Compression Loading.

.4 ASTM D1044-08 - Standard Test Method for Resistance of Transparent Plastics to Surface Abrasion.

.5 ASTM D1360-98(2011) - Standard Test Method for Fire Retardancy of Paints (Cabinet Method).

.6 ASTM D635-10, Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position

.7 ASTM D2240- 05 (2010), Standard Test Method for Rubber Property-Durometer Hardness

.8 ASTM D2369-10e1, Standard Test Method for Volatile Content of Coatings.

.9 ASTM D2794-93 (2010) Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

.10 ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

.11 ASTM D4060-10, Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

.12 ASTM F2170-11 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

.13 ASTM F2659-10, Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and Other Floor Slabs and Screeds Using a Non-Destructive Electronic Moisture Meter.

.14 ASTM G21-13, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

.15 CAN/ULC-S102-10 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

.16 CSA A23.1-14/A23.2-14 Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Provide data on specified products, describing physical performance characteristics; sizes, patterns and colours available.

.3 Samples:

.1 Submit 216mm x 280mm (8" x 10") samples of each specified coating, in each colour and texture indicated for Project, and to show successive application of coats.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Installation Data: Manufacturer's special installation requirements indicating special procedures, perimeter conditions requiring special attention.

.3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordination: Coordinate with other work having a direct bearing on work of this section.

.3 Coordinate the Work of this Section with work of other trades for proper time and sequence to avoid construction delays.

.4 Pre-application Meeting:

.1 Convene a pre-application meeting two (2) weeks before commencing the Work of this Section. Require attendance of parties directly affecting Work of this Section, including Owner, Contractor, Consultant, Applicator, Manufacturer's technical representative and other Subcontractors affected by the Work of this Section to review the following:

.1 Surface preparation.

.2 Priming.

.3 Application.

.4 Curing and protection.

.5 Coordination with other Work.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.

.2 Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience and approved by the manufacturer.

.3 Single Source Responsibility: Ensure primary materials provided in this Section are obtained from 1 source by a single manufacturer and secondary materials are obtained from sources recommended by primary materials manufacturers.

1.9 REGULATORY REQUIREMENTS

.1 Coatings shall meet fire hazard classification requirements of jurisdictional authorities for each material in each installation location as applicable.

.2 Apply coatings that require fire hazard classification exactly as specified in Underwriter's Laboratory test specification that validates specified rating.

.3 Fire hazard classification shall not exceed:

.1 Flame Spread: 25 for exits and 150 elsewhere.

.2 Smoke Developed: 50 for exits and 300 elsewhere.

1.10 DELIVERY, STORAGE AND HANDLING

.1 Package, seal, and label each coating material to show manufacturer's and product name, fire hazard classification, and colour.

.2 Store materials at site in an area specifically set aside for purpose that is locked, ventilated, and maintained at a minimum temperature of 10°C.

.3 Ensure that health and fire regulations are complied with in storage area, and during handling and application.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Material Temperature: Precondition material for at least 24 hours between 18°C and 30°C (65°F and 86°F).

.2 Ambient and Substrate Temperature: Minimum/Maximum 10°/30°C (50°/86°F).

.3 Substrate temperature must be at least 3°C (5°F) above measured Dew Point.

.4 Mixing and Application attempted at Material, Ambient and/or Substrate Temperature conditions less than 18°C (65°F) will result in a decrease in Product workability and slower cure rates.

.5 Relative Ambient Humidity: maximum ambient humidity 85% (during application and curing).

.6 Measure and confirm acceptable test results for Ambient Relative Humidity, Ambient and Surface Temperature and Dew Point.

.7 Substrate Moisture:

.1 Moisture content of concrete substrate must be ≤ 4% by mass as measured with a Tramex® CME/CMExpert type concrete moisture meter.

.2 Additionally, internal concrete relative humidity tests may be conducted as per ASTM F2170 and values must be ≤ 85%.

.3 If moisture content of concrete substrate is higher than 4% by mass and/or if relative humidity test results exceed readings of 85% RH, Manufacturer will instruct on addition of moisture mitigation systems or moisture tolerant primers.

.8 Maintain constant ambient room temperature for 48 hours before, during and after installation or until cured. Minimum temperature of 10°C (50°F) and maximum temperature of 30°C (85°F). Do not apply Product while ambient and substrate temperatures are rising.

.9 Erect suitable barriers and post legible signs at points of entry to prevent traffic and trades from entering the work area during application and curing period of the floor.

.10 Ensure adequate ventilation and air flow.

1.12 WARRANTY

.1 Submit Applicator's written warranty, signed and issued in the name of Owner warranting the Work of this Section against defects in materials and workmanship for a period of one (1) year from the date of Substantial Performance of the Work.

PART 2 PRODUCTS

2.1 MANUFACTURERS

.1 Products of the following manufacturers are acceptable subject to conformance to requirements of drawings, schedules and specifications.

.1 Sika Canada, www.can.sika.com

.2 Tremco inc., www.tremcoinc.com .

.3 Soprema, www.soprema.ca .

.4 Or approved alternate.

2.2 MATERIALS

.1 Epoxy Resinous Flooring: Specification based on Sika Canada Inc., Sikafloor 20NA PurCem Broadcast System.

.1 Colour:

.1 To be selected by consultant from manufacturers standard colour range.

.2 Location:

.1 Refer to Consultant drawings 700 series. Maintain flush conditions at change of floor finish materials.

.3 Resinous Flooring System: solid colour, resin-rich, trowel applied, Polyurethane / Cement floor screed system and as follows:

.1 Compressive Strength: 37 MPa (5,367 psi) at 28 days in accordance with ASTM C579.

.2 Tensile Strength: 4.3 MPa (624 psi) at 28 days in accordance with ASTM C307

.3 Flexural Strength: 11 MPa (1,595 psi) at 28 days in accordance with ASTM C580.

.4 Thermal Compatibility: Passes in accordance with ASTM C884.

.5 Indentation: ~0% in accordance with MIL-PRF-24613.

.6 Abrasion Resistance: 0.24g in accordance with ASTM D4060. (CS17/1000cycles/1000g).

.7 Coefficient of Thermal Expansion: 2.8 x 10^{-5}mm/mm/℃ (1.56 x 10^{-5} in/in/℉) in accordance with ASTM D696.

.8 Bond Strength: 2.9 MPa (420 psi) with substrate failure in accordance with ASTM D4541.

.9 Resistance to Fungi Growth: Rated 0 in accordance with ASTM G21.

.10 Resistance to Mold Growth: Rated 10 in accordance with ASTM D3273.

.11 VOC Content: 5g/L in accordance with ASTM D2369.

.12 System Thickness: minimum 6mm (¼ in).

.4 Screed Mortar: three components, solid colour, low odour, low VOC, matte finish polyurethane/cement screed.

.1 Basis-of-Design Product: Sika Canada Inc., Sikafloor 20NA PurCem.

.2 Applied Thickness: 6mm (¼ in).

.3 Compressive Strength: 37 MPa (5,367 psi) in accordance with ASTM C579.

.4 Tensile Strength: 4.3 MPa (624 psi) in accordance with ASTM C307.

.5 Flexural Strength: 11 MPa (1,595 psi) at 28 days in accordance with ASTM C580

.6 Thermal Compatibility: Passes in accordance with ASTM C884.

.7 Indentation: ~0% in accordance with MIL-PRF-24613.

.8 Abrasion Resistance: 0.24g in accordance with ASTM D4060. (CS17/1000cycles/1000g).

.9 Coefficient of Thermal Expansion: 2.8 x 10^{-5}mm/mm/℃ (1.56 x 10^{-5} in/in/℉) in accordance with ASTM D696.

.10 Bond Strength: 2.9 MPa (420 psi) with substrate failure in accordance with ASTM D4541.

.11 Resistance to Fungi Growth: Rated 0 in accordance with ASTM G21.

.12 Resistance to Mold Growth: Rated 10 in accordance with ASTM D3273

.13 VOC Content: 5 g/L in accordance with ASTM D2369.

.5 Silica Broadcast Aggregates: [Medium texture #32 (spherical) 0.3 – 0.85mm

.1 Basis-of-Design Product: Bell & MacKenzie Co. Ltd.

.6 UV Stable Top Coat: three component, solid colour, high solids, low odour, low VOC, matte finish, non-yellowing, aliphatic polyurethane/cement top coat:

.1 Applied Thickness: 254 µm (10 mils) w.f.t.

.2 Tensile Strength: 15.38 MPa (2,231 psi) in accordance with ASTM C307.

.3 Bond Strength: 4.55 MPa (660 psi) with substrate failure in accordance with ASTM D4541.

.4 Hardness: 81 Shore D in accordance with ASTM D2240.

.5 VOC Content: 5 g/L in accordance with ASTM D2369.

.6 Indentation: ~0% in accordance with MIL-PRF-24613.

.7 Abrasion Resistance: 0.08g loss in accordance with ASTM D4060 (CS17/1000cycles/1000g).

.8 Basis-of-Design Product: Sika Canada Inc., Sikafloor 33NA PurCem.

.7 Polyurethane/Cement Cove Mortar: three-component, solid colour, low odour, low VOC, vertical grade coving and detailing mortar with primer.

.1 Basis-of-Design Product: Sika Canada Inc., Sikafloor 29NA PurCem Coving and Detailing Mortar.

.2 Applied Thickness: minimum 6mm (¼ in).

.3 Compressive Strength: 35 MPa (5,076 psi) at 28 days in accordance with ASTM C579.

.4 Tensile Strength: 3.89 MPa (564 psi) at 28 days in accordance with ASTM C307.

.5 Hardness: 85 Shore D in accordance with ASTM D2240.

.6 VOC Content: 5g/L in accordance with ASTM D2369.

.7 Bond Strength: 3.0 MPa (435 psi) with substrate failure in accordance with ASTM D4541.

.8 Resistance to Fungi Growth: Rated 0 in accordance with ASTM G21.

.9 Resistance to Mold Growth: Rated 10 in accordance with ASTM D3273

.10 Install cover base 100mm (4”) high with 25mm (1”) radius in accordance with manufacturer’s written instructions. Install cover base with a minimum 3mm (1/8”) thickness.

.11 Install L type white alloy or zinc base top strips at specified heights straight and level.

2.3 ACCESSORIES

.1 Crack Sealant: Solvent-free and low VOC, moisture cure polyether sealant and contains no isocyanates.

.2 Crack Reinforcing: Elastic 100% nylon double weave tape. Ensure tape is capable to impart dimensional strength with elasticity to allow for crack movement. Ensure compatibility of crack reinforcing Products with epoxy floor coatings prior to application.

.3 Joint Backing: Preformed, compressible strips of closed cell polyethylene or urethane foam, rubber tubing or non-migrating plasticized vinyl with shore 'A' hardness of 20 and tensile strength between 140 kPa and 200 kPa. Sizes and shapes to suit various conditions, diameter 25% greater than joint width. Compatible with sealant, primer, epoxy flooring and substrate.

.4 Joint Sealant: CAN/CGSB-19.24-M, Type 1, Class B, multi-component modified urethane base chemical curing; material compatible with floor finish and as recommended by flooring manufacturer. Acceptable Products: Duopli by Duochem Inc.; www.duochem.com or Vulkem 245 by MC Canada Ltd. Or Sikaflex 2C by Sika Canada Inc.; www.sika.com or Stonflex MP7 by Stonhard.; www.stonhard.com or CrownFlex Joint Sealer No.505 by Crown Polymers LLC; www.crownpolymers.com.

.5 Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.

.6 Divider Strips: height to match flooring thickness, extruded aluminum with anchoring features.

.7 Anti-Slip Stair Nosing: Provide Schluter durable stainless-steel anti-slip nosing integral into Resinous Top Coat. (Schluter Trep-EFK to suit stair width see drawings for locations).

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verify that specified environmental conditions are ensured before commencing application of coating.

.2 Test surfaces for moisture content and acid-alkali balance to ensure that they are suitable for application.

.3 Ensure that surfaces to receive coatings have been provided by other sections as specified; that they will not adversely affect execution, permanence, or quality of coatings; and that they can be put into acceptable condition by means of preparation specified in this Section.

.4 Defective coatings resulting from application to unsatisfactory surfaces will be considered the responsibility of this Section.

.5 Surface must be clean, sound and dry.

.6 Pre-Installation Testing:

.1 Substrate moisture:

.1 Measure and confirm acceptable conditions for Substrate Moisture Content, Ambient Relative Humidity, Ambient and Surface Temperature and Dew Point.

.2 Confirm and record above values at least once every 3 hours during installation or more frequently whenever conditions change (e.g. Ambient Temperature rise/fall, Relative Humidity increase/decrease, etc.).

.2 Concrete substrate to have a minimum compressive strength of 25 MPa (3,625 psi) at 28 days and a minimum of 1.5 MPa (218 psi) in tension at time of application.

.7 Ensure concrete substrate conforms to the minimum requirements of the flooring manufacturer.

.8 Do not apply flooring system to sand-cement setting beds. Remove sand-cement beds to structural concrete substrate. Re-level/slope as required to achieve grade and/or drainage in accordance with manufacturer's minimum requirements.

.9 Do not apply flooring system to asphaltic or bitumen membranes, soft wood, aluminum, copper or fiberglass reinforced polyester/vinyl ester composites.

.10 Apply to glazed or vitrified brick and tile, structural wood, and steel only with manufacturer's written recommendation for proper surface preparation.

3.2 PREPARATION

.1 Prepare surface to receive flooring systems in accordance with manufacturer's written instructions.

.2 Remove sealers, finishes, and paints.

.3 Remove dirt, oil, grease, wax, laitance, curing compounds, water-soluble concrete hardeners, and other surface contaminants.

.4 Remove unsound concrete by appropriate mechanical means.

.5 All projections, rough spots, etc. should be removed and patched to achieve a level surface prior to the application.

.6 Concrete: Clean and prepare to achieve laitance-free and contaminant-free, open textured surface by shot blasting or equivalent mechanical means. Provide CSP level in accordance with ICRI Guideline No. 310-2R and manufacturer's written recommendation.

.7 Cover or mask surfaces adjacent to those receiving coating to protect materials and surfaces installed by other Sections, and property from damage and soil.

.8 Materials soiled by coatings during application and storage, and from which soil cannot be completely removed, shall be replaced by this Section.

.9 Chemical Surface Preparation: Chemical surface preparation (acid etching) is unacceptable and will void manufacturer's warranty.

.10 Control Joints and Cracks: Repair and treat control joints and surface cracks utilizing manufacturer's standard materials and installation details.

3.3 APPLICATION

.1 General

.1 Apply special coating in accordance with coating manufacturer's specifications and by an applicator approved by the manufacturer.

.2 Coating manufacturer shall supervise application.

.3 Follow manufacturer's written recommendations on terminations and connections to walls, drains, doorways, columns and floor-to-floor transitions.

.4 Place cloths and other disposable finishing materials that are a fire hazard, in closed metal containers, and remove from building every night.

.5 Post "Wet Coating" signs throughout freshly finished areas and remove when finishes are cured.

.6 Erect barriers to prevent the entry and presence of personnel not performing special coatings application during application of coatings, and for 24 hours following completion of application.

.7 Apply coatings with no runs, laps, voids, or other marks or irregularities, and with uniform colour, sheen and texture.

.8 Make clean true junctions with no visible overlap between adjoining applications of coatings.

.9 Apply each successive coat only after the previous coat has dried.

3.4 FIELD QUALITY CONTROL

.1 Verify by Tooke thickness gauge, and in the presence of the Consultant, that thicknesses of completed coatings meet specified requirements.

3.5 ADJUSTMENT AND CLEANING

.1 Touch up and refinish minor defective coatings. Refinish entire coated surface where finish is damaged or otherwise unacceptable.

.2 Remove promptly as coating application progresses spilled or spattered coating materials from surfaces of products and property of other Sections. Do not mar surfaces while removing.

.3 Leave storage and mixing areas clean and in same condition as equivalent spaces in Project.

3.6 PROTECTION

.1 Protect finished floor from damage by subsequent trades.

.2 Protect freshly applied Products from dampness, condensation and water for at least seventy-two (72) hours.

.3 Monitor air flow and changes in air flow. Protect against introduction of dust, debris, and particles, etc. that may result in surface imperfections and other defects.

.4 Follow manufacturer's written recommendations with respect to cure, wait time and return to service.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Work Included: Provide epoxy wall interior coatings including but not limited to following:

.1 epoxy wall interior seamless chemical resistance coatings where specified in Finish Schedule.

1.2 RELATED SECTIONS

.1 Section 07 84 00 – Firestopping.

.2 Section 07 92 00, Joint Sealants.

.3 Section 09 21 16 – Wall Board Assemblies.

.4 Section 09 67 00 - Epoxy Floor Coatings.

1.3 REFERENCES

.1 ASTM E84-10a: Standard Test Method for Surface Burning Characteristics of Building Materials

.2 ASTM F1869-10: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

.3 CAN/CGSB 1.146-99: Cold Cured, Gloss Epoxy Coating

.4 CAN/CGSB 1.153-00: High Build, Gloss, Epoxy Coating

.5 CAN/CGSB 1.186-M89: High Performance Glazed Coating System, Interior

.6 CAN/CGSB 19.13-M87: Sealing Compound, One-Component, Elastomeric, Chemical Curing

.7 CAN/CGSB 19.24-M90: Multicomponent, Chemical-Curing Sealing Compound

.8 CAN/ULC S102.2-07- Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies

.9 MPI: The Master Painters Institute

.10 OPCA: Ontario Painting Contractors Association

.11 ULC: Underwriters' Laboratories of Canada

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data:

.1 Submit manufacturer's literature and data sheets for each type of material provided under this Section for Project. Ensure data sheets Provide required information including detailed instructions for installing as well as maintaining, preserving and keeping materials in clean and safe conditions. Provide adequate warning of maintenance practices or cleaning agents detrimental to specified materials.

.3 Samples:

.1 Submit 300mm x 300mm (12" x 12") samples of each type of wall coating on specified sub-strata showing stages of application. Submit additional samples until approval is obtained. Make corrections to mix as required to secure correct colour and texture. Label samples with Project name and number, applicator, names of material and manufacturer, area where material will be applied, date of sample, colour, texture and mix proportion.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Installation Data: Manufacturer's special installation requirements including special procedures, perimeter conditions requiring special attention.

.3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordination: Coordinate with other work having a direct bearing on work of this section.

.3 Coordinate the Work of this Section with work of other trades for proper time and sequence to avoid construction delays.

.4 Pre-application Meeting:

.1 Convene a pre-application meeting two (2) weeks before commencing the Work of this Section. Require attendance of parties directly affecting Work of this Section, including Owner, Contractor, Consultant, Applicator, Manufacturer's technical representative and other Subcontractors affected by the Work of this Section to review the following:

.1 Surface preparation.

.2 Priming.

.3 Application.

.4 Curing and protection.

.5 Coordination with other Work.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.

.2 Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience and approved by the manufacturer.

.3 Single Source Responsibility: Ensure primary materials provided in this Section are obtained from 1 source by a single manufacturer and secondary materials are obtained from sources recommended by primary materials manufacturers.

1.9 REGULATORY REQUIRMEMENTS

.1 Fire Hazard Classification: As determined by ULC testing in accordance with ASTM E84 shall not exceed following:

Flame Spread: 0.

.1 Fuel Contributed: 15.

.2 Smoke Developed: 10.

1.10 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials to site in original unopened containers with manufacturer's labels and seals intact. Labels shall identify manufacturer's name, brand name of products, grade and type, application directions and shelf life or expiry date of product.

.2 Handle and store materials in accordance with manufacturer's printed directions. Store in warm, dry, lockable area until surfaces are ready for application. Do not store out-of-doors, in boiler rooms, compressor rooms, refrigerated areas, near radiators, steam pipes or other hazardous materials.

.3 Prior to mixing, store components at temperature between 10°C and 32°C (50°F and 90°F) for minimum 24 hours before use.

.4 Store flammable materials in safe, approved containers to eliminate fire hazards. Remove from site at end of each work shift.

.5 Do not use materials that have been stored for period of time exceeding maximum recommended shelf life of materials.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Test substrate for moisture content using moisture meter. Do not apply coatings over substrate materials that contain over 3% moisture. Obtain approval of coating manufacturer of moisture content of substrate before proceeding with application.

.2 Test cementitious substrates for alkalinity in accordance with coating manufacturer's recommendations.

.3 Maintain minimum surface temperatures at 10°C (50°F) for 24 hours before, during, and for 48 hours following application, or until cured.

.4 Maintain well-lit, dust-free and well-ventilated area. Provide controlled ventilation to exterior of the building during application and drying by means of temporary ducting and exhaust fans

.5 Comply with coating manufacturer's directions for maintenance of substrate temperatures, ventilation and other conditions required to execute and protect work.

Protection:

.1 Protect adjacent surfaces not scheduled to receive coatings from damage and overspray resulting from work of this Section. If necessary, cover or mask surfaces adjacent surfaces to those receiving coating including fixtures and equipment.

.2 Replace at no extra cost, materials soiled by coatings during application and storage and from which soil cannot be completely removed.

.3 Erect barriers to prevent entry and presence of workers not performing work of this Section during application of coating and for 48 hours following completion of application.

.4 Post "Wet Coating" and "No Smoking" signs while work is in progress and while coatings are curing. Ensure spark-proof electrical equipment is used in areas where inflammable materials are being applied. Prevent use of open flames or equipment that may cause sparks during this phase of work.

1.12 WARRANTY

.1 Warrant work of this Section against defects and deficiencies for period of 1 year in accordance with General Conditions of the Contract. Promptly correct defects and deficiencies which become apparent within warranty period, to satisfaction of Consultant

and at no additional expense. Defects include, but are not be limited to: crazing, blistering, fading, bond failure and softening. Damage due to structural failure of base, surface, water seepage or abnormal abuse is exempted from warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

.1 Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:

.1 Duochem Inc.; www.duochem.com

.2 Niagara Protective Coatings; www.niacoat.com

.3 Sika Canada Inc.; www.sika.com

.4 Valspar Flooring and Wall Coating.; www.valspar.com

.5 Or approved equal,

2.2 MATERIALS

.1 Provide high performance coating with inherent chemical provision to provide resistance to graffiti and of type that can be easily cleaned, maintained, repaired and re-coated. Provide minimum following coat thicknesses unless otherwise indicated:

.1 Prime Coat: 0.127mm (5 mils) DFT.

.2 Body Coat: 0.127mm (5 mils) DFT.

.3 Top coat: 0.127mm (5 mils) DFT

.2 Colours and Sheen: Allow Consultant to select colours at a later date. Final colours selected will not necessarily be colours found on standard colour charts of manufacturer whose Products have been accepted for use. Refer to Room Finish and Colour Schedule.

.3 Epoxy Coating:

.1 Shall be High solids, 2 component, thermosetting cold cure epoxy high build coating with high impact and abrasion resistance. Provide application comprising prime, body and top coat for minimum DFT of 0.38mm (15 mils) system conforming to CAN/CGSB-1.153-M or CAN/CGSB-1.146. Finish: Semi-gloss. Acceptable Products:

.2 "Sika Guard 62" by Sika Canada Inc.

.3 "Duroplast 150" by Duochem Inc., "

.4 "Cophard EM & ES" by Coppar Ltd.,

.5 "Everpoxy" by Everspec Surfaces

.6 "Epoxal100 WH" by Niagara Protective Coatings Ltd.,

.7 "Descoglas NR System-Descoglas and Descoglaze -1 Topcoat" by Valspar Flooring and Coating.

.4 Sealant: Multi-component type, CAN/CGSB-19.24-M, or 1 component polysulphide type, CAN/CGSB-19.13-M. Colour as selected.

.5 Caulking Beads: Polyethylene, urethane, neoprene or vinyl closed cell, foam rope with Shore "A" hardness of 20 and tensile strength between 140 and 200 kPa.

.6 Primer: As recommended by wall coating manufacturer.

.7 Block Filler: As recommended by wall coating manufacturer and suitable for anticipated conditions. In areas of high humidity, use epoxy block filler only.

2.3 MIXES

.1 Mix coatings in accordance with manufacturer's directions.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Conform to the Occupational Health and Safety Act requirements and ensure that applicators wear appropriate, properly fitted organic vapour respirator during and after application.

.2 Ensure surfaces to be coated are sound, clean, non-dusting, cured, free from oil and efflorescence and any other contaminants. Substrate to also be free of hydrostatic, capillary or moisture vapour pressure. Ensure substrates in contact with grade have properly installed, effective vapour barrier to prevent damage resulting from hydrostatic, capillary or moisture vapour pressure. Ensure concrete surfaces contain less than 3% moisture when tested in accordance with ASTM F1869.

.3 Report immediately defects and unsatisfactory conditions. Commencement of work implies acceptance of existing conditions.

.4 Ensure surface temperature and moisture content of substrate meet minimum environmental requirements outlined herein.

.5 Pre-installation Testing: Prior to commencement of work, perform test installation to ensure that wall coating material is not physically or chemically affected by chemicals anticipated to be used in area.

3.2 PREPARATION

.1 Carefully mask adjacent surfaces not scheduled to receive high performance coatings, wall openings for electrical outlets or switches and open ends of piping or conduit. Leave masking intact until application is complete. Provide readily removable masking capable of being removed without damage to underlying surface.

.2 Prepare existing or new surfaces and apply primer to substrate in accordance with manufacturer's recommendations.

.3 Apply block primer/filler to manufacturer’s printed instructions.

.4 Prepare existing painted concrete block surface by abrasive blast.

3.3 APPLICATION

.1 Apply special coatings before adjacent work is painted.

.2 Do not apply coating over non-hardening sealants or caulking materials. Coordinate with Section 07 84 00 and Section 07 92 00.

.3 Apply coatings in accordance with manufacturer's instructions to produce monolithic wearing surface of minimum DFT indicated for surfaces even, uniform in colour and appearance and free from marks, runs, craters or other defects detrimental to appearance or performance. Match approved samples.

.4 Apply additional coatings to conceal mesh reinforcing without affecting decorative finish.

.5 Allow proper cure time between coats as recommended by manufacturer. Protect surface from damage during this time. Smoothness index of completed coatings to be at least 50% when measured using 60 degrees Gardner gloss-meter.

.6 Where designated apply decorative finishes in accordance with manufacturer's instructions.

.7 Provide water-tight seal to pipes and projections coming through wall coating, using sealant.

.8 Firestopping and Smoke Seal: Firestopping and smoke seals around penetrations, through coating in fire separations are part of work of Section 07 84 00. Provide assistance as required to trade performing firestopping.

.9 Do not apply wall coatings over sealed control and expansion joints. Advise other trades in advance of sealant application until wall coating system is cured.

3.4 FIELD QUALITY CONTROL

.1 Inspection: In accordance with Division 01, an independent inspection and testing company may be engaged to inspect work of this Section. Give at least 2 weeks' notice of starting work and allow inspector free access. Tests may include verification of thicknesses and of fire and chemical resistance as specified these Specifications.

.2 Manufacturer's Field Services: Arrange for manufacturer's representative to visit site at intervals during surface preparation and paint coating application to ensure specified surface preparation is being performed, specified Product are being used, appropriate number of coats are being applied and specified finishing procedures are being carried out.

3.5 CLEANING

.1 Remove masking and other protection provided under this Section.

.2 Painting work will not be considered complete until spatters, drippings, smears and overspray have been cleaned and removed to satisfaction of Consultant.

.3 Make good any damage to structure building surfaces or furnishings resulting from painting operations at no additional cost.

.4 Upon completion, remove masking and clean adjacent surfaces free of overspray.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 This section includes labor, materials and other services necessary to complete vinyl wall coverings.
.2 Conform with requirements of all Sections of Division 1, General Requirements, as it applies to the work of this Section.

1.2 RELATED SECTIONS

.1 Section 09 25 00 – Gypsum substrate board.
.2 Section 09 67 00 – Epoxy Floor Coatings.
.3 Section 09 96 56 – Epoxy Wall Coatings

1.3 REFERENCES

.1 General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

.2 American Society for Testing & Materials (ASTM):
.1 ASTM E 84-24 (tested on Drywall) - Standard Test Method for Surface Burning Characteristics of Building
Materials. CLASS A
.2 ASTM D5420 Gardner Impact Exceeds 80-inch pounds

.3 Underwriters Laboratories of Canada (ULC)
.1 CAN ULC S102.2 (tested on Drywall) Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies

1.4 SYSTEM DESCRIPTION

.1 Performance Requirements: Provide Altro Puraguard™ wall covering which has been manufactured by Altro to maintain performance criteria stated by the manufacturer without defects.

1.5 SUBMITTALS

.1 Product Data: Submit manufacturer’s current printed product literature, specifications, installation instructions, and field reports in accordance with Section 01330 - Submittal Procedures.

.2 Shop Drawings: Submit shop drawings to indicate materials, details, and accessories in accordance with Section 01330 - Submittal Procedures including but limited to the following:
.1 Submit a layout diagram indicating the location of each panel and joining method.

.3 Samples: Submit duplicate sample pieces of Altro Puraguard™ material, as well as accessory pieces in accordance with Section 01330 - Submittal Procedures.

.4 Quality Assurance Submittals: Submit the following:
.1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
.2 Manufacturer’s Instructions: Current published manufacturer’s installation and maintenance instructions.
.3 Manufacturer’s Field Reports: Specified herein.

.5 Closeout Submittals: Submit the following:

.1 Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

.2 Warranty: Warranty documents specified herein.

1.6 QUALITY ASSURANCE

.1 Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

.1 Training: Installer who has a minimum of five years' experience installing PVC wall panels in a similar environment to those of the project requirements.

.2 Mock-ups: Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Consultant's acceptance of finish color, texture and pattern, and workmanship standards.

.1 Mock-Up Size: [Specify mock-up size.].

.2 Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.

.3 Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

.3 Pre-installation Meeting: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.7 DELIVERY, STORAGE & HANDLING

.1 Ordering: Comply with manufacturers' ordering instructions and lead time requirements to avoid construction delays.

.2 Deliver, store and handle Altro Puraguard™ wall panels in accordance with Section 01610 - Basic Material Requirements.

.3 Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

.4 Store materials protected from exposure to harmful weather conditions, at temperature and humidity conditions recommended by the manufacturer. Panels should be stored flat and be pre-conditioned a minimum of 72 hours in ambient temperatures similar to the prevailing operational conditions.

.5 Store panels in temperature-controlled environments. Leave protective film on panel until ready to use.

.6 Panels and all other Altro materials are to be acclimated on site 72 hours prior to installation, and HVAC is to be up and running with ambient temperatures between 20C (68F) and 27C (80F) prior to, during and after installation. If temporary heat is required, use electric or indirect heat sources, do not use kerosene or propane in direct contact with ambient air.

.7 Panels must be stored on a level flat surface off the ground (risk of condensation on the panels if stored on damp surfaces). When stacking pallets, stacking 5 high is ideal, with the maximum being 8 pallets high. Pallets should be stacked flat without bumps or rolls and in a square and well-aligned configuration. Safety precautions should be taken to secure pallets to prevent shifting or falling.

.8 If more than one pallet of material is used, use material in sequence.

.9 Panels and all other materials must be checked for defects before installation. Do not install materials with visible or known defects or issues. Check carefully to see that panels match in shade. If a shade match cannot be accomplished, do not install. Document issue with

photographs including original packaging and contact your Altro distributor.

.10 Do not install near open heat sources, or any device that radiates, conducts or expresses heat (high or low) including but not limited to heaters / radiators, stoves-all types, conduction plates, ovens, etc. Stainless steel panels should be used in such areas. Do not install near cold sources where there is direct, indirect or ambient temperatures below 23F (-5C) as this will render the material brittle.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Deposit all packaging materials in appropriate container on site for recycling or reuse.
.2 Avoid using landfill waste disposal procedures when recycling facilities are available.
.3 Keep all discarded packaging away from children.

1.9 PROJECT CONDITIONS

.1 Temperature Requirements: If storage temperature is below 20C (68F), the Altro Puraguard™ wall panel and all other Altro materials must be moved to a warmer place and allowed to reach this temperature 72 hours before installation. For further information, refer to the current installation guide at www.altro.com/us, Technical Documents, Installation Guides.

.2 The panels must be stored on a level flat surface off the ground (risk of condensation on the panels if stored on damp surfaces). When stacking pallets, stacking pallets 5 high is the ideal, with 8 pallets being the maximum. Stocked pallets should be stacked flat without bumps or rolls and in a square and well aligned configuration. Safety precautions should be taken to secure pallets to prevent shifting or falling.

.3 Maintain air temperature and structural base temperature at installation area between 20C (68F) and 27C (80F) for 72 hours before, during and after installation.

.4 Allow sufficient time for proper preparation, installation and curing.

.5 Close spaces to traffic during installation until the installer is satisfied that the adhesive has set.

.6 Verify permanent HVAC is operational. If temporary heat is required, use electric or indirect heat sources. Do not use kerosene or propane in direct contact with the ambient air. Verify other finishing operations, including painting, have been completed.

.7 If more than one pallet of material is used, use material in sequence. Panels and all other materials must be checked for defects before installation. Do not install materials with visible defects or known issues. Document issue with photographs including original packaging and contact your Altro distributor.

.8 Altro Puraguard™ panels must be installed on solid substrates. Ensure that the area is smooth, clean, dry and flat. Debris, loose paint, plaster, dust and any potential contaminants must be removed. Very absorbent /porous substrates (particularly plaster finishes and unprimed sheetrock) must have one coat of water-based primer (Valspar, Glidden, Benjamin Moore or equal) applied to the surface a minimum of 12 hours prior to installation.

1.10 WARRANTY

.1 Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

.2 Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

.3 Warranty Period for Altro Puraguard™ shall be 5 years commencing on Date of Substantial Completion. Please see current Altro Product Warranty online at www.altro.com/us,Technical Information, Warranty.

.4 A Labour Warranty period of 2 years should be agreed upon and supplied by the sub-contractor

awarded to install Altro Puraguard.

1.11 EXTRA MATERIALS

.1 Provide extra materials of product and adhesives in accordance with Section 01 78 00 - Closeout Submittals.
.2
.3 Provide 144 sq.ft (13.38m2) of extra materials in one piece and from same production run as installed materials.
.4 Clearly identify each wall panel and each container of adhesive.
.5 Deliver to Consultant, upon completion of the work of this section and store where directed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

.1 Manufacturer: Altro
CANADA: 6221 Kennedy Road, Unit 1, Mississauga ON, L5T 2S8
Toll-free: 800.565.4658 Fax: 905.564.0750
E-mail: support@altro.com Web Site: www.altro.com/us

2.2 PVC WALL PROTECTION

.1 Altro Puraguard™ is a semi-rigid PVC panel:
Thickness .080" (2.0 mm); 4’ (1.22m) wide x 9’ (2.44m) high, weight is 21.05 lbs (9.5 kg)

.1 Salt W139

2.3 ACCESSORIES

.1 Joint Strip 10’:
.1 1-Part Joint Strip – Salt G731

.2. Start and Edge Trim 10’:
.1 1-Part Start and Edge Trim – Salt G733

.3 Corners, Covers and Gasket Trims 10’:
.1 Internal/External Corner – Salt A826
.2 External Corner Cover – Salt A839
.3 Altrotite Gasket Trim for dry areas only – Salt A840

.4 Optional Accessories:
.1 Stainless Steel Corner Protector – Brushed Steel A861, Dimensions: 4’ x 3” x 3”
.2 C4 Cap Strip 6’ H shape – Salt C4CAP
.3 C8 Cap Strip 8’2: H shape – Salt C8
.4 C7 Cap Strip 8’2”: Salt

.5 Acrylic Adhesive: For dry, climate-controlled areas, porous and even substrates use Altro W157, one-part, water-based, acrylic adhesive as recommended by the manufacturer.

.6 Polyurethane Adhesive: The default adhesive for most installations, suitable for wet areas, non-climate-controlled areas, and non-porous substrates, use Altro W39, a two-part polyurethane adhesive as recommended by the manufacturer.

.7 Spray Adhesive: For approved substrates (contact Altro) use Altro W147, a versatile water-based acrylic blend spray adhesive.

.8 Sanitary Sealant:
.1 Altro Sanitary Sealant UC 10.5 oz tube – White A802

2.4 SOURCE QUALITY

.1 Source Quality: Obtain wall products from a single manufacturer.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog, installation instructions and product label instructions for installation. Obtain these documents at www.altro.com/us, Technical Documents, Installation Guides.

3.2 EXAMINATION

.1 Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions found at www.altro.com/us, Technical Documents, Installation Guides.

3.3 SUBSTRATE PREPARATION

.1 Walls should be flat, smooth and level. High points must be removed and low points filled with filler intended for the substrate and environmental conditions.
.2 Surfaces must be permanently dry, free from dust and all substances that may contribute to adhesive bond failure.
.3 Remove loose paint and conduct an adhesive bond test with paint. Contact Altro when in doubt.
.4 Exterior walls must be adequately damp-proofed and insulated.
.5 Dry wall substrates should be paint ready.

3.4 PREPARATION

.1 All surfaces and working environments must be free from dust and debris and cleaned prior to Altro Puraguard™ installation. Refer to the Altro Puraguard™ Installation Guide found at www.altro.com/us, Technical Documents, Installation Guides. Failure to comply with these conditions will reduce the bond strength between the adhesive and substrate and may cause the Altro Puraguard™ panels to de-bond.

.2 Very absorbent /porous substrates (particularly plaster finishes and unprimed sheetrock) must have one coat of water-based primer (Valspar, Glidden, Benjamin Moore or equal) applied to the surface a minimum of 12 hours prior to installation.

.3 All electrical switches, power points etc., should be in a first fix / installation state. All electrical equipment should only be moved or altered by a qualified electrician.

.4 Do not drill holes through the panels unless required for equipment, drilled holes may not be repairable.

.5 All plumbing should have pipework removed to a first fix or installation state and "tails" left protruding from the substrate. Altro Puraguard™ panels can then be drilled and slid over the pipe tails. All holes should be drilled 1/8" (3 mm) oversize to allow for expansion, then sealed with Altro Sanitary Sealant UC Plumbing should always be done by a qualified plumber.

.6 Hot pipes and steam pipes should be insulated and a 1/4" (6 mm) expansion gap should be created when installing panels around these pipes, then sealed with Altro Sanitary Sealant UC.

.7 All pipes, fixing bolts, etc. extending through the Altro Puraguard™ panels should have a minimum 1/8" (3mm) expansion gap and be sealed using Altro Sanitary Sealant UC.

.8 If fitting to door frames, these must be in place prior to installation of Altro Puraguard™.

.9 Prior to installation, it is advisable to complete any painting which comes in contact with Altro Puraguard™ as the Altro Sanitary Sealant UC used at junctions is non-paintable.

.10 Panels should be stored flat and be pre-conditioned a minimum of 72 hours in ambient temperatures similar to the prevailing operational conditions.

.11 The panels must be stored on a level flat surface off the ground (risk of condensation on the panels if stored on damp surfaces). When stacking pallets, stacking pallets 5 high is the ideal, with 8 pallets being the Maximum. Stacked pallets should be stacked flat without bumps or rolls and in a square a well-aligned configuration, safety precautions should be taken to secure pallets to prevent shifting or falling.

.12 First, check the room using a 6' (2 m) level to ensure all walls are flat, paying particular attention to the corners, window reveals, and door entrances. These need to be inspected to ensure they are free of any debris or irregularities which could prevent the panels from laying flat to the substrate after the adhesive has been applied and the panel installed.

3.5 INSTALLATION

.1 Altro Puraguard™ Wall Panel Installation: Install Altro Puraguard™ in accordance with the current Altro Puraguard™ Installation Guide posted on our website at www.altro.com/us, Technical, Installation Guides.

.2 Prior to installing each panel, peel back the protective film at a corner to ensure colour, sheet and product, match what is required, and what has been installed. If defects or other issues are found, do not continue installation. Document issue with photographs, including original packaging and contact your Altro distributor

.3 Once all panels and joints are installed, remove protective film and clean all surfaces down with antistatic solution or antistatic wipes. This is required as the panel may have static build up and any dust in the atmosphere will adhere to the surface of the panel.

.4 Do not install near open heat sources, or any device that radiates, conducts or expresses heat (high or low) including but not limited to heaters / radiators, stoves-all types, conduction plates, ovens, etc. Stainless steel panels should be used in such areas. Do not install near cold sources where there is direct, indirect or ambient temperatures below -5C (23F) as this will render the material brittle.

3.6 FIELD QUALITY REQUIREMENTS

.1 Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.1 Site Visits: [Specify number and duration of periodic site visits].

3.7 CLEANING

.1 Altro Puraguard™ can be cleaned with a diluted soap/detergent solution, see current maintenance at www.altro.com/us, Technical Documents, Maintenance Guides.

.2 When cleaning the Altro Puraguard™ surface, we recommend the temperature of water does not exceed 60C (140 F).

.3 Pressure cleaning with hot water (see note above) may be used with the pressure nozzle a minimum of 2 feet (600mm) away from the surface, not recommended with acrylic adhesive installations.

.4 To reduce the buildup of static, cleaning the panels with an anti-static solution is recommended.

.5 For stubborn scuff marks, please contact Altro for assistance.

.6 Remove construction debris from project site and legally dispose of debris.

3.8 PROTECTION

.1 Do not install near open heat sources, or any device that radiates, conducts or expresses heat (high or low) including but not limited to heaters / radiators, stoves-all types, conduction plates, ovens, etc. Stainless steel panels should be used in such areas.

.2 Altro hygienic wall products should not be installed in areas where it is subject to heat above 140F (60C) which will distort and damage the material, stainless steel panels should be used in such areas. Altro hygienic wall products should not be installed in areas subject to cold temperatures below -5C (23F) which will render the material brittle.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Division 1, General Requirements is a part of this section and shall apply to this section. Conform with requirements of all sections of the General Requirements and any supplements and/or addenda, as it applies to the work of this section.

.2 Supply all labour, materials, tools and equipment necessary to properly execute and complete all painting and finishing according to the drawings and as specified herein. Paint Finish to be pin hole free to CCAC and OMAFRA standards.

.3 Colour Schedule and drawings will be issued by the Consultant for colour locations following award of contract.

1.2 RELATED SECTIONS

.1 Section 05 50 00 - Metal Fabrications: Shop primed items.

.2 Section 06 20 00 – Architectural Woodwork and Millwork.

.3 Section 09 16 21 – Gypsum Board Assemblies.

.4 Division 23 - Heating, Ventilating, and Air-Conditioning (HVAC).

.5 Division 26 – Electrical: Electrical identification.

1.3 REFERENCES

.1 ASTM C472-99(2009) - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete.

.2 CSA-A23.1-09/A23.2-09 - Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

.3 OPCA (Ontario Painting Contractors Association) - Architectural Painting Specification Manual.

.4 Paint systems shall be “Premium Grade” as referenced in the Systems Selection Guide of the MPI ASPM.

.5 CCAC – Canadian Council on Animal Care.

.6 OMAFRA – Ontario Ministry of Agriculture, Food and Rural Affairs.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Provide data on all finishing products.

.3 Samples: Submit two (2) samples, 216mm x 280mm (8½" x 11") in size illustrating range of colours available for each surface finishing product scheduled at least 30 days before materials are required.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submittal procedures.

.2 Installation Data: Manufacturer's special installation requirements indicating special surface preparation procedures, substrate conditions requiring special attention.

.3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Closeout Submittals.

.2 Extra Stock Materials:

.1 Deliver to Owner on completion of painting and finishing, and as he directs, sealed containers of each finish painting material applied, and in each colour. Label each container as for original, including mixing formula. Provide 1L of extra stock when less than 50L are used for project, 4L of extra stock when 50 to 200L are used, and 8L of extra stock when over 200L are used.

.2 Submit to the owner, for endorsement, an Extra Stock Certificate as verification of receipt of the specified extra stock materials.

1.7 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordination: Coordinate with other work having a direct bearing on work of this section.

.3 Coordinate the Work of this Section with work of other trades for proper time and sequence to avoid construction delays.

.4 Pre-Installation Meeting: Convene pre-installation meeting after Award of Contract and two weeks prior to commencing work of the Section to verify requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's written installation instructions.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.

.2 Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience and approved by the manufacturer.

.3 Single Source Responsibility: Ensure primary materials provided in this Section are obtained from 1 source by a single manufacturer and secondary materials are obtained from sources recommended by primary materials manufacturers.

1.9 REGULATORY REQUIREMENTS

.1 Conform to applicable code for flame and smoke rating requirements for finishes.

.2 Apply coatings that require fire hazard classification exactly as specified in Underwriters' Laboratories test specification that validates specified rating.

.3 Coatings shall meet fire hazard classification requirements of jurisdictional authorities for each material in each installation location as applicable.

.4 Fire retardant coatings shall meet fire hazard classification requirements of jurisdictional authorities for each installation location.

.5 Fire hazard classification ratings shall not exceed for:

.6 Flame Spread: not to exceed the ratings.

.1 Smoke Developed and Fuel Contributed: Shown in Section 3.1.12.1 and 3.1.13.2 of the Ontario Building Code 2012.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01 61 00: Product Requirements, handle, store, and protect products.

.2 Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

.3 Container label to include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, colour designation, and written instructions for mixing and reducing.

.4 Store paint materials at minimum ambient temperature of 7°C (45°F) and a maximum of 32°C (90°F), in ventilated area, and as required by manufacturer's written instructions.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

.2 Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

.3 Minimum Application Temperatures for Latex Paints: 7°C (45°F) for interiors; 10°C (50°F) for exterior; unless required otherwise by manufacturer's written instructions.

.4 Minimum Application Temperature for Varnish 21°C (70°F). Finishes: 18°C (65°F) for interior or exterior, unless required otherwise by manufacturer's written instructions.

.5 Provide lighting level of 860 lx (80 ft candles) measured mid-height at substrate surface.

.6 Ensure that all areas in which paint is applied are well ventilated and broom clean.

.7 Do not finish wood surfaces that contain over 15% moisture.

.8 Do not apply finishes on porous surfaces such as concrete, plaster, wall board, pipe insulation, masonry, that contain over 12% moisture.

.9 Do not apply finishes when dust is being raised.

.10 Do not apply finishes when relative humidity is over 85%, when condensation has formed or is likely to form, nor immediately following rain, frost or formation of dew.

1.12 WARRANTY

.1 Warrant work of this Section for period of 1 year against defects and deficiencies in materials and workmanship in accordance with General Conditions of the Contract. Promptly correct defects or deficiencies which become apparent within warranty period, to satisfaction of Consultant and at no additional expense. Material Defects include but are not limited to: material cracking and splitting. Workmanship defects include but are not limited to: bubbling, blistering and delamination.

PART 2 PRODUCTS

2.1 MANUFACTURERS

.1 Products of the following manufacturers are acceptable subject to conformance to requirements of drawings, schedules and specifications.

.1 Benjamin Moore & Co. Ltd.

.2 Para Paint.

.3 Dulux Paints.

.4 Canadian Industries Ltd.

.5 Olympic Stains, Canfor Limited.

.6 Pratt & Lambert Inc.

.7 Sherwin-Williams Of Canada Ltd.

.8 Sikkens Stains, Thomes (Canada) Ltd.

.9 Flame Control Coatings

.2 All painting materials products are to be similar to **Ultra Spec Scuff-X** by Benjamin Moore & Co.

.3 All materials used on the work shall be exactly as specified in quality. No claim by the Painting Trade to the unsuitability or unavailability of a material specified, or his willingness to use same or his inability to produce first-class work with same, will be entertained, unless such claims are made in writing and submitted with his bid. All paint, varnishes, enamels, lacquers, stains, paste fillers and similar materials must be delivered in the original containers with the seals unbroken and labels intact.

.4 Paint materials to conform to MPI Standards listed in finishing formulae and as supplied by MPI Approved Product List manufacturers.

.5 Paint materials for each coating formulae to be products of a single manufacturer.

.6 All materials shall be used only as specified by the manufacturer's direction label on the container.

.7 All painting materials, such as linseed oil, shellac and turpentine shall be pure and of highest quality and approved by the Consultants. They shall bear identifying labels on the containers.

.8 Materials shall not exceed Flame Spread, Fuel Contributed and Smoke Developed ratings permitted by the Ontario Building Code, and Ontario Fire Marshal for rooms specified to receive application.

.9 Low VOC or zero VOC paints to be used for interior work.

2.2 MATERIALS

.1 Coatings: **Ultra Spec Scuff-X** by Benjamin Moore & Co. (or approved alternate) Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating; good flow and brushing properties; capable of drying or curing free of streaks or sags.

.2 Interior Intumescent Latex Paint: Flame Control E-119 2 Hour rating low VOC water based product.

.3 Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

.4 Patching Materials: Latex filler.

.5 Fastener Head Cover Materials: Latex filler.

2.3 MIXING

.1 Refer to room finish plans for surface finishes.

.2 Paints shall be supplied ready-mixed unless otherwise specified. Do not incorporate adulterants.

.3 Mix specified paste or powder coatings, or those that are field-catalysed at job, to meet specified requirements of manufacturer. Otherwise, all paints shall be shop tinted.

.4 Pigment shall be well ground to form a soft paste in the vehicle during its storage life. Paddle mixing at job shall evenly disperse paste throughout mixture to ensure paint of smooth-flowing, easy brushing, consistency.

.5 Mix paints only in mixing pails placed on suitably sized, non-ferrous or oxide resistant metal pans.

2.4 PAINT COLOURS (PT)

.1 Paint Colours:

.1 As selected by Consultant at a later date;

PART 3 EXECUTION

3.1 EXAMINATION

.1 Test shop applied primer for compatibility with subsequent cover materials.

.2 Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:

.1 Plaster and Gypsum Wallboard: 12%.

.2 Masonry, Concrete, and Concrete Unit Masonry: 12%.

.3 Interior Wood: 15%.

.4 Exterior Wood: 15%.

.5 Concrete Floors: 8%.

.3 Defective painting and finishing applications resulting from failure to properly test surfaces and/or from application to unsatisfactory surfaces will be considered the responsibility of this Section.

.4 Commencement of work implies acceptance of previously completed work.

3.2 PREPARATION

.1 Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

.2 Correct defects and clean surfaces which affect work of this section. Remove existing coatings that exhibit loose surface defects.

.3 Seal with shellac and seal marks which may bleed through surface finishes.

.4 Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

.5 Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high-pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.

.6 Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply compatible sealer or primer.

.7 Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.

.8 Concrete Floors: Remove contamination; acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

.9 Copper Surfaces Scheduled for a Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.

.10 Copper Surfaces Scheduled for a Natural Oxidized Finish: Remove contamination by applying oxidizing solution of copper acetate and ammonium chloride in acetic acid. Rub on repeatedly for required effect. Once attained, rinse surfaces with clear water and allow to dry.

.11 Wall Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

.12 Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

.13 Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

.14 Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

.15 Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.

.16 Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

.17 Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.

.18 Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.

.19 Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied.

.20 Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied.

.21 Wood and Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

3.3 APPLICATION

.1 Apply products to manufacturer's written instructions. **Pin hole free application**.

.2 Do not apply finishes to surfaces that are not dry.

.3 Apply each coat to uniform finish.

.4 Apply each coat of paint slightly darker than preceding coat unless otherwise approved.

.5 Sand metal wood lightly between coats to achieve required finish.

.6 Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.

.7 Allow applied coat to dry before next coat is applied.

.8 Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

.9 Prime concealed surfaces of interior exterior woodwork with primer paint.

.10 Prime concealed surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25% with mineral spirits.

.11 Finish glazing rebates before glazing commences.

.12 Do not paint caulked joints.

.13 Remove splatters of finished material from adjacent surfaces, including glass, before they set up, and by methods not harmful to the surfaces.

.14 All existing walls that require only a portion of the wall to be painted, shall be painted to the nearest corner and/or door frame or similar major elements as directed by the consultant.

3.4 FIELD QUALITY CONTROL

.1 Section 01 45 00: Quality Control.

.2 Arrange for periodic visits to site by paint manufacturers' representatives while painting and finishing applications are in progress. On each visit he shall verify that specified materials and methods are used, and that procedures agreed upon at the initial site meeting are followed.

.3 Manufacturers' representatives shall submit reports of each site visit to the Consultant as specified.

3.5 PAINTING SCHEDULE

.1 General

.1 This Section shall include painting and/or finishing of all surfaces exposed to view that have been installed with no final finish provided by the installer, unless otherwise specified.

.2 Finish interior surfaces, including objects within each area unless otherwise excluded, as indicated on Room Finish Plans.

.3 Wall surfaces partially finished with other finish materials shall have remainder of surfaces finished as for surrounding surfaces.

.4 Finish equipment, panels, fitments, services, structure, attachments, accessories, prime coated hardware, or similar appurtenances on or near finished surfaces to match finish of the surface.

.5 Finish edges and tops of trim, projecting ledges, fitments, cupboards, and similar surfaces to match adjacent surfaces, whether or not they are above or beyond sight lines.

.6 Finish interiors of alcoves, recesses, closets, cupboards, fitments, and similar spaces to match adjacent surfaces unless otherwise indicated.

.7 Finish surfaces visible through grilles, grille cloth, perforated metals, screening, convector covers, louvres, linear metal ceilings, and other openings, including inside of ductwork, with two coats of matte black paint. If it is the intention that finished surfaces be seen behind the elements listed above, finish the surfaces to match adjoining surfaces.

.8 Finish exposed wood and exposed ferrous metals, whether primed or galvanized or not, on surfaces that are indicated as unfinished.

.2 Doors and Drawers

.1 Finish wood edges of doors and drawers and edges of metal doors exposed to view with the same number of coats of material and colour adjoining surface finishes. Where not exposed to view, finish with two coats of varnish.

.2 Paint exposed plywood edges of doors to match stained finish.

.3 Paint metal door grilles to match door faces.

.4 Finish interior of drawers with two coats of natural varnish, except when prefinished.

.5 Ensure that all joints around openings for access panels and access doors are not to be bridged with paint.

.3 Finishing Mechanical and Electrical Equipment

.1 Refer to Division 23 and Division 26 for schedule of colour coding and identification banding of equipment, duct work, piping, and conduit.

.2 Paint shop primed equipment.

.3 Paint shop prefinished items occurring at interior areas.

.4 Remove unfinished louvres, grilles, covers, and access panels on mechanical and electrical components and paint separately.

.5 Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are prefinished.

.6 Paint interior surfaces of air ducts convector and baseboard heating cabinets that are visible through grilles and louvres with one (1) coat of flat black paint, to visible surfaces. Paint dampers exposed behind convector and baseboard heating cabinets, louvres, grilles to match face panels.

.7 Paint exposed conduit and electrical equipment occurring in finished areas.

.8 Paint both sides and edges of plywood backboards for electrical and telephone (1) equipment before installing equipment.

.9 Colour code equipment, piping, conduit, and exposed duct work in accordance with colour schedule.

.10 Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

.4 Steel lintels where exposed to view.

.1 Interior ferrous metal hardware, fasteners and accessories.

.2 Interior galvanized hardware, fasteners and accessories.

.3 Exterior ferrous metal hardware, fasteners and accessories.

.4 Exterior galvanized hardware, fasteners and accessories.

.5 Sheet metal ducts in interior spaces where exposed to view.

.6 Access doors.

.7 Unfinished or primed convector covers.

.8 Unfinished or primed baseboard units.

.9 Prime painted louvres, grilles, and diffusers at interior.

.10 Prime painted louvres, grilles, and diffusers at exterior.

.11 Prime painted fire hose and extinguisher cabinets.

.12 Prime painted electrical panel doors and frames.

.13 Fill pipes.

.14 Electrical service entry.

.15 Mechanical, electrical and other equipment and accessories on roof.

.5 Surfaces That Require No Finishing

.1 Painting or finishing of the following surfaces is not included in this Section:

.1 Plastics; metals with porcelain enamel, baked enamel or plated finishes; sound absorbent surfaces; vitreous, glazed ceramic or plastic facings; special coatings; factory finished surfaces as specified in other Sections; control panels, circuit breakers, switches, receptacles or similar electrical

components; or name and specification plates on equipment; ducts, pipes and conduit concealed from view.

.6 Gloss

.1 Gloss value shall be determined in accordance with ASTM D523 Tentative Method of Test for 60° specular gloss.

.7 Gloss values for terminology specified shall be: less than 10 for flat, 10 to 35 for eggshell, 35 to 60 for semi-gloss, 60 to 80 for gloss, 80 to 90 for high gloss.

.8 Gloss for various areas will be submitted by Consultant following award of Contract.

.9 Schedule - Shop Primed Items for Site Finishing

.1 Section 05 50 00 - Metal Fabrications: elevator pit ladders, Exposed surfaces of lintels.

.2 Section 05 50 00 - Metal Fabrications: Exposed surfaces of stringers exposed vertical risers.

.10 Schedule - Exterior Surfaces

.1 Wood - Painted (Opaque):

.1 One (1) coat of latex primer sealer.

.2 Two (2) coats of paint finish, semi-gloss.

.2 Wood - Transparent:

.1 Two (2) coats of stain.

.3 Concrete, Concrete Block, Cement Plaster:

.1 One (1) coat of block primer.

.2 One (1) coat of primer sealer latex.

.3 Two (2) coats of paint finish, flat.

.4 Steel - Unprimed:

.1 One (1) coat of latex primer.

.2 Two (2) coats of paint finish, semi-gloss.

.5 Steel - Shop Primed:

.6 Touch-up with zinc rich primer.

.1 Two (2) coats of latex alkyd enamel, semi-gloss.

.7 Steel - Galvanized:

.1 One (1) coat galvanize primer.

.2 Two (2) coats of paint finish, semi-gloss.

.8 Aluminum - Mill Finish:

.1 One (1) coat etching primer.

.2 Two (2) coats of alkyd enamel, gloss.

.11 **Schedule - Interior Surfaces** (**Pin Hole Free Finish**)

.1 Wood - Painted:

.1 One (1) coat of latex prime sealer.

.2 Three (3) coats of paint finish, semi-gloss.

.2 Wood - Transparent:

.1 Filler coat (for open grained wood only).

.2 One (1) coat of stain.

.3 One (1) coat sealer.

.4 Two (2) coats of polyurethane, satin.

.3 Concrete, Concrete Block:

.1 One (1) coat of block filler.

.2 One (1) coat of primer sealer latex.

.3 Three (3) coats of paint finish, semi-gloss.

.4 Steel - Unprimed:

.1 One (1) coat of latex primer.

.2 Three (3) coats of paint finish, semi-gloss.

.5 Steel - Primed:

.1 Touch-up with latex primer.

.2 Three (3) coats of paint finish, semi-gloss.

.6 Steel - Galvanized:

.1 One (1) coat galvanize primer.

.2 Two (2) coats of paint finish, semi-gloss.

.7 Concrete Floors:

.1 Refer to Section 09 67 00 Epoxy Floor Coatings.

.8 Wall Board (Walls and Ceilings – **Pin Hole Free Finish**):

.1 One (1) coat of latex primer sealer.

.2 Three (3) coats of paint finish.

.9 Fire Retardant Finish.

.1 One (1) coat of fire-retardant primer.

.2 Two (2) coats of fire-retardant finish, gloss.

.10 Flame and smoke rating of 25/5.

3.6 CLEANING

.1 Section 01 74 00: Cleaning and Waste Processing work.

.2 Collect waste material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

.3 Touch up and refinish minor defective applications. Refinish entire wall, ceiling or similar surfaces where finish is damaged or not acceptable.

.4 Remove spilled or splattered finish materials from surfaces of installations provided by other Sections. Do not mark surfaces while removing.

.5 Leave storage and mixing areas clean and in same condition as equivalent spaces in Project.

END OF SECTION

PART I – GENERAL

1.01 REFERENCES

A. The Power supply unit (PSU) shall be certified under CE, UL 60950-1, second edition and CSA C22.2 No. 60950-1-07, second edition, to provide 24Vdc “class 2” supplies as part of a Fastlane Turnstile system.

B. The Fastlane GG150 turnstile system shall be available as a UL listed variant to UL 2593, Outline of Investigation for Motor Driven Turnstile Operators and Systems; CSA C22.2 No. 247, Operators and Systems of Doors, Gates, Draperies, and Louvres.

1.02 QUALITY ASSURANCE

A. Manufacturer must operate a Quality Management System that meets the ISO 9001:2008. International Standard for design, development, and manufacturing activities, including associated software products.
B. Manufacturer shall be a global supplier specializing in the design and manufacture of automatic security turnstiles with a minimum of twenty (20) years’ experience.
C. Installer shall have a minimum of three (3) years experience installing Fastlane turnstiles or similar equipment or shall supply a manufacturer-trained technician for Site Certification & Training following installation of the Fastlane Glassgate 150 Optical Turnstile with Glass Panels.

1.06 SUBMITTALS

A. Submit manufacturer’s product literature including datasheet and drawing pack for specific model, including options.

B. Provide Glassgate 150 Installation & Maintenance manual.

C. Submit site specific shop drawings detailing product placement, arrangement and wiring.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver equipment and materials to specified location in manufacturer’s packaging undamaged, complete with installation instructions.
B. Store off ground, under cover, protected from weather and construction activities. For periods of extended storage the equipment will be kept in an environment that regulates temperature and humidity.
C. Use forklift, pallet jack, or specified number of personnel for moving equipment, observing manufacturer’s safety instructions at all times.

1.08 PROJECT/SITE CONDITIONS

A. Install Fastlane Glassgate 150 Optical Turnstiles with Glass Panels on level, finished floor, and in strict accordance with manufacturer’s installation chapter in the provided Installation & Maintenance manual.

1.09 WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of optical turnstile system that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following: faulty circuit boards (PCB), infrared beams, and mechanical components. Warranty Period: 1 year from date of shipment or 2 years from installation with on-line product registration using manufacturer’s Fastlane *Connect* remote services.

PART II - PRODUCTS

2.01 MANUFACTURER

A. Integrated Design Ltd

2.02 PRODUCT

A. Fastlane Glassgate 150 with Glass Panels, NO SUBSTITUTIONS. Include the following options: TCP/IP connections, Fastlane Desktop Remote Control Unit, Fastlane Touchscreen Remote, or Fastlane Connect.

2.03 CONSTRUCTION

A. Exterior:

1. End Panels: stainless steel 304 grade 240 grit (Satin No. 4) horizontal grain (standard).
2. Side Panels: stainless steel 304 grade 240 grit (Satin No. 4) horizontal grain (standard) with polycarbonate filter windows for the infrared beams and central 10mm glass panel.
3. Encasement: stainless steel 304 grade 240 grit (Satin No. 4) horizontal grain (standard)

B. Interior Chassis:

1. Chassis framework must be black satin, powder-coated mild steel
2. 4 No. 10mm mounting studs are required to secure the baseplate to the floor substrate.

C. Decorative Tops:

1. Stainless steel 304 grade 240 grit (Satin No. 4) horizontal grain with Black Quartz Corian® for reader mounting locations.

D. Turnstile Status Display

1. Located on the Left Hand Side of each lane viewed from the entrance/exit
2. The Indicator is provided by LEDs diffused through frosted clear acrylic inset into the top of the end panel, approximate dimensions 110 x 10mm for Square End Panel and 80 x 10mm for the Round End Panel.

E. Glass Panels:

1. 10mm Toughened Safety Glass (Heat Soaked) to EN 14179 / ANSI 97.1
2. Barrier height of 846.5mm.

F. Enclosure:

1. Dimensions: Round end panel model Length 1148mm, Width 168mm, Height 965mm
2. Pedestal weight:
   a. RX/TX Pedestal 56Kg
   b. Interlane Pedestal 59Kg
   c. Standard Glass 6kg each
   d. DDA Glass 7.5kg each
   e. Unit enclosure shall provide an Ingress Protection rating of IP20.

2.04 EQUIPMENT

A. General: Two or more adjacent pedestals utilising pulsed infrared beams to create an invisible electronic field between pedestals, monitoring the passage of individuals entering and leaving a facility, discriminating between people and nuisances (such as common briefcases, umbrellas, and rolling carts); with dual swinging glass panels to physically deter unauthorised individuals from passing through the lane. A breaking force is applied to the glass panels when closed to deter an unauthorised user from pushing through. Standard Lane widths of 660mm and 914mm are available, custom lane widths may be accommodated subject to the application. All calibrations, feature set selections and diagnostics are built in to the unit managed on board by the relevant processor cards. Must not require a Windows based PC to operate.

B. Types of units: The system shall consist of a Transmit Gate Pedestal (TXG) and a Receive Gate Pedestal (RXG) to provide a single lane, and Interlane Pedestals (INT) to form additional lanes between the RXG and TXG pedestals.

C. Capabilities:

1. Detect and deter unauthorised persons from entering into the protected area.
2. Detect unauthorised persons more than 5 mm at waist height, behind an authorised person, that is “tailgating” or “piggybacking.”
3. Detect direction of movement, that is, entry and exit.
4. Verify entry into the protected area following authorisation.
5. Provide alarm outputs on detection of a violation by means of:
    a. Local sounders and indicators
    b. Remote sounder output
6. Operate in bi-directional, single direction, no entry or free access modes.
7. Minimize false alarms through the use of infrared beams connected to intelligent detection algorithms.
8. Process a high number of people without security guard intervention, unless access is rejected by the system or a system anomaly occurs.
9. Ensure a fast throughput, up to one person per second, subject to the access control system.
10. Buffering multiple inputs from an access control system to maximize throughput.
11. Easy to use.
12. Allow free movement for wheelchair users with ADA width lanes.
13. Allow safe emergency egress through a fire alarm input to open the glass panels.
14. Entry and exit with an authorised card, biometric, or other credential.
15. Entry and exit that is unauthorised causing an alarm.
16. Authorised card being read by the system but no entry or exit taking place using an optional alarm configuration.
17. Card presented for entry but exit occurring causing an alarm.
18. Card presented for exit but entry occurring causing an alarm.
19. Obstruction of an infrared beam path causing an alarm.
20. Create an alarm for a person pushing/forcing the glass panels, that is, forced entry.

21. Barrier Breakaway force greater than or equal to 40N.

D. Fastlane Optical System

1. Intelligently monitored infrared beam matrix: Up to 32 beam paths per lane.

   a. IR Beams with distributed processing for maximum signal analysis. Every 4 infrared beam paths have a dedicated microprocessor coupled to a custom-designed system controller. These technologies work together to create an “entity management” system that ‘thinks' in real time to accurately position the size, shape, and speed of individual entities in the lane.

   b. Superfluous user behavior tolerated by the software without generating an alarm condition due to:

      i. Partial passage through the beams and moving back out again.

      ii. Hesitation in the beam field for less than a pre-selected number of seconds.

      iii. Presenting a card for authorisation while within the beam-field, but before completing passage through it.

2. Access request transaction speed: Time delay of no greater than 100ms in signaling passage through the beams and readying the turnstile for the next user except when a greater delay is caused by the attached access control system.

   a. The optical system must be capable of throughput of up to 1 person per second.

   b. The system throughput including barrier operation and access control system is better than 40 persons per minute.

3. Glass Panel Control Beams: Utilise a matrix of up to 32 infrared beam paths as glass barrier control to reduce the velocity or stop the glass barrier movement in the event that a user is in the path of an operating barrier.

4. Visitor Management System: Allows an unlimited number of people to pass through the lane. Once the visitors have entered and the system no longer sees anyone entering or exiting for 3 seconds, the glass panels return to the closed position.

E. Operating Modes

   1. Optical turnstile mode – where by the glass panel barriers are positioned to the exit end of the lane and the system operates as an optical-only turnstile.

   2. Normally closed mode – where by the barriers are closed (centered within the lane) and open away from requested and authorised direction of travel.

   3. Visitor entry mode – where the turnstile opens upon visitor request and allows free travel through the turnstile without issuing an alarm. Once the visitors have entered and the system no longer sees anyone entering or exiting for 3 seconds, the beam operations return to their original security setting.

   4. Emergency – unit must have a dedicated input for integration with a fire control panel to receive fire alarm signals. When the emergency signal is activated, glass barriers will open in the exit direction and remain open to allow unobstructed passage. Once the emergency signal is deactivated, the unit must return to the operating mode immediately preceding the alarm.

5. Power Fail – unit must have glass panel barriers that open automatically with internal auxiliary power option in the event of power failure. Without this option, barriers may be easily pushed open in either direction. Once power is restored, unit must return to the operating mode immediately preceding the event.

F. Inputs:

1. Entry Request: Normally Open dry contract. Closing on request for <1 second
2. Exit Request: Normally Open dry contract. Closing on request for <1 second
3. Entry Visitor Request: Normally Open momentary closing switch contacts
4. Exit Visitor Request: Normally Open momentary closing switch contacts
5. Ethernet port

G. Outputs:

1. Voltage-free relay contacts rated 24Vdc @ 500mA for the following functions for alarm indicators, and to provide turnstile and entry and exit door emulation.
2. Output to Access control System:
   a. Access monitoring (used as confirmation of access after authorisation)
      i. Entry: Normally closed (opening for 1s)
      ii. Exit: Normally closed (opening for 1s)
   b. Alarm 1: Normally closed (opening for a minimum of 1s)
   c. Alarm 2: Normally closed (opening for 1s)
3. Two-Stage Audio/Visual Alarm System
   a. First stage notifies user and guard that someone has entered the lane without authorisation.
      i. Allows user to back up and attempt authorisation, before going into a full alarm.
      ii. Guard becomes aware that a lane violation may occur.
   b. Second stage notifies user and guard that someone has passed through the lane without authorisation.
      i. Notifies the user that they have passed through the lane without authorisation.
      ii. Guard becomes aware that a lane violation has occurred and to take appropriate action.
4. Audible Alarms: Provide foreach lane triggered in an alarm condition.
   a. Local alarm sounders.
   b. Relay Contact: utilised to trigger external alarm systems.
   c. Secondary sounder that will be triggered in the event of “forced entry,” that is, an individual tries to push through the glass panels after an alarm event.
5. Status Display: Provide foreach lane a visual indication of the status of the lane.

a. Standby–White

b. Please Proceed –Green

c. Red –Lane closed

d. Flashing Red-Alarm

H. Power Requirements:

1. Pedestal: Low voltage 24Vdc supply current1.25A nominal per barrier

a. Hazardous voltage must not be present at pedestal to ensure user safety.

2. Power Supply Unit:

a. PSU to be remotely installed.

b. PSU Wall Mounted Metal Enclosure, approximately 330mm long by 200mm wide by 136mm tall.

c. PSU input voltage 100Vac to 240Vac at 60/50Hz, connection by 5A fused spur.

I. Wiring Requirements:

1. Pedestal Wiring: Each Transmit and Receive Pedestals (pedestals with a single motor drive units) requires an independent 24Vdc supply using a minimum conductor cross sectional area of 16 AWG (1.5mm^2) e.g. Belden 8620 or similar. Interlane Pedestals (pedestals with dual motor drive units) require two independent24Vdcsupplies.

2. Fastlane System Interconnect: A CAT5 cable (provided) between the Transmit and Receive or Interlane pedestals for each lane to facilitate power, synchronization of infrared beams, and motor driver communication.

3. Earth Cables: earth connection from each pedestal to ground, using a green/yellow sleeved cable with a minimum conductor cross sectional area of18 AWG(1mm^2).

4. Card Readers: as required by access control system manufacturer (typically mounted to pedestal on the righthand side of the lane entrance).

5. Access Control Lane Integration: as required by access control system manufacturer. (typically, 10-conductor cable with a minimum conductor cross sectional area of 0.35mm2 (22 AWG))

6. Emergency Input: FP200 or similar from the Fire Panel Normally Closed relay contacts (or 24V signal) to each Interlane and Receive Pedestal.

7. Optional - IP Connect Multilane or Touchscreen: a twisted pair plus screen e.g. Belden 8302, between Receive and Interlane pedestals (for up to 8 lanes) and either an IP Connect Multi-Lane controller or Touchscreen for RS485 communications with the lanes.

8. Optional - Remote Control: 8-conductor cable with a minimum conductor cross sectional area of 22 gage (0.35mm2). Typically to reception desk or security room.

9. TCP/IP cables: An Ethernet cable is required between each Fastlane processor board and a remote location for a hub. The hub may either be connected to the Internet via a router or mobile network connection for remote support.

2.05 FACTORY TESTING

A. Fastlane Glassgate 150 Optical Turnstile with Glass Panels shall be fully assembled and staged as a system at the factory to accommodate soak testing for a period of 48 hours at a minimum to ensure proper operation and electrical connectivity. System shall be inspected for mechanical, electrical and aesthetic condition prior to packaging and shipment

2.06 SECURITY EQUIPMENT

A. Card Readers: System compatible with major access control technologies for owner-provided card readers of suitable dimensions to be mounted onto pedestals. Must support integration of multiple card readers at each mounting location by manufacturer.

1. Card Reader Mounting at pedestal ends:

a. Under, or surface-mounted on Corian decorative top part

b. Option at pedestal ends behind acrylic window or surface-mounted.

B. Manufacturer-supplied Accessories

1. Touchscreen Remote Control: Optional

a. Operational Mode Control through Touchscreen control.

i. Optical turnstile mode.

ii. Normal mode.

iii. Visitor entry

b. Provide Visitor Buttons allowing an unlimited number of visitors to pass through the lane in the entry or exit direction.

i. Once the visitors have entered and the system no longer sees anyone entering or exiting for 3 seconds, the beam operations return to their original security setting.

c. Provide indication designed to illuminate when an alarm is activated to provide a visual indication of the lane alarm status.

d. Provide real time population count.

2. Remote Console:

a. Provide Visitor Buttons allowing an unlimited number of visitors to pass through the lane in the entry or exit direction

b. Provide Alarm Indication

c. Key switch

3. IP Connect: The turnstiles will provide individual TCP/IP addresses when connected to a computer network to enable remote control of function and operation, along with remote monitoring facilities.

4. IP Connect Multi Lane:

A Multi-lane controller is available to remotely control and monitor up to 8 lanes over TCP/IP networks.

5. Floor Protectors: Modular system designed to support turnstile pedestals without need for drilling mounting bolts into floor or running a conduit under floor between pedestals for cables.

6. Fastlane Infill System: A series of decorative glass modular panels that guide users in a desired direction, while complimenting turnstile design.

2.07 ENVIRONMENTAL

A Product use:

1. Energy consumption per lane: 438kW hours per annum
2. Maintenance: Annual Interval 12 month interval minimum.
3. Indoor use only

PART III – EXECUTION

3.01 SITE EXAMINATION

A. Inspection: Installer / Integrator shall examine the installation and advise the contractor of any site conditions unacceptable for proper installation of product.

1. Finished floor substrate must be dead level within the footprint of the turnstile.

2. Main supply service for power supply and low voltage power out & control wiring must be installed.

B. Installation: Turnstiles shall be installed in accordance with manufacturer's Fastlane Installation & Maintenance manual.

C. Setup & Adjustment: Installer / Integrator shall perform initial equipment electronic adjustments to ensure proper performance after installation.

D. Instruction: Installer / Integrator with a minimum of 3 years experience installing Fastlane optical turnstiles shall furnish operator training for end user, or provide for Integrated Design Limited Site Certification & Training services during installation.

E. Cleaning: Clean metal, acrylic and glass surfaces carefully after installation to remove excess caulk, dirt, and labels.

F. Maintenance: Maintain the equipment according to the manufacturer's instructions.

END OF SECTION

PART 1 - GENERAL

1.1. GENERAL INSTRUCTIONS

1.1.1. Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2. SUMMARY

1.2.1. Work Included:

1.2.1.1. Provide Swimming Pool regrouting work, Swimming Pool tile rework and refinish, filter tank protective coatings, and chemical controller replacement, including but not limited to the following:

1.2.1.1.1. Furnish all labour, materials, equipment and services necessary to:

1.2.1.1.1.1. Provide Main Swimming Pool tank re-grouting work.

1.2.1.1.1.2. Provide tile removal and new tile installation, in deck stairs and pool tank and stair areas as noted on the drawings.

1.2.1.1.1.3. Provide existing pools chemical controller replacements.

1.2.1.1.1.4. Provide new protective finish within the existing pool filter tank.

1.2.1.1.1.5. All other Work as described herein and, on the drawings, and the supervision or approval of Work to be completed by related Contractors as referenced in this Section

1.2.1.2. All specifications and engineered plans are to be read in conjunction of one another for full project bid submission.

1.2.1.3. It is the intent of this Section to place the responsibility for the construction of all pools and spas under one vested POOL CONTRACTOR. Subletting of the Work of this Section by the General Contractor to various sub-trades will not be permitted. The POOL CONTRACTOR shall actually do at least the Work noted below and shall coordinate and verify all Work relating to the pools, pool equipment, controls and systems. Under this Section, the POOL CONTRACTOR shall provide but is not necessarily limited to:

1.2.1.3.1. POOL CONTRACTOR shall provide all scaffolding, rigging, hoisting and services necessary for erection and delivery into the premises of any equipment and apparatus furnished. Remove same from premises when no longer required.

1.2.1.3.2. POOL CONTRACTOR shall provide demo work for all existing pools and deck finishes, including the existing deck coating, as well as all previously covered tile work and related setting materials under the existing deck coating. Refer to the drawings for existing deck finish removal and replacement scope delineation area.

1.2.1.3.3. Prior to any demo work taking place, the POOL CONTRACTOR is responsible for thoroughly documenting existing tile conditions, so they can be replicated if required.

1.2.1.3.4. POOL CONTRACTOR shall provide removal of tile grout from within the existing Main Pool tank and properly prepare the pool tank for re-grouting.

1.2.1.3.5. POOL CONTRACTOR to replace main pool tank tile finishes as required after grout removal. Tile to match existing pool tank tile as close as possible . Assume 950 sq ft for entire deep end slab area noted plus any additional required tile replacement observed and provide a provisional price per sq ft to be used for required / desired changes in scope (add or remove areas).

1.2.1.3.6. POOL CONTRACTOR to review the deep end main pool tank slab areas. Currently it is noted that there are approximately 20+ cracked or broken tiles within this area, plus missing contrasting bands around the main drains. If tile can be replaced with a similar tile to create a uniform appears, the 950 sq ft of replacement tile noted above may be removed from scope to only the specific amount required (not the entire areas, just replacement tiles). Contractor to submit tile sample matching existing deep end tile for consideration and determination of actual scope of work.

1.2.1.3.7. POOL CONTRACTOR to replace pool deck stairs area finishes (treads, risers, and landings) as noted. Tiles to match existing pool deck tile as close as possible . Assume 870 sq ft of tile repairs in base bid for stair treads and landing locations noted and provide a provisional price per sq ft to be used for required / desired changes in scope (add or remove areas).

1.2.1.3.8. POOL CONTRACTOR to install new main Pool Tank grout as per the specifications. POOL CONTRACTOR to follow all manufacturers installation instruction and curing times.

1.2.1.3.9. POOL CONTRACTOR to install new tile grout in newly tiled stair and landing areas, as per the specifications. POOL CONTRACTOR to follow all manufacturers installation instruction and curing times.

1.2.1.3.10. Pool deck stair areas replacement tile to have a minimum slip coefficient (DCOF) of ≥ 0.65, to meet the recommendations of ANSI A326.3 Section 4, regarding Ramps & Inclines.

1.2.1.3.11. Pool tank deep end areas replacement tile to have a minimum slip coefficient (DCOF) of ≥ 0.42, to meet the recommendations of ANSI A326.3 Section 4, regarding Wet & Level Interior areas.

1.2.1.3.12. Provide a provisional price, as noted in 1.2.1.3.5, for tile repairs as a provisional price per sq. ft. for additional above and beyond the listed amount.

1.2.1.3.13. The POOL CONTRACTOR shall provide for the storage of equipment and materials in excess of those allowed on site by the Owner's representative.

1.2.1.3.14. The POOL CONTRACTOR shall provide and maintain proper shoring and bracing for existing utilities, sewers and building foundations in relation to the pool Work.

1.2.1.3.15. The POOL CONTRACTOR shall erect and maintain all necessary barricades and signs to protect the workmen and the public in relation to the pool Work.

1.2.1.3.16. Provide caulked joints (Schluter strip Dilex) on the pool deck at all new construction and control joints.

1.2.1.3.17. All water fillings shall be done at a rate of no more than 1" per hour (1' per day) to avoid damage to the tile finishes.

1.2.1.3.18. The POOL CONTRACTOR shall supply and install a new protective coating within the existing pool filter tank, as specified. This is to include the removal of the interior filter tank elements/accessories, cleaning the tank as per the manufacturer's instructions, and installing the new protective coating system as per the manufacturers instructions. Reinstall filter tank elements/accessories after new protective coating is completed.

1.2.1.3.19. POOL CONTRACTOR shall protect the pool from damage caused by his construction equipment and/or workmen and CONTRACTORs. General Contractor shall provide an adequate storage area and protect materials and equipment stored on job site by the POOL CONTRACTOR from damage, weather or theft.

1.2.1.3.20. POOL CONTRACTOR shall pay for all tile pull testing. All reports from such to be forwarded to Owner and Pool Consultant for verification.

1.3. QUALIFICATIONS

1.3.1. Execute Work of this Section using a company who has experience in application of Products, systems and assemblies specified, and illustrated. Perform Work using skilled mechanics trained and experienced in Work of this complexity.

1.3.2. POOL CONTRACTOR to have completed a minimum of five Class A Leisure Pools tile work with similar scope of work within the past four (4) years.

1.3.3. POOL CONTRACTOR to provide a list of referrals (projects) for similar Class A Leisure Pool tile projects, minimum five (5) projects with bid submission.

1.3.4. POOL CONTRACTOR to include a letter from the POOL CONTRACTOR'S bonding company confirming the surety's willingness to provide a 100% Performance Bond and a 50% Labour and Material Payment Bond for the General Contractor. Indicate the length of time spent with mentioned surety company and provide a named reference with the phone number. All documents to be included with bid submission.

1.3.5. POOL CONTRACTOR to use local forces and/or services as required to facilitate requirements set out within this contract (i.e., pool finishes). Local trades to have experience similar to the requirements of the POOL CONTRACTOR, as stated within these Specifications. All sub-contracted Work must be overseen and deemed acceptable by the POOL CONTRACTOR. The POOL CONTRACTOR is responsible to fulfill the requirements of these Specifications and is responsible for all sublet Work.

1.3.6. POOL CONTRACTOR to carry minimum $2 million insurance.

1.4. WARRANTY

1.4.1. The POOL CONTRACTOR warrants to the Owner that all materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The POOL CONTRACTOR warranty excludes remedy for damage or defect caused by abuse, improper or insufficient maintenance, improper operations, modifications not executed by the POOL CONTRACTOR or improper wear and tear under normal use and acts of god. The chemical balance of the pool water must conform to standard swimming pool guidelines and must be maintained as recommended in the manuals to prevent damage.

1.4.2. All warranties shall be for a period of two (2) years from the date of substantial performance of the Work, subject to the manufacturer's warranty.

1.4.3. The POOL CONTRACTOR shall agree to repair or replace any Work at no cost to the Owner upon written notification from the Owner within the warranty periods.

1.5. ALTERNATES

1.5.1. POOL CONTRACTOR to submit his bid based on materials, equipment and methods as specified in this Section. No substitution of materials will be allowed.

1.5.2. It is the intent of the Contract Documents to encourage competition. The base proposal must be based on furnishing the construction methods and equipment as specified and detailed. Any proposed system substitution must have prior approval by the Consultant minimum five (5) business days prior to the closing date.

1.5.3. All proposed substitutions of specified construction methods and equipment shall include a complete submittal as required by these Specifications and Drawings of appropriate scale incorporating all required changes. All submissions shall be stamped by a registered Professional Engineer (P. Eng.). The POOL CONTRACTOR shall provide a list of at least ten (10) satisfactory installations comparable to this project that have been manufactured and installed under the contractor's current legal name. Submit a list of such projects with the name, address and current telephone number of the Owner/Operator and Architect of Record to the Architect at least ten (10) days prior to the bid date.

1.5.4. The Consultant will issue an addendum if the substitutions are approved.

1.5.5. Any changes or modifications to the Contract Documents shall be the sole responsibility of the POOL CONTRACTOR.

1.5.6. Bidders shall provide with their bid any approved alternate proposals and amount of savings.

1.6. SUBMITTALS

1.6.1. All submittals shall be made in accordance with the requirements of Division 1 – General Requirements and in strict compliance with the following procedures and guidelines.

1.6.2. Shop Drawings and engineering data shall be in accordance with requirements of Division 1.

1.6.3. All submittals shall be sent to the consultant for review and approval within 4 weeks of project start-up, and in one complete package. Separate submittal package for each piece of equipment/item of install will not be accepted.

1.7. PRODUCT DELIVERY, STORAGE AND HANDLING

1.7.1. Deliver materials in manufacturer's original, unopened containers and crates with all labels intact and legible.

1.7.2. Deliver materials in sufficient time and quantity to allow continuity of work and compliance with approved construction schedule.

1.7.3. Handle materials in a manner to prevent damage.

1.7.4. Store all materials on clean raised platforms with weather protective covering when stored outdoors. Provide continuous protection of materials against damage or deterioration.

1.7.5. Remove damaged materials from site.

1.8. SPECIFICATION ISSUES LOG

REV NO.	ISSUE	DATE
A	Issued For Tender	June-2026

END OF SECTION

PART 1 - GENERAL

1.1. GENERAL INSTRUCTIONS

1.1.1. Read and conform to The General Conditions of the Contract, Supplementary Conditions and Division 01 requirements and documents referred to herein.

1.1.2. The Specification is based on setting and grouting materials supplied by Laticrete and tiles by Dal-Tile.

1.2. SUMMARY

1.2.1. Work Included:

1.2.1.1. Supply labour, materials, plant, tools and equipment to complete the Work as shown on the Drawings and as specified herein, including but not limited to the following;

1.2.1.1.1. Tile replacement in the existing Main Pool Deep End, Main Pool Stairs, Hot Pool Stairs, Leisure Pool Stairs, and Deck stairs, where noted.

1.2.1.1.2. General Contractor to arrange for third party inspection and pull test with company familiar with Natatorium applications. i.e. Rimkus, etc.

1.2.1.1.2.1. Pull test to be done with finished pool deck tile.

1.2.1.1.3. Surface preparations to meet or exceed ICRI – CSP # 3 standards, or as required by manufacturer's recommendation for product applications.

1.3. REFERENCES

1.3.1. Terrazzo, Tile & Marble Association of Canada (TTMAC) – Tile Specification Guide 09 30 00 – current edition.

1.3.2. The Tile Council of North America (TNCA) and any relevant ANSI / ASTM standard, Including EJ101 regarding Movement Joints.

1.4. SUBMITTALS

1.4.1. Submit samples of all tiles. Submit individual sample panels of each colour of ceramic tile, set with adhesive, grouting and bonding method as specified, showing quality, colour and finish of material, grout and pattern of tiles. Ensure each panel is minimum 600 mm X 600 mm (24" x 24").

1.5. QUALITY ASSURANCE

1.5.1. Qualifications:

1.5.1.1. Provide product of company specializing in manufacture of ceramic tile, porcelain tile, mosaics, pavers, trim units and thresholds with minimum experience of five (5) years.

1.5.1.2. Provide test reports if requested to substantiate that products supplied on this project will be of consistent quality in appearance and physical properties.

1.5.1.3. Execute Work of this Section using a company who is a member in good standing with TTMAC and has minimum five (5) years successful experience in application of products, systems and assemblies specified. Perform tile work using skilled mechanics trained and experienced in work of this complexity.

1.5.1.4. Perform Pull Test with finished product sample within all pool tanks. Test to be performed by 3rd party testing agency. All associated costs associated with testing, re-testing to be the responsibility of the General Contractor.

1.6. DELIVERY AND STORAGE

1.6.1. Coordinate deliveries to comply with construction progress schedule and arrange for above ground, under cover storage before materials are delivered to site.

1.6.2. Prevent damage to materials and products during handling and storage.

1.6.3. Protect adhesives, additives, mortar mixes and grouts from freezing, moisture and excessive heat during transportation and storage. Maintain temperatures in storage area between 15º C (59 º F) and 20 º C (68 º F).

1.7. PROJECT CONDITIONS

1.7.1. Do not perform Work of this Section at temperatures below 12°C (54°F) when using Portland cement mortars or dry set mortars, latex Portland mortars or bond coat. Maintain temperature between 12°C (54°F) and 32 º C (90 º F).

1.7.2. Observe manufacturer's recommended working temperatures for installation of adhesives and grouts.

1.7.3. Protect Work of this Section against damage by other trades during application and for three (3) days after application.

1.8. WARRANTY

1.8.1. Refer to item **"WARRANTY"** in Specification Section 13 01 00.

1.9. MAINTENANCE

1.9.1. Extra Materials:

1.9.1.1. Supply in addition to quantities required for Work, extra materials and products to be stored by Owner as follows:

1.9.1.1.1. Provide 5% extra stock of each type of tile and special units.

1.9.1.1.2. Deliver extra stock to Owner as soon as permanent, locked storage facilities are available. Place extra stock in designated storage area where directed.

1.9.2. Maintenance Instructions:

1.9.2.1. Submit maintenance instructions in accordance with general requirements. Provide Owner with three (3) copies of TTMAC Maintenance Guide. Include specific warnings of any maintenance practices or materials which may damage or disfigure tile work.

PART 2 - PRODUCTS

2.1. MATERIALS

2.1.1. Tile installation materials shall be as manufactured by Laticrete, to provide an integrated installation system. Other manufacturers' products may be approved as equal provided the terms of the warranty as noted above are met, and the alternate is reviewed and approved by the Consultant. Tile installation products by Mapei can be considered as equal assuming prior approval of each specific substituted product by the Pool Consultant prior to tender close.

2.1.1.1. Thin Set mortar Bond Coat: Conform to TTMAC requirements, ANSI A118.1.

2.1.1.2. Thin Set Mortar: Laticrete 254 Adhesive.

2.1.1.3. Mortar Bed and Leveling Coat: Laticrete 3701 Fortified Mortar Bed.

2.1.1.4. Grout: ANSI A118.3 Laticrete SpectroLOCK® PRO Grout. Epoxy adhesive to be chemical resistant, water cleanable tile-grouting epoxy shall meet the requirements of the manufacturer. Colour per later selection by the Architect.

2.1.1.5. Expansion, movement, and control joint Sealant, Laticrete Latasil with 9118 Primer. Expansion and control joint sealant to be one component, neutral cure, and exterior grade silicone sealant and meet the requirements of the manufacturer.

2.1.1.6. Ceramic Tile:

2.1.1.6.1. Porcelain Mosaic, beveled edge, dot mounted, 25mm x 25mm including all trims and pieces as manufactured by Dal-Tile. Provide cove base at floor wall joint. Tile as manufactured by American Olean in corresponding colour groups are acceptable alternates.

2.1.1.6.2. All colours shall be as selected by Architect /Owner from price groups indicated.

2.1.1.7. Provide approval of alternates to the system five (5) days prior to bid closing. Changes not approved before bid date will not be accepted.

PART 3 - EXECUTION

3.1. EXAMINATION

3.1.1. Verify existing conditions and finishes are ready to receive specified tile work. Ensure backings are structurally sound, level, and plumb within required tolerances. Notify Consultant in writing of unacceptable substrate conditions. Beginning of installation implies acceptance of existing conditions.

3.1.2. Ensure compatibility of adhesives with adjacent substrate and component coming in contact with these products.

3.1.3. Pressure blast with a minimum of 20,000 psi of pressure on all concrete surfaces. Provide proof of the pressure rating to the Consultant, or as per manufacturer's requirements for proper surface preparation.

3.1.4. Allow to cure twenty-eight (28) days. Referencing SSPC-SP13/NACE 6, prepare surfaces for coating utilizing abrasive blasting or grinders to achieve surface profile comparable to ICRI CSP-3 or CSP-4. Care should be exercised to avoid exposing underlying aggregate.

3.1.5. Tile finish to be in accordance with ANSI 7 standards for slip resistance. Slip resistance on all pool ramps and pool steps to be abrasive non-slip.

3.2. PREPARATION

3.2.1. Engage the manufacturer's representative for inspections and surface preparations are suitable for product application. Manufacturer to provide in writing and on company letter head the status of the inspection and required preparation.

3.2.2. Clean substrate surfaces to receive ceramic tile. Ensure surface is dimensionally stable, cured free of contaminants such as oil, sealants and cured compound. Ensure concrete cures for a

minimum of twenty-eight (28) Days with a steel trowel and fine broom finish for thin set application; screed finish for mortar bed applications.

3.2.3. Ensure mortar bed application substrate surface variation does not exceed 6 mm in 3000 mm (1/4" in 10') thickness.

3.2.4. Ensure thin set application substrate surface variation does not exceed 6 mm in 3000 mm (1/4" in 10') thickness. Above 6 mm (1/4") correct irregularity by mortar bed method.

3.2.5. Review setting out point with Consultant for each location, verify patterns and edge conditions.

3.2.6. Verify expansion joints have been installed properly.

3.3. INSTALLATION

3.3.1. Install tile in accordance with TTMAC Specification Guide 09 30 00 "Tile Installation Guide".

3.3.2. Lay out tile so that field or patterns are centered on wall and floor areas, or conform architectural details so no tile less than ½ size occur. No cut tiles are allowed at finished ceiling level. Align joints in walls, bases and floors, where tile sizes accommodate. Provide uniform joint widths throughout.

3.3.3. Prior to installation ensure back of each tile is free from contaminants. Distribute production run variations evenly, maintaining continuity of appearance.

3.3.4. Arrange accessories in tile work so they are spaced evenly, centered with joints and set true with proper and adequate projection conforming to manufacturer's recommendations.

3.3.5. Make sure tile has adequate solid backing. Ensure corner and edges are fully supported by bonding material. Avoid slippage. Ensure tile installation has a minimum of 95% bond coverage by back buttering or other approved techniques.

3.3.6. Fill joints with grout in accordance with TTMAC guidelines.

3.3.7. Control Joints: Provide control joints in accordance with TTMAC guidelines.

3.3.8. Movement Joints: Provide movement joints in accordance with the Tile Council of North America (TNCA), EJ171. Movement joint to be spaced as per this document, which states the following:

- Interior – 30' to 25' in each direction
- Exterior – 8' to 12' in each direction
- Interior tilework exposed to direct sunlight or moisture – 8'-12' in each direction

Refer to EJ171 for further details regarding spacing, joint sizing, and materials,

3.3.9. Allow minimum 24 hours after setting prior to grouting. Do not permit foot traffic for a minimum of 48 hours.

3.3.10. Protect all areas with cardboard or suitable and durable material or by keeping traffic off finished area unit ready for occupancy.

3.3.11. Completed work shall be free of broken, damaged or faulty tile.

3.4. CLEANING

3.4.1. Upon completion remove protective coverings and clean down finished Work of this Section leaving it in perfect condition, satisfactory to Consultant. Correct defective pointing and other unsatisfactory conditions.

3.4.2. Clean adjacent surfaces which have been soiled or otherwise marred, to completely remove evidence of material causing same.

3.4.3. DO NOT use Muriatic acid for clean-up.

3.5. PROTECTION

3.5.1. Protect other parts of Work from spatters.

3.5.2. Remove and replace with perfect materials, sections of Work which have become stained, soiled, broken, chipped or otherwise damaged.

3.5.3. Prohibit traffic during installation and for ninety-six (96) hours after completion.

3.6. SPECIFICATION ISSUES LOG

REV NO.	ISSUE	DATE
A	Issued for Tender	June-2026

END OF SECTION

PART 1 - GENERAL

1.1. GENERAL INSTRUCTIONS

1.1.1. Read and conform to The General Conditions of the Contract, Supplementary Conditions and Division 01 requirements and documents referred to herein.

1.1.2. The Specification is based on setting and grouting materials supplied by Laticrete.

1.2. SUMMARY

1.2.1. Work Included:

1.2.1.1. Supply labour, materials, plant, tools and equipment to complete the Work as shown on the Drawings and as specified herein, including but not limited to the following;

1.2.1.1.1. Acid wash all existing pool tank tile and gutter tile.

1.2.1.1.2. Remove existing grout from the existing pool tank (walls and floor).

1.2.1.1.3. Clean and prepare area.

1.2.1.1.4. Re-grout of the pool tank including walls and floor.

1.2.1.1.5. Grout to be:

1.2.1.1.5.1. Epoxy Grout

1.3. REFERENCES

1.3.1. TTMAC - Terrazzo, Tile & Marble Association of Canada – Tile Specification Guide 09 30 00-2006/2007.

1.4. SUBMITTALS

1.4.1. Samples:

1.4.1.1. Submit samples of all tiles. Submit individual sample panels of each colour of ceramic tile, set with adhesive, grouting and bonding method as specified, showing quality, colour and finish of material, grout and pattern of tiles. Ensure each panel is minimum 600 mm x 600 mm (24 inch x 24 inch).

1.5. REMOVAL OF EXISTING

1.5.1. Hydroblast:

1.5.1.1. Extreme care must be taken to protect remaining tile.

1.5.1.2. Hydroblast with a minimum of 2,000 psi to remove loose grout and etch the remaining down to minimum ½ of joint depth.

1.5.1.3. Clean and degrease the area.

1.5.1.4. Chain drag the tile before starting new grout, to identify any loose tile.

1.5.1.5. Provide a price within the bid to replace any additional loose tile (price per sq. ft.)

1.6. QUALITY ASSURANCE

1.6.1. Qualifications:

1.6.1.1. Provide Product of company specializing in manufacture of ceramic tile, porcelain tile, mosaics, pavers, trim units and thresholds with minimum experience of five (5) years.

1.6.1.2. Provide test reports if requested to substantiate that Products supplied on this Project will be consistent quality in appearance and physical properties.

1.6.1.3. Execute Work of this Section using a company who is a member in good standing with TTMAC and has minimum five (5) years' successful experience in application of Products, systems and assemblies specified. Perform tile Work using skilled mechanics trained and experienced in Work of this complexity.

1.7. DELIVERY AND STORAGE

1.7.1. Coordinate deliveries to comply with construction progress schedule and arrange for above ground, under cover storage before materials are delivered to site.

1.7.2. Prevent damage to materials and Products during handling and storage.

1.7.3. Protect adhesives, additives, mortar mixes and grouts from freezing, moisture and excessive heat during transportation and storage. Maintain temperatures in storage area between 15º C (59 º F) and 20 º C (68 º F).

1.8. PROJECT CONDITIONS

1.8.1. Do not perform Work of this Section at temperatures below 12°C (54°F) when using Portland cement mortars or dry set mortars, latex Portland mortars or bond coat. Maintain temperature between 12°C (54°F) and 32 º C (90º F).

1.8.2. Do not perform Work of this Section at temperatures below 18º C (65º F) or above 35º C (95º F) when using epoxy grouts.

1.8.3. Observe manufacturer's recommended working temperatures for installation of adhesives and grouts.

1.8.4. Protect Work of this Section against damage by other trades during application and for three (3) days after application.

1.8.5. Provide safety fencing around the perimeter of the pools in accordance with all local regulations.

1.9. WARRANTY

1.9.1. Provide a one (1) year warranty from date of substantial completion.

1.10. MAINTANENCE

1.10.1. Extra Materials:

1.10.1.1. Supply in addition to quantities required for Work, extra materials and Products to be stored by Owner as follows:

1.10.1.1.1. Provide 10kg of grout and four (4) liters of additive for future maintenance.

1.10.1.1.2. Deliver extra stock to Owner as soon as permanent, locked storage facilities are available. Place extra stock in designated storage area where directed.

1.10.2. Maintenance Instructions:

1.10.2.1. Submit maintenance instructions in accordance with General Requirements. Provide Owner with three (3) copies of TTMAC Maintenance Guide. Include specific warnings of any maintenance practices or materials which may damage or disfigure tile work.

PART 2 - PRODUCTS

2.1. MATERIALS

2.1.1. Installation materials shall be as manufactured by Laticrete, to provide an integrated installation system. Other manufacturers' products may be approved as equal provided the terms of the warranty as noted above are met, and the alternate is reviewed and approved by the Consultant. Installation product by Bostik is equal and acceptable.

2.1.1.1. Grout: ANSI A118.3 Laticrete SpectroLOCK® PRO Grout. Epoxy adhesive to be chemical resistant, water cleanable tile-grouting epoxy shall meet the requirements of the manufacturer. Colour by the Owner/Architect.

PART 3 - EXECUTION

3.1. EXAMINATION

3.1.1. Verify existing conditions and finishes are ready to receive specified tile work. Ensure backings are structurally sound, level, and plumb within required tolerances. Notify Consultant in writing of unacceptable substrate conditions. Beginning of installation implies acceptance of existing conditions.

3.1.2. Ensure compatibility of adhesives with adjacent substrate and component coming in contact with these Products.

3.2. PREPARATION

3.2.1. Protect surrounding work from damage.

3.2.2. Thoroughly clean existing surfaces that are to receive grout to ensure that removal of all grease, oil, dust, residue, and other debris.

3.2.3. Remove loose grout and etch all grout surfaces using minimum of 2,000 psi pressure water blasting in accordance with International Concrete Repair Institute (I.C.R.I) CSP #3 or #4. Should the hydro blasting cause the tile to lift from the surface, stop work immediately and notify the owner and consultant.

3.2.4. Provide written hydro blasting procedures before commencing Work.

3.2.5. Remove any grease from the surface of the tile with TSP or Off The Wall.

3.2.6. Provide written proof of 2,000 PSI minimum hydro blasting.

3.2.7. Provide plugs for all pool fittings to ensure that piping remains clear of any debris or contamination.

3.2.8. Remove all water and debris and dispose of materials in accordance with local codes.

3.2.9. Chain drag walls and floors and mark any areas where the tile is not sound. Report to the Consultant.

3.3. INSTALLATION

3.3.1. Install tile in accordance with TTMAC Specification Guide 09300/2002 “Tile Installation Guide”.

3.3.2. Follow manufactures recommendation for grout application.

3.3.3. Allow proper setting time prior to grouting for any new/patched tiles.

3.3.4. Pre-seal tiles requiring protection from grout staining.

3.3.5. Force grout into joints to ensure dense finish.

3.3.6. Remove excess and polish with clean cloths.

3.4. CLEANING

3.4.1. Upon completion remove protective coverings and clean down finished Work of this Section leaving it in perfect condition, satisfactory to consultant. Correct defective pointing and other unsatisfactory conditions.

3.4.2. Clean adjacent surfaces which have been soiled or otherwise marred, to completely remove evidence of material causing same.

3.5. PROTECTION

3.5.1. Protect other parts of Work from spatters.

3.5.2. Remove and replace with perfect materials, sections of Work which have become stained, soiled, broken, chipped or otherwise damaged.

3.5.3. Prohibit traffic during installation and for ninety six (96) hours after completion.

3.5.4. Clean all areas affected by the Work.

3.6. ALTERNATES

3.6.1. Provide a cost per square foot to replace all visible loose tile or loose tile that was removed during hydro blasting.

3.6.2. Consultant will provide written authorization before Commence of Work.

3.7.

REV NO.	ISSUE	DATE
A	Issued for Tender	June-2026

END OF SECTION