SPH ENGINEERING INC
Real World Engineering Solutions

485037 Sweaburg Rd.
Woodstock, Ontario N4S 7V6

TENDER SPECIFICATIONS

City of Woodstock

Public Works Addition & Renovation 944 James Street Woodstock, ON N4S 0B5

Contract # 11191

city of
Woodstock

Phone: (519) 539 5700

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END OF DOCUMENT

PART 1 General

1.1 BID CALL

.1 Offers signed under seal, executed, and dated will be received by the Owner via Electronic Proposal only

.1 Electronic Proposal submissions through the City's Bid and Tenders webpage at http://cityofwoodstock.bidsandtenders.ca hereafter called the **"Bidding System"**

.2 Before 2:00 pm local time on the 27th day of August 2024.

.2 Late bids will not be accepted by the Owner's Bidding System.

.3 Hard-Copy bid submissions shall NOT be accepted.

.4 To ensure receipt of the latest information and updates via email regarding this bid or if a bidder has obtained this Tender Document from a third party, the onus is on the Bidder to create a Bidding System Vendor account at http://cityofwoodstock.bidsandtenders.ca and register as a Plan Taker for the bid opportunity.

.5 Bidders are cautioned that the timing of their Bid Submission is based on when the Bid is received by the bidding system, not when a Bid is submitted by a bidder, as bid transmission can be delayed due to file transfer size, transmission speed, etc. The onus is on the bidder to leave sufficient time to account for these unpredictable possibilities to ensure the bid is received through the Bidding System prior to the closing time.

1.2 BID INTENT

.1 The intent of this bid call is to obtain an offer to perform work to complete construction of a renovation and addition to the City of Woodstock Public Works building.

.2 Perform the Work within the time stated in Section 01100.

1.3 CONTRACT DOCUMENTS IDENTIFICATION

.1 The Contract Documents are identified as Contract 11191 and SPH Engineering Project number 21367 as prepared by the Consultant, SPH Engineering Inc. located at 485037 Sweaburg Rd, Woodstock Ontario.

1.4 BID AND CONTRACT DOCUMENT DEFINITIONS

.1 Contract Documents: Defined in CCDC 2 - Stipulated Price - 2008 Edition, Definitions.

.2 Bid Documents: Contract Documents supplemented with Instructions to Bidders, Soils Investigation Data, Bid Form, Bid Securities and Bid Supplementary Forms identified herein.

.3 Bid, Offer, or Bidding: act of submitting an offer under seal.

.4 Bid Price: Monetary sum identified by the Bidder in the Bid Form.

1.5 DOCUMENT AVAILABILITY

.1 Tender documents are available on-line from the City of Woodstock web-site under Bids and Tenders. Please follow instructions. Tender takers must register on-line and addendums are also sent to them on-line. Contractors wishing to submit a tender for this project must obtain the official tender documents from the City of Woodstock as noted above.

.2 Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not confer a license or grant for other purposes.

1.6 DOCUMENT EXAMINATION

.1 Upon receipt of Bid Documents verify that documents are complete; notify Consultant should the documents be incomplete.

.2 Immediately notify the Consultant upon finding discrepancies or omissions in the Bid Documents.

1.7 QUERIES/ADDENDA

.1 Addenda are issued through registered plan takers through the City of Woodstock.

.2 Addenda may be issued during the bidding period. All addenda become part of the Contract Documents. Include costs in the Bid Price.

.3 Addenda will only be issued to general contractors registered with the City of Woodstock

.4 Verbal answers are only binding when confirmed by written addenda.

.5 Clarifications requested by bidders must be in writing not less than five (5) days before date set for receipt of bids. The reply will be in the form of an addendum, a copy of which will be forwarded to known general contract bidders.

1.8 PRODUCT/SYSTEM OPTIONS

.1 Where the Bid Documents stipulate a particular product, alternatives will be considered by the Owner up to five (5) days before receipt of bids.

.2 When a request to substitute a product is made, the Consultant or Owner may approve the substitution and will issue an Addendum to known bidders.

.3 In submission of alternatives to products specified, bidders shall include in their bid, any changes required in the Work to accommodate such alternatives. A later claim by the bidder for an addition to the Contract Price because of changes in work necessitated by use of alternatives shall not be considered.

1.9 SITE EXAMINATION

Site examination meeting will be held

At 1:00 p.m., local time on Wednesday, August 7th, 2024. Meeting at upper parking lot.

1.10 CONTRACTOR QUALIFICATION

.1 Submit one copy of CCDC 11 – 2018 "Contractor's Qualification Statement"

.2 Submit project descriptions of related construction projects and experience

.3 Submit resumes of key management personnel

.4 Submit contractors Health and Safety Policy for review by owner

.5 Submit most recent CAD7 as issued by WSIB

.6 Other relevant information to assist owner in determine qualifications and experience of bidder for this project.

1.11 SUBCONTRACTORS

.1 The Owner (as further described in the General Conditions) reserves the right to reject a proposed subcontractor for reasonable cause.

.2 Refer to CCDC 2, Article GC 3.7 of General Conditions.

1.12 BID INELIGIBILITY

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

.2 Bid Forms and enclosures which are improperly prepared may, at the discretion of the Owner, be declared informal.

.3 Failure to provide security deposit, bonding or insurance requirements may, at the discretion of the Owner, be declared informal.

1.13 BID SUBMISSIONS

.1 Bidders shall be solely responsible for the delivery of their bids in the manner and time prescribed.

.2 Electronic submission only. Hard copy delivery will not be accepted. Refer to 1.1.1 Bid Call for additional information

1.14 SECURITY DEPOSIT

.1 Bids shall be accompanied by a security deposit as follows:

.1 Bid bond in the amount of not less than ten (10) % of the bid price

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

.2 The security deposit will be returned after delivery to the Owner of the required Performance and Labour and Materials Payment Bonds by the accepted bidder.

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

1.15 AGREEMENT TO BOND

.1 Submit with the Bid Form and Bid Bond, an Agreement to Bond, stating that the surety providing the Bid Bond is willing to supply the Performance and Labour and Materials Bond required.

1.16 PERFORMANCE ASSURANCE

.1 The accepted bidder shall provide a Performance and Labour and Materials Payment bond as described in the Supplementary Conditions.

1.17 INSURANCE

.1 Provide a signed "Undertaking of Insurance" on a standard form provided by the insurance company stating their intention to provide insurance to the bidder in accordance with the insurance requirements of the Contract Documents.

1.18 BID FORM REQUIREMENTS

.1 The bidder, in submitting an offer, agrees to complete the Work by the date indicated in the Contract.

.2 The Owner requires that under the work of this contract be completed as quickly as possible and consideration will be given to time of completion when reviewing the submitted bids.

1.19 FEES FOR CHANGES IN THE WORK

.1 Include in the Bid Form, the overhead and profit fees applicable for changes in the Work, whether additions to or deductions from the Work on which the Bid Price is based.

.2 Include in the Bid Form, the fees proposed for subcontract work for changes (both additions and deductions) in the Work. The Contractor shall apply fees as noted, to the subcontractor's gross (net plus fee) costs on additional work.

1.20 BID SIGNING

.1 The Bid Form shall be signed under seal by the bidder.

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

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

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

.5 Joint Venture: Each party of the joint venture shall execute the Bid under their respective seals in a manner appropriate to such party as described above, similar to the requirements of a Partnership.

1.21 APPENDICES TO THE BID FORM

.1 Appendix 'A' - Contract Documents: Drawings and Specifications prepared by SPH Engineering Inc.

.2 Appendix 'B' - Subcontractors: Include the names of all Subcontractors and the portion(s) of the Work the Bidder will perform.

.3 Appendix 'C' - Unit Prices: Include a listing of any unit prices specifically requested by the Owner

.4 Appendix 'D' - Alternatives: Include the cost variation to the Bid Price applicable to the work described in Section 01200.

.5 Appendix 'E' - Separate Prices: Include a listing of separate prices as specifically requested in the Contract Documents.

1.22 DURATION OF OFFER

.1 Bids shall remain open to acceptance and shall be irrevocable for a period of sixty (60) days after the bid closing date.

1.23 ACCEPTANCE OF OFFER

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

.2 After acceptance by the Owner, the Owner or the Consultant on behalf of the Owner will issue to the successful bidder, a written notice to proceed

.3 After a bid has been accepted, all rejected bids will be returned to the respective bidders with submitted bid securities.

END OF DOCUMENT

Date: _____
Submitted by: _____
(name) _____
(address) _____
_____

To: City of Woodstock
500 Dundas Street
Woodstock, Ontario

Project: City of Woodstock – Public Works Addition and Renovation

PART 1 Bid Form

1.1 OFFER

.1 Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by SPH Engineering Inc. for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the as shown:

Project Cost

Division	**Cost**
Division 01 – General Requirements	_____
Division 02 – Site Works	_____
Division 03 – Concrete	_____
Division 04 – Masonry	_____
Division 05 – Metals	_____
Division 06 – Wood & Plastics	_____
Division 07 – Thermal & Moisture Protection	_____
Division 08 – Doors & Windows	_____
Division 09 – Finishes	_____
Division 10 – Specialties	_____
Division 11 – Equipment	_____
Division 12 – Furnishings	_____
Division 13 – Special Construction	_____
Division 14 – Conveying Systems	_____
Division 15 – Mechanical/Plumbing	_____
Division 16 – Electrical	_____

Project Cost	$ _____
Tax (HST)	$ _____
PROJECT TOTAL	$ _____

applicable federal taxes are included, and provincial taxes are included in the Bid Price.

.2 All Cash and Contingency allowances described in Section 01200 are included in the Bid Price.

1.2 ACCEPTANCE

.1 This offer shall be open to acceptance and is irrevocable for sixty (60) days from the Bid closing date.

.2 If this Bid is accepted by the Owner within the time period stated above, we will:

.1 Execute the 'Agreement' within seven days of receipt of the form of execution.

.2 Furnish the required bonds within seven days of receipt of the Agreement in the form described in the Supplementary Conditions.

.3 Commence construction work on site after written notification of acceptance of this bid September 23, 2024

.4 Complete the Work six (8) months from start date.

.3 If this Bid is accepted within the time stated herein, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to the Owner by reason of our failure, limited in amount to the lesser of the face value of the deposit or the difference between this Bid and the Bid which the Contract is signed.

.4 In the event our Bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions in the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

1.3 APPENDICES

.1 A list of the Contract Documents is appended hereto and identified as 'Appendix A'.
.2 A list of Subcontractors is appended hereto and identified as 'Appendix B'.
.3 A list of Unit Prices is appended hereto and identified as 'Appendix C'.
.4 A list of Alternatives is appended hereto and identified as ‘Appendix D’.
.5 A list of Separate Prices is appended hereto and identified as 'Appendix E'.

1.4 ADDENDA

.1 The following Addenda have been received. The modifications to the Contract Documents noted therein have been considered and all costs thereto are included in the Bid Price.

Addendum # _____ Dated _____
Addendum # _____ Dated _____
Addendum # _____ Dated _____

1.5 CHANGES

.1 When the Owner establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with CCDC 2 - Article GC 12.1 of the General Conditions, our percentage fee will be:

.2 (_____)% overhead and profit on the net cost of our own work; (_____)% on the cost of work done by any subcontractor.

.3 On work deleted from the Contract, our credit to the Owner shall be the Owner approved net cost plus 1/2 of the overhead and profit percentage noted above.

1.6 BID FORM SIGNATURE(S)

The Corporate Seal of

_____

(Bidder - please print)
was hereunto affixed in the presence of:

_____

Authorized signing officer Title
(Seal)

_____

Authorized signing officer Title

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

Appendix A: The following is the list of Contract Documents referred to in Article 1.3 of the Bid Form submitted by:
(Bidder) _____
(Owner) _____dated _____ and which is an integral part of the Bid Form.

Drawings prepared by SPH Engineering Inc.:

P0.1 Overall Site Plan
D1 Demolition Plan
P1 Detailed Site Plan
ESC Erosion and Sediment Control Plan
P2 Grading Plan
P2.1 Detailed Grading Plans
P3 Servicing Plan
P3.1 Detailed Servicing Plan
P4 Existing Contour Plan
P5 Proposed Contour Plan
D1.1 Ground Floor Demolition Plan
D1.2 First Floor Demolition Plan
D2.1 North Demolition Elevation
D3.1 Demolition Sections
D3.2 Demolition Sections
A1.1 Schedules
A1.1a Window Schedules and Jamb Details
A1.2 Ground Floor Proposed Plan
A1.3 Ground Floor Proposed Furniture Plan
A1.4 First Floor Plan
A1.4a Roof Details
A1.5 Reflective Ceiling Plan
A1.6 Enlarged Sections
A2.1 Proposed Elevations
A2.2 Proposed Elevations
A3.1 Sections
A3.2 Sections
A3.3 Sections
A3.4 Sections
A3.5 Sections
A3.6 Sections and Details
A4.1 Enlarged Washroom Plan
A5.1 Millwork Details
A6.1 Proposed Access Stair and Ramp
G1.1 Schedules and Notes
G1.2 Details
G2.1 Foundation Plan
G3.1 Sections
G3.2 Sections
G3.3 Proposed Access Stair and Ramp
S1.0 Schedules and Notes Framing Plan
S1.1 Structural Framing Plan
S1.2 Structural Framing Plan
S2.1 Proposed Elevations

S2.2 Proposed Elevations
S3.1 Sections
S3.2 Sections
S3.3 Sections
M0.1 Mechanical Specifications
M0.2 Legends and Schedules
MD1 Plumbing Demolition Layouts
MD2 HVAC Demolition Layout
M1 New Sanitary Layout
M2 New Domestic Water Layout
M3 New HVAC Layout
M3.1 New Roof/Vestibule HVAC Layout
M4 New Storm Piping Layout
E0.0 Electrical Specifications
E0.1 Legends and Schedules
E0.2 New Single Line and Panel Schedule
ED.0 Existing Panel Locations
ED.1 Single Line Demolition Plan
ED.2 Ground Floor and Vestibule Demolition
E1 New Ground Floor Power Layout
E1.1 New Roof Power and Vestibule Power Lighting Layout
E2 Lighting Layout

Specifications as contained in the Table of Contents and on the drawings.

Appendix B: The following is the list of Subcontractors referred to in Article 1.3 of the Bid Form submitted by:

(Bidder) _____

(Owner) _____dated _____ and which is an integral part of the Bid Form.

The following work will be performed (or provided) by Subcontractors and coordinated by us:

SECTION OF WORK	NAME

Appendix C: The following is the list of Unit Prices referred to in Article 1.3 of the Bid Form submitted by:

(Bidder) _____

(Owner) _____

dated _____ and which is an integral part of the Bid Form.

The following are Unit Prices for specific portions of the Work as listed, and are applicable to authorized variations from the Contract Documents.

Item of Work and Unit Quantity	Unit Value

Appendix D: The following is the list of Alternatives referred to in Article 1.3 of the Bid Form submitted by:

(Bidder) _____

(Owner) _____

dated _____ and which is an integral part of the Bid Form.

Refer to Section 01200 - Price and Payment Procedures (Alternatives):

Alternative # 1(Add) (Deduct) $ _____

Alternative # 2(add) (Deduct) $ _____

Appendix E: The following is the list of Separate Prices referred to in Article 1.3 of the Bid Form submitted by:
(Bidder) _____
(Owner) _____
dated _____ and which is an integral part of the Bid Form.

Separate price # 1:

None

Separate Price #1	Cost

END OF DOCUMENT

PART 1 General

1.1 AGREEMENT AND DEFINITIONS

.1 DECLARATION

.1 CCDC 2 -2008 Edition of the Stipulated Price Contract as may be amended, forms the basis of Agreement between the Owner and Contractor including the Definitions of specific words and terms.

1.2 Definitions

.1 Add a new Definition as follows:

.1 Bid Documents: Consist of the Contract Documents, Instructions to Bidders, Soils Investigation Report (for bidders information only), Bid Form, and other information issued for the benefit of bidders.

END OF DOCUMENT

PART 1 General Conditions

.1 CCDC 2 - 2008 The General Conditions of the Stipulated Price Contract - is the General Conditions between the Owner and Contractor.

PART 2 Supplementary Conditions

.1 Refer to Document 00805 - Supplementary Conditions for amendments to these General Conditions.

END OF DOCUMENT

PART 1 Supplements to General Conditions

1.1 GC 11.2 Bonds: Add the following paragraphs:

11.2.4 The Contractor shall also provide, at the request of the owner, a Performance and Labour and Material Payment Bond in the name of the Owner for fifty (50) percent of the Contract Price, to assume faithful payment of monies to parties in contract with the Contract; on Labour and Material Payment Bond Form CCDC 222. Cost of bond to be included as a separate price.

1.2 Supplementary Conditions to CCDC 2,2008 and CCDC41

.1 GC11.1 Insurance

.1 Add the word "additional" to the first sentence of paragraph 11.1.1.1 as follows:……the *Owner* and the *Consultant* as "additional" insureds……Public Works Addition and Renovation, ON; SPH Project No. 21367

.2 Delete the first sentence of paragraph 11.1.1.4 and replace with the following: "Broad form" property insurance in the name of the *Contractor*, with the *Owner* and *Consultant* included as additional insureds. Broad form property insurance shall include flood coverage.

3. Delete the first sentence of paragraph 11.1.1.5 and replace with the following: Boiler and machinery insurance in the name of the *Contractor*, with the *Owner* and *Consultant* included as additional insureds.

4. Delete 11.1.3 in its entirety.

5. Add new paragraphs as follows:

11.1.9 The *Contractor* shall provide and maintain in full force and effect, a Wrap Up Liability Insurance policy:

.1 Including the *Owner, Consultant* and all *Subcontractors* as additional insureds and which shall extend to cover the employees of the insureds hereunder, containing a clause to provide that the inclusion of more than one insured shall in no way effect the rights of any insured with respect to any claim, demand, suit or judgement made against any other insured. Each party shall receive a certified copy of this policy.

.2 Providing for a combined single limit of five millions dollars ($5,000,000.00) for each occurrence of accident.

.3 Providing coverage for damage due to bodily injury, including death at any time resulting therefrom, sustained by any person or persons or because of injury to, or destruction of property caused by an occurrence of accident arising out of any operations in connection with this *Contract*, subject to all exclusions set forth in the said policy.

.4 Including coverage for tortuous liability, Owners or Contractor's Protective Liability, Products or Completed Operations Liability, Contractual Liability and

Employers Liability.

.5 Providing for extension of such coverage to non-owned licensed motor vehicles used in connection with the *Work*. Such coverage may be provided by separate policies.

.6 Providing for coverage during the period of these Contractual Documents including a maintenance period of 24 months.

11.1.10 Insurance policies shall be primary coverage pursuant to which the insurer is acting as first loss insurer against the risk covered and not excess to any other insurance available to the additional named insureds.

1.3 GC 1.1.9 Priority of Documents

.1 If there is a conflict within *Contract Documents:*

.1 the order of priority of documents, from highest to lowest, shall be:

- The Agreement between the *Owner* and the *Contractor*,
- The Definitions,
- Supplementary Conditions
- The General Conditions,
- Division 1 of the specifications,
- The drawings
- Divisions 2 through 16 of the specifications,
- Material and finishing schedules.

END OF DOCUMENT

PART 1 General

1.1 REQUIREMENTS INCLUDED

.1 Contract description.

.2 Project - Work covered by contract documents.

.3 Work by Owner

.4 Owner supplied products.

.5 Site safety

.6 Contractor use of site and premises.

.7 Work Sequence and schedule

.8 Contract Description

.9 Definitions.

.10 Complementary Documents

.11 Precedence of documents.

1.2 CONTRACT DESCRIPTION

.1 Contract Type: Stipulated Price as described in the Agreement.

1.3 PROJECT - WORK COVERED BY CONTRACT DOCUMENTS

.1 Work under this contract comprises construction of a 345m² addition and renovations to the existing administration building. The addition to the north elevation of the existing building will include a lunchroom, washroom and shower facilities including a non-gender locker and washroom, and some offices. The renovation will include removal of existing washrooms, the addition of a womans locker room, some office areas in the existing building and a new building entrance including a barrier free ramp.

.2 The building permit for this project is the responsibility of the owner.

1.4 WORK BY OWNER

.1 None

.2 The general contractor is to coordinate with the owner for the items under 1.4.1

1.5 OWNER SUPPLIED PRODUCTS

.1 Owner's Responsibilities:

.1 Arrange for and deliver Owner reviewed Shop Drawings, Product Data, and Samples, to Contractor.

.2 Arrange and pay for Product delivery to site.

.3 On delivery, inspect Products jointly with Contractor.

.4 Submit claims for transportation damage and replace damaged, defective, or deficient items.

.5 Arrange for manufacturers' warranties, inspections, and service.

.2 Contractor's Responsibilities:

.1 Review Owner reviewed Shop Drawings, Product Data, and Samples.

.2 Receive and unload Products at site; inspect for completeness or damage jointly with Owner.

.3 Handle, store, install and finish Products.

.4 Repair or replace items damaged after receipt.

.3 Items supplied by Owner for installation by Contractor:

.1 None

1.6 SITE SAFETY

.1 Construction health and safety within the working areas is of utmost importance and is the full responsibility of the Contractor. The Contractor's attention is drawn to the respective clauses of the General Conditions of Contract which deal with health and safety and which form part and parcel of this contract.

.2 The Contractor must familiarize himself with the City of Woodstock's Occupational Health and Safety policies and their latest revisions, which, together with the most current relevant legislation, form the minimum requirements of this contract. A copy of the Health & Safety policies which the Contractor proposes to use must be prominently

posted at the work site throughout the duration of this contract.

.3 At the time of contract award, the successful tenderer must sign and abide by the Policy on Contractor Safety and Certificate of Compliance, a copy of which is included herein with the Form of Agreement.

.4 The City of Woodstock Occupational Health and Safety policies are available for viewing both at the Administrative Services Office and at the City Engineer's Office.

1.7 CONTRACTOR USE OF SITE AND PREMISES

.1 Construction area will be completely under the control and responsibility of the general contractor. Contractor to provide and install appropriate safety fencing to completely separate the construction site for the duration of the project.

.2 Construction Operations: The entire site will be turned over to the contractor

.3 Time Restrictions for Performing Work: All work shown on the contract documents must be completed by 8 months from start date.

1.8 WORK SEQUENCE and SCHEDULE

.1 Contractors are to arrange their work for the dates shown:

.1 Tender submission:

.1 August 27, 2024

.2 Tender Award:

.1 September 5, 2024

.3 Construction start:

.1 September 23, 2024

.2 It is expected that the contractors use the period between tender award and construction start to finalize all items of contractor supply and any required shop drawing approvals.

.4 Construction completion of the facility

.1 Eight (8) months from construction start date.

.2 The general contractor is to provide a schedule of construction within five (5) days of receipt of notification to proceed.

.3 Time is of the essence in completion of the construction work. The site is available for construction work at all times. The general contractor is expected to arrange resources to complete the work by the date referred to in 1.8.1.4

1.9 Contract Description

.1 Division 1 - General Requirements

.2 Provide all work identified in the project documents.

1.10 DEFINITIONS

.1 The following Definitions supplement the Contract Definitions and apply to all Contract Documents.

.1 Consultant: Means the licensed design professional of record, identified as the author of the Contract Documents.

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

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

.4 Provide: Means to supply and install.

.5 Quality Assurance: Planned or systematic actions necessary to provide adequate confidence that a product, process, or service will conform to establish requirements.

.6 Quality Control: Inspection, testing, evaluation, or other necessary action to verify that a product, process, or service conforms to established requirements and specifications.

1.11 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 leave doubt as to the intent or meaning, 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.

1.12 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 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.

.6 Schedules and keynotes:

.1 Schedules on drawings, then

.2 Schedules within the specifications.

.7 Specifications:

.1 Specifications specifically indicated on drawings, and

.2 Sections of Divisions 2 through 8 of the specifications.

.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.

PART 2 Products

.1 Not Used.

PART 3 Execution

.1 Not Used.

END OF SECTION

PART 1 General

1.1 REQUIREMENTS INCLUDED

.1 Cash Allowances

.2 Inspecting and testing allowances.

.3 Application for payment.

.4 Change procedures.

.5 Defect assessment.

.6 Measurement and payment - unit prices.

.7 Substitutions.

.8 Alternatives.

.9 Separate prices.

1.2 RELATED REQUIREMENTS

.1 Section 01600 - Product Requirements: Product substitutions and options.

1.3 CASH ALLOWANCES

.1 Costs Included in Cash Allowances: Cost of Product to Contractor or subcontractors, 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.

.7 Allowances Schedule:

.1 Include the stipulated sum of $12,000 for purchase, delivery, and installation of all door hardware.

1.4 INSPECTING AND TESTING ALLOWANCES

.1 Costs Included in Inspecting and Testing Allowances: Cost of engaging an inspecting or testing agency; execution of inspecting and tests; and reporting results.

.1 Testing agency to provide testing procedure outlining tests, testing frequency, any quantities and procedures to Owner and Consultant.

.2 Costs Not Included in the Inspecting and Testing Allowance But Included in the Contract Price:

.1 Costs of incidental labour and facilities required to assist inspecting or testing agency.

.2 Costs of testing services used by Contractor separate from Contract Document requirements.

.3 Costs of retesting upon failure of previous tests as determined by Consultant.

.3 Payment Procedures:

.1 Submit one copy of the inspecting or testing firm's invoice with next application for payment.

.2 Pay invoice on approval by Consultant.

.4 Inspecting and Testing Allowances Schedule:

.1 Include the sum of $4,000 for miscellaneous testing that may be required.

.5 Differences in cost will be adjusted by Change Order.

1.5 APPLICATIONS FOR PAYMENT

.1 Submit three copies of each application on Contractor's electronic media driven form.

.2 Include copies of invoices for amounts drawn on allowances.

.3 Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

.4 Payment Period: 30 days.

.5 Include an updated construction progress schedule, statutory declaration and current WSIB Clearance Certificate for all trades.

1.6 CHANGE PROCEDURES

.1 The Consultant will advise of minor changes in the Work not involving an adjustment to Contract Price or Contract Time as authorized by issuing supplemental instructions.

.2 The Consultant may issue a Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change. Contractor will prepare and submit an estimate within three (3) days.

.3 The Contractor may propose changes by submitting a request for change to the Consultant, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation. Document any requested substitutions.

.4 Stipulated Price Change Order: Based on Proposal Request or Notice of Change and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Consultant.

.5 Change Order Forms: CCDC 24 Change Order.

.6 Execution of Change Orders: Consultant will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.7 DEFECT ASSESSMENT

.1 Replace the Work, or portions of the Work, not conforming to specified requirements.

.2 If, in the opinion of the Owner, it is not practical to remove and replace the Work, the Owner will direct an appropriate remedy or adjust payment.

1.8 SUBSTITUTIONS

.1 Consultant will consider requests for Substitutions only within five (5) days after date of Owner-Contractor Agreement.

.2 Substitutions will not be considered when a Product becomes unavailable through no fault of the Contractor.

.3 Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

.4 A request constitutes a representation that the Bidder or Contractor:

.1 Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.

.2 Will provide the same warranty for the Substitution as for the specified Product.

.3 Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.

.4 Waives claims for additional costs or time extension which may subsequently become apparent.

.5 Will reimburse Owner and Consultant for review or redesign services associated with re-approval by authorities.

.5 Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

.6 Substitution Submittal Procedure:

.1 Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.

.2 Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.

.3 The Consultant will notify Contractor in writing of decision to accept or reject request.

1.9 ALTERNATIVES

.1 Accepted Alternatives will be identified in Owner-Contractor Agreement.

.2 Submit alternatives identifying the effect on adjacent or related components.

.3 Alternatives quoted on Bid Forms will be reviewed and accepted or rejected at the Owner's option. Accepted alternatives will be identified in the Owner-Contractor Agreement.

.4 Coordinate related work and modify surrounding work to integrate the Work of each alternative.

1.10 SEPARATE PRICES

.1 Separate Price items do NOT replace or substitute items already in the Bid Documents. Accepted Separate Prices will be:

.1 identified in the Construction Agreement as an increase to the Bid Price, or

.2 in a subsequent Change Order.

.2 Submit Separate Prices to identify items that may be added to the Contract, at the Owner's option. Include in the quoted Separate Price, overhead and profit, the effect on adjacent or related components already in the Work described in the Bid Documents.

.3 Coordinate related Work and modify surrounding Work to integrate the work of each Separate Price.

Schedule of Separate Prices: Refer to Bid Form.

PART 2 Products

.1 Not Used

PART 3 Execution

.1 Not Used

END OF SECTION

PART 1 General

1.1 REQUIREMENTS INCLUDED

.1 Submittal procedures.

.2 Construction progress schedules.

.3 Proposed Products list.

.4 Product data.

.5 Shop Drawings.

.6 Samples.

.7 Design data.

.8 Test reports.

.9 Certificates.

.10 Manufacturer's instructions.

.11 Manufacturer's field reports.

.12 Erection drawings.

.13 Construction photographs.

1.2 RELATED REQUIREMENTS

.1 Section 01400 - Quality Requirements: Manufacturers' field services and reports.

.2 Section 01700 - Execution Requirements: Contract, warranties, and closeout submittals.

1.3 SUBMITTAL PROCEDURES

.1 Transmit each submittal with accepted form.

.2 Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.

.3 Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

.4 Schedule submittals to expedite the Project, and deliver to Owner at stated address. Coordinate submission of related items.

.5 For each submittal for review, allow ten (10) days excluding delivery time to and from the contractor.

.6 Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

.7 Provide space for Contractor and Consultant review stamps.

.8 When revised for resubmission, identify all changes made since previous submission.

.9 Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

.10 Submittals not requested will not be recognized or processed.

1.4 CONSTRUCTION PROGRESS SCHEDULES

.1 Submit initial schedule in duplicate within five (5) days after date established in Notice to Proceed.

.2 Revise and resubmit as required.

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

.4 Submit a computer generated horizontal bar chart with separate line for each section of Work, identifying first work day of each week.

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

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

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

1.5 PROPOSED PRODUCTS LIST

.1 Within (5) five days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

.2 For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.6 PRODUCT DATA

.1 Product Data For Review:

.1 Submitted to Consultant for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

.2 After review, provide copies and distribute in accordance with Submittal Procedures article above and for record documents purposes described in Section 01700.

.2 Product Data For Information:

.1 Submitted for the Consultant's knowledge as contract administrator or for the Owner.

.3 Product Data For Project Close-out:

.1 Submitted for the Owner's benefit during and after project completion.

.4 Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Consultant.

.5 Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

.6 Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

.7 After review distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700.

1.7 SHOP DRAWINGS

.1 Shop Drawings For Review:

.1 Submitted to Consultant for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

.2 After review, produce copies and distribute in accordance with Submittal Procedures article above and for record documents purposes described in Section 01700.

.2 Shop Drawings For Information:

.1 Submitted for the Consultant's knowledge as contract administrator or for the Owner.

.3 Shop Drawings For Project Close-out:

.1 Submitted for the Owner's benefit during and after project completion.

.4 Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

.5 Submit (1) electronic copy and (5) complete copies in the form of opaque reproduction.

1.8 SAMPLES

.1 Samples For Review:

.1 Submitted to Consultant for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

.2 After review, produce duplicates and distribute in accordance with Submittal Procedures article above and for record documents purposes described in Section 01700.

.2 Samples For Information:

.1 Submitted for the Consultant's knowledge as contract administrator or for the Owner.

.3 Samples For Selection:

.1 Submitted to Consultant for aesthetic, colour, or finish selection.

.2 After review, produce duplicates and distribute in accordance with Submittal Procedures article above and for record documents purposes described in Section 01700.

.4 Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

.5 Include identification on each sample, with full Project information.

.6 Submit the number of samples specified in individual specification sections; one of which will be retained by Consultant.

.7 Reviewed samples which may be used in the Work are indicated in individual specification sections.

.8 Samples will not be used for testing purposes unless specifically stated in the specification section.

1.9 DESIGN DATA

.1 Submit for the Consultant's knowledge as contract administrator or for the Owner.

.2 Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.10 TEST REPORTS

.1 Submit for the Consultant's knowledge as contract administrator or for the Owner.

.2 Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.11 CERTIFICATES

.1 When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Consultant, in quantities specified for Product Data.

.2 Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

.3 Certificates may be recent or previous test results on material or Product, but must be acceptable to Consultant.

1.12 MANUFACTURER'S INSTRUCTIONS

.1 When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Consultant for delivery to owner in quantities specified for Product Data.

.2 Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

.3 Refer to Section 01400, Manufacturers' Field Services article.

1.13 MANUFACTURER'S FIELD REPORTS

.1 Submit reports for the Consultant's benefit as contract administrator or for the Owner.

.2 Submit report within (10) ten days of observation to Consultant for information.

.3 Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.14 ERECTION DRAWINGS

.1 Submit drawings for the Consultant's benefit as contract administrator or for the Owner.

.2 Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

.3 Data indicating inappropriate or unacceptable Work may be subject to action by the Consultant or Owner.

1.15 CONSTRUCTION PHOTOGRAPHS

.1 Each month submit photographs with Application for Payment.

.2 Photographs: One print; colour, matte; 4 x 5 inch size; mounted on 8-1/2 x 11inch soft card stock, with left edge binding margin for three hole punch.

.3 Take photographs from differing directions indicating the relative progress of the Work, three days maximum prior to submitting.

.4 Identify photographs with date, time, orientation, and project identification.

PART 2 Products

.1 Not Used

PART 3 Execution

.1 Not Used

END OF SECTION

PART 1 General

1.1 REQUIREMENTS INCLUDED

.1 Quality assurance - control of installation.

.2 Coordination and project conditions.

.3 Tolerances

.4 References and standards.

.5 Testing services.

.6 Inspection services.

.7 Pre-construction meeting.

.8 Progress meetings.

.9 Manufacturers' field services.

1.2 RELATED REQUIREMENTS

.1 Section 01300 - Administrative Requirements: Submission of manufacturers' instructions and certificates.

.2 Section 01400 - Quality Requirements:

.3 Section 01700 - Execution Requirements: Starting of Systems.

1.3 COORDINATION AND PROJECT CONDITIONS

.1 Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

.2 Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

.3 Coordinate space requirements, supports, and installation of mechanical and electrical Work, which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

.4 In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

.5 Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.

.6 After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.4 QUALITY ASSURANCE - CONTROL OF INSTALLATION

.1 Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

.2 Comply with manufacturers' instructions, including each step in sequence.

.3 Should manufacturers' instructions conflict with Contract Documents, request clarification from Consultant before proceeding.

.4 Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

.5 Perform Work by persons qualified to produce required and specified quality.

.6 Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

.7 Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.5 TOLERANCES

.1 Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.

.2 Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Consultant before proceeding.

.3 Adjust Products to appropriate dimensions; position before securing Products in place.

1.6 REFERENCES AND STANDARDS

.1 For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

.2 Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

.3 Obtain copies of standards where required by product specification sections.

.4 Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Consultant shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.7 TESTING SERVICES

.1 Owner will appoint and employ services of an independent firm to perform testing. Contractor shall pay for services from cash allowance(s) specified in Section 01200.

.2 The independent firm will perform tests and other services specified in individual specification sections and as required by the Consultant or Owner.

.3 Testing and source quality control may occur on or off the project site. Perform off-site testing as required by the Consultant or the Owner.

.4 Reports will be submitted by the independent firm to the Consultant and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

.5 Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labour as requested.

.1 Notify Consultant and independent firm 24 hours prior to expected time for operations requiring services.

.2 Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.

.6 Testing does not relieve Contractor to perform Work to contract requirements.

.7 Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Consultant. Payment for re-testing will be charged to the Contractor by deducting testing charges from the Contract Sum/Price.

1.8 INSPECTION SERVICES

.1 Owner will appoint and employ services of an independent firm to perform inspection. Contractor shall pay for services from cash allowance(s) specified in Section 01200.

.2 The independent firm will perform inspections and other services specified in individual specification sections and as required by the Consultant or Owner.

.3 Inspecting may occur on or off the project site. Perform off-site inspecting as required by the Consultant or the Owner.

.4 Reports will be submitted by the independent firm to the Consultant and Contractor, in duplicate, indicating inspection observations and indicating compliance or non-compliance with Contract Documents.

.5 Cooperate with independent firm; furnish safe access and assistance by incidental labour as requested.

.1 Notify Consultant and independent firm 24 hours prior to expected time for operations requiring services.

.6 Inspecting does not relieve Contractor to perform Work to contract requirements.

1.9 PRECONSTRUCTION MEETING

.1 Owner will schedule a meeting after Notice of Award.

.2 Attendance Required: Owner, Consultant, and Contractor.

.3 Agenda:

- .1 Execution of Owner-Contractor Agreement.
- .2 Submission of executed bonds and insurance certificates.
- .3 Distribution of Contract Documents.
- .4 Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
- .5 Designation of personnel representing the parties in Contract, Owner and the Consultant.
- .6 Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
- .7 Scheduling.

.4 Record minutes and distribute copies within two days after meeting to participants, with one copy to Consultant, Owner, participants, and those affected by decisions made.

1.10 SITE MOBILIZATION MEETING

.1 Owner will schedule a meeting at the Project site prior to Contractor occupancy.

.2 Attendance Required: Owner, Consultant, Contractor, Contractor's Superintendent, and major Subcontractors.

.3 Agenda:

- .1 Use of premises by Owner and Contractor.
- .2 Owner's requirements and occupancy.
- .3 Construction facilities and controls provided by Owner.
- .4 Temporary utilities provided by Owner.
- .5 Security and housekeeping procedures.
- .6 Schedules.
- .7 Application for payment procedures.
- .8 Procedures for testing.
- .9 Procedures for maintaining record documents.
- .10 Requirements for start-up of equipment.
- .11 Inspection and acceptance of equipment put into service during construction period.

.4 Record minutes and distribute copies within two days after meeting to participants, with one copy to Consultant, Owner, participants, and those affected by decisions made.

1.11 PROGRESS MEETINGS

.1 Schedule and administer meetings throughout progress of the Work at maximum bi-weekly intervals.

.2 Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

.3 Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Consultant, as appropriate to agenda topics for each meeting.

.4 Agenda:

- .1 Review minutes of previous meetings.
- .2 Review of Work progress.
- .3 Field observations, problems, and decisions.
- .4 Identification of problems which impede planned progress.
- .5 Review of submittals schedule and status of submittals.
- .6 Review of off-site fabrication and delivery schedules.
- .7 Maintenance of progress schedule.
- .8 Corrective measures to regain projected schedules.
- .9 Planned progress during succeeding work period.
- .10 Coordination of projected progress.
- .11 Maintenance of quality and work standards.
- .12 Effect of proposed changes on progress schedule and coordination.
- .13 Other business relating to Work.

.5 Record minutes and distribute copies within two days after meeting to participants, with one copy to Consultant, Owner, participants, and those affected by decisions made.

1.12 MANUFACTURERS' FIELD SERVICES

.1 When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, and to initiate instructions when necessary.

.2 Submit qualifications of observer to Consultant (10) ten days in advance of required observations.

.3 Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 Products

.1 Not Used

PART 3 Execution

.1 Not Used.

END OF SECTION

PART 1 General

1.1 REQUIREMENTS INCLUDED

.1 Temporary Utilities: Electricity, heating, cooling, ventilation, telephone service, facsimile and internet service, water service, and sanitary facilities.

.2 Temporary Controls: Barriers, fencing, water control, exterior enclosures, and protection of installed work.

.3 Construction Facilities: Access roads, parking, progress cleaning and waste removal, field offices and sheds, removal of utilities, facilities, and controls, security program, entry control, and restrictions.

1.2 RELATED REQUIREMENTS

.1 Section 01700 - Execution Requirements: Final cleaning.

1.3 TEMPORARY ELECTRICITY

.1 Cost: By Contractor; provide and pay for power service required from utility.

.2 Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.

.3 Permanent convenience receptacles may be utilized during construction.

1.4 TEMPORARY HEATING

.1 Provide and pay for heating devices and heat as needed to maintain appropriate conditions for construction operations. Project delays by contractor shall not incur additional temporary heating costs for the owner.

.2 Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

1.5 TEMPORARY COOLING

.1 Provide and pay for cooling devices and cooling as needed to maintain appropriate conditions for construction operations. Project delays by contractor shall not incur additional temporary heating costs for the owner.

.2 Prior to operation of permanent equipment for temporary cooling purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

1.6 TEMPORARY VENTILATION

.1 Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapours, or gases.

.2 Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

1.7 TELEPHONE SERVICE

.1 Provide, maintain, and pay for telephone service to field office at time of project mobilization.

1.8 FACSIMILE AND INTERNET SERVICE

.1 Provide, maintain and pay for facsimile and internet service to field office at time of project mobilization.

1.9 TEMPORARY WATER SERVICE

.1 Provide, maintain and pay for suitable quality water service required for construction operations at time of project mobilization.

1.10 TEMPORARY SANITARY FACILITIES

.1 Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

1.11 BARRIERS

.1 Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

.2 Provide barricades and covered walkways required by governing authorities for public rights-of-way.

.3 Provide protection for plants designated to remain. Replace damaged plants.

.4 Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.12 FENCING

.1 Style of Fence Construction: Steel Wire Fence

.2 Provide 1800 mm high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.13 WATER CONTROL

.1 Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

.2 Protect site from puddling or running water. Provide water barriers as required to protect site and adjacent sites.

1.14 EXTERIOR ENCLOSURES

.1 Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.15 PROTECTION OF INSTALLED WORK

.1 Protect installed Work and provide special protection where specified in individual specification sections.

.2 Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.

.3 Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

.4 Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

.5 Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

.6 Prohibit traffic from landscaped areas.

1.16 ACCESS ROADS

.1 Construct and maintain temporary roads in accordance with any recommendations contained in the soils report accessing public thoroughfares to serve construction area.

.2 Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.

.3 Provide and maintain access to fire hydrants, free of obstructions.

.4 Provide means of removing mud from vehicle wheels before entering streets.

1.17 PARKING

.1 Provide temporary parking areas to accommodate construction personnel.

.2 When site space is not adequate, provide additional off-site parking.

1.18 PROGRESS CLEANING AND WASTE REMOVAL

.1 Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

.2 Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

.3 Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

.4 Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

.5 Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.19 FIELD OFFICES AND SHEDS

.1 Office: Contractor field office permitted by owner and to be supplied by contractor if required.

.2 Provide appropriate facilities for workers. Construction workers will not be permitted to use any of the facilities in the plant for any reason.

.3 Locate offices and sheds a minimum distance of 9.0 m from existing and new structures.

1.20 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

.1 Remove temporary utilities, equipment, facilities, materials, and prior to Substantial Completion inspection.

.2 Remove underground installations to a minimum depth of 600 mm. Grade site as indicated.

.3 Clean and repair damage caused by installation or use of temporary work.

1.21 SECURITY PROGRAM

.1 Protect Work from theft, vandalism, and unauthorized entry.

1.22 ENTRY CONTROL

.1 Restrict entrance of persons and vehicles into Project site.

.2 Allow entrance only to authorized persons with proper identification.

1.23 RESTRICTIONS

.1 Do not allow cameras on site or photographs taken except by written approval of Owner.

PART 2 Products

.1 Not Used

PART 3 Execution

.1 Not Used

END OF SECTION

PART 1 General

1.1 REQUIREMENTS INCLUDED

.1 Products.

.2 Product options.

1.2 RELATED REQUIREMENTS

.1 Document 00205 - Instructions to Bidders: Product options and substitution procedures.

.2 Section 01400 - Quality Requirements: Product quality monitoring.

1.3 PRODUCTS

.1 Do not use materials, Products, or equipment removed from existing premises, except as specifically permitted by the Contract Documents.

.2 Provide interchangeable components of the same manufacture for components being replaced with permission of owner and consultant.

1.4 PRODUCT OPTIONS

.1 Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

.2 Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

.3 Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not listed along with all relevant data.

PART 2 Products

.1 Not Used

PART 3 Execution

.1 Not Used

END OF SECTION

PART 1 General

1.1 REQUIREMENTS INCLUDED

.1 Examination.

.2 Preparation.

.3 Field engineering.

.4 Cutting and patching.

.5 Transportation and handling.

.6 Storage and protection.

.7 Closeout procedures.

.8 Final cleaning.

.9 Adjusting.

.10 Project record documents.

.11 Operation and maintenance data.

.12 Spare parts and maintenance Products.

.13 Warranties.

.14 Maintenance service.

.15 Starting systems.

.16 Demonstration and instructions.

.17 Testing, adjusting, and balancing.

1.2 RELATED REQUIREMENTS

.1 Section 01400 - Quality Requirements: Manufacturers field reports.

.2 Section 01500 - Temporary Facilities and Controls: Progress cleaning.

.3 Section 01700 - Execution Requirements: System start-up, testing, adjusting, and balancing; system operation and maintenance data and extra materials.

1.3 EXAMINATION

.1 Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

.2 Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.

.3 Examine and verify specific conditions described in individual specification sections.

.4 Verify that utility services are available, of the correct characteristics, and in the correct locations.

1.4 PREPARATION

.1 Clean substrate surfaces prior to applying next material or substance.

.2 Seal cracks or openings of substrate prior to applying next material or substance.

.3 Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

1.5 FIELD ENGINEERING

.1 Employ a Land Surveyor registered in the Province of Owner and acceptable to Owner.

.2 Contractor shall locate and protect survey control and reference points.

.3 Control datum for survey is that shown on Drawings.

.4 Verify set-backs and easements; confirm drawing dimensions and elevations.

.5 Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

.6 Submit a copy of site drawing signed by the Land Surveyor that the elevations and locations of the Work are in conformance with the Contract Documents.

1.6 CUTTING AND PATCHING

.1 Employ skilled and experienced installer to perform cutting and patching.

.2 Submit written request in advance of cutting or altering elements which affect:

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

.3 Execute cutting, fitting, and patching, including excavation and fill, to complete Work, and to:

- .1 Fit the several parts together, to integrate with other Work.
- .2 Uncover Work to install or correct ill-timed Work.
- .3 Remove and replace defective and non-conforming Work.
- .4 Remove samples of installed Work for testing.

.5 Provide openings in elements of Work for penetrations of mechanical and electrical Work.

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

.5 Cut masonry and concrete materials using masonry saw or core drill.

.6 Restore Work with new Products in accordance with requirements of Contract Documents.

.7 Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.8 Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

.9 Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

.10 Identify hazardous substances or conditions exposed during the Work to the Consultant for decision or remedy.

1.7 TRANSPORTATION AND HANDLING

.1 Transport and handle Products in accordance with manufacturer's instructions.

.2 Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.

.3 Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.8 STORAGE AND PROTECTION

.1 Store and protect Products in accordance with manufacturers' instructions.

.2 Store with seals and labels intact and legible.

.3 Store sensitive Products in weather tight, climate controlled, enclosures in an environment favourable to Product.

.4 For exterior storage of fabricated Products, place on sloped supports above ground.

.5 Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.

.6 Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

.7 Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

.8 Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

1.9 CLOSEOUT PROCEDURES

.1 Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Consultant's review.

.2 Provide submittals to Owner that are required by governing or other authorities.

.3 Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.10 FINAL CLEANING

.1 Execute final cleaning prior to final project assessment.

.2 Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

.3 Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

.4 Replace filters of operating equipment.

.5 Clean debris from roofs, gutters, downspouts, and drainage systems.

.6 Clean site; sweep paved areas, rake clean landscaped surfaces.

.7 Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.11 ADJUSTING

.1 Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.12 PROJECT RECORD DOCUMENTS

.1 Maintain on site one set of the following record documents; record actual revisions to the Work:

- .1 Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders and other modifications to the Contract.
- .5 Reviewed Shop Drawings, Product Data, and Samples.
- .6 Manufacturer's instruction for assembly, installation, and adjusting.

.2 Ensure entries are complete and accurate, enabling future reference by Owner.

.3 Store record documents separate from documents used for construction.

.4 Record information concurrent with construction progress.

.5 Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:

.1 Manufacturer's name and product model and number.

.2 Product substitutions or alternates utilized.

.3 Changes made by Addenda and modifications.

.6 Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:

.1 Measured depths of foundations in relation to finish [first] [main] 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 concealed in construction, referenced to visible and accessible features of the Work.

.4 Field changes of dimension and detail.

.5 Details not on original Contract drawings.

.7 Submit documents to Owner with claim for final Application for Payment.

1.13 OPERATION AND MAINTENANCE DATA

.1 Submit data bound in 8-1/2 x 11 inch text pages, three D side ring binders with durable plastic covers.

.2 Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project.

.3 Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

.4 Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 20 pound white paper, in three parts as follows:

.1 Part 1: Directory, listing names, addresses, and telephone numbers of Consultant, Contractor, Subcontractors, and major equipment suppliers.

.2 Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:

.1 Significant design criteria.

.2 List of equipment.

.3 Parts list for each component.

.4 Operating instructions.

.5 Maintenance instructions for equipment and systems.

.6 Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

.3 Part 3: Project documents and certificates, including the following:

.1 Shop drawings and product data.

.2 Air and water balance reports.

.3 Certificates.

.4 Originals of warranties and bonds.

.5 As-Built drawings in electronic and paper format.

.5 Submit 1 draft copy of completed volumes ten days prior to final inspection. This copy will be reviewed and returned, with owner comments. Revise content of all document sets as required prior to final submission.

.6 Submit two sets of revised final volumes, within 10 days after final inspection.

1.14 SPARE PARTS AND MAINTENANCE PRODUCTS

.1 Provide spare parts, maintenance, and extra Products in quantities specified in individual specification sections.

.2 Deliver to Project site and place in location as directed; obtain receipt prior to final payment.

1.15 WARRANTIES

.1 Provide duplicate notarized copies.

.2 Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.

.3 Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.

.4 Submit prior to final Application for Payment.

.5 For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.16 MAINTENANCE SERVICE

.1 Furnish service and maintenance of components indicated in specification sections for one year from date of Substantial Completion.

.2 Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

.3 Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

.4 Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the Owner.

1.17 STARTING SYSTEMS

.1 Coordinate schedule for start-up of various equipment and systems.

.2 Notify Owner seven days prior to start-up of each item.

.3 Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

.4 Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

.5 Verify that wiring and support components for equipment are complete and tested.

.6 Execute start-up under supervision of applicable manufacturer's representative and Contractors' personnel in accordance with manufacturers' instructions.

.7 When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

.8 Submit a written report in accordance with Section 01300 that equipment or system has been properly installed and is functioning correctly.

1.18 DEMONSTRATION AND INSTRUCTIONS

.1 Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of final inspection.

1.19 TESTING, ADJUSTING, AND BALANCING

.1 Refer to drawings for requirements

PART 2 Products

.1 Not Used

PART 3 Execution

.1 Not Used

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Subsoil materials.

.2 Topsoil materials.

1.2 RELATED SECTIONS

.1 Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this section.

.2 Section 01400 - Quality Requirements: Testing soil fill materials.

.3 Section 02060 - Aggregate Materials.

.4 Section 02311 - Rough Grading.

.5 Section 02317 - Trenching.

.6 Section 02320 - Backfilling.

1.3 REFERENCES

.1 AASHTO T180 - Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and an 457 mm (18 inch) Drop.

.2 ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m³ (12,400 ft - lb/ft³)).

.3 ASTM D1556 - Test Method for Density and Weight Unit of Soil in Place by the Sand-Cone Method.

.4 ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN - m/m³ (56,000 ft - lb/ft³)).

.5 ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

.6 ASTM D2487 - Classification of Soils for Engineering Purposes (Unified Soil Classification System).

.7 ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

.8 ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.4 SUBMITTALS FOR INFORMATION

.1 Section 01300: Submission procedures.

.2 Materials Source: Submit name of imported materials source.

1.3 QUALITY ASSURANCE

.1 Perform work in accordance with City of Woodstock and County of Oxford Standards.

PART 2 Products

2.1 SUBSOIL MATERIALS

.1 NOT USED

2.2 SOURCE QUALITY CONTROL

.1 NOT USED

PART 3 Execution

3.1 SOIL REMOVAL

.1 Remove lumped soil, boulders, and rock.

.2 Excavated material to be stored on Owner's property.

3.2 STOCKPILING

.1 Stockpile materials on site at locations designated by Owner.

.2 Stockpile in sufficient quantities to meet Project schedule and requirements.

.3 Separate differing materials with dividers or stockpile apart to prevent mixing.

.4 Prevent intermixing of soil types or contamination.

.5 Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.3 STOCKPILE CLEANUP

.1 Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

.2 If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Aggregate materials.

1.2 RELATED SECTIONS

.1 Document 00320 - Subsurface Investigation Report: Geotechnical report; bore hole locations and findings of subsurface materials.

.2 Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this section.

.3 Section 01400 - Quality Requirements: Testing aggregate fill materials.

.4 Section 02055 - Soil Materials.

.5 Section 02317 - Trenching.

.6 Section 02320 - Backfilling.

.7 Section 02631 - Site Storm Sewerage.

.8 Section 02715 - Aggregate Base Course.

1.3 REFERENCES

.1 AASHTO - M147 - Materials for Aggregate and Soil-Aggregate.

.2 AASHTO T180 - Moisture-Density Relations of Soils Using a <4.54 kg> <<10 lb>> Rammer and an <457 mm> <<18 inch>> Drop.

.3 ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.

.4 ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m³ (12,400 ft - lb/ft³)).

.5 ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN - m/m³ (56,000 ft - lb/ft³)).

.6 ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

.7 ASTM D2487 - Classification of Soils for Engineering Purposes (Unified Soil Classification System).

.8 ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

.9 ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

.10 ASTM D4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.4 SUBMITTALS FOR INFORMATION

.1 Section 01300: Submission procedures.

.2 Materials Source: Submit name of imported materials suppliers.

1.5 QUALITY ASSURANCE

.1 Perform Work in accordance with Province of Ontario Ministry of Transport standards, City of Woodstock and County of Oxford Standards.

PART 2 Products

2.1 AGGREGATE MATERIALS

.1 Coarse Aggregate Type Granular 'B' Conforming to Province of Ontario Ministry of Transport standards.

.2 Coarse Aggregate Type Granular 'A' Conforming to Province of Ontario Ministry of Transport standards.

2.2 SOURCE QUALITY CONTROL

.1 Section 01400: Source testing and analysis of aggregate material.

.2 Fine Aggregate Material - Testing and Analysis: Perform in accordance with applicable standards.

.3 If tests indicate materials do not meet specified requirements, change material or material source and retest.

.4 Provide materials of each type from same source throughout the Work.

PART 3 Execution

3.1 STOCKPILING

.1 Stockpile materials on site at locations indicated designated by Owner.

.2 Stockpile in sufficient quantities to meet Project schedule and requirements.

.3 Separate differing materials with dividers or stockpile apart to prevent mixing.

.4 Direct surface water away from stockpile site so as to prevent erosion or deterioration of materials.

3.2 STOCKPILE CLEANUP

.1 Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

.2 If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Removal of surface debris.

.2 Removal of paving, curbs, and concrete.

.3 Removal of trees, shrubs, and other plant life.

1.2 RELATED SECTIONS

.1 Section 01950 - Demolition.

1.3 REGULATORY REQUIREMENTS

.1 Conform to applicable codes for environmental requirements and disposal of debris.

.2 Coordinate clearing Work with utility companies.

PART 2 Execution

2.1 PREPARATION

.1 Identify a salvage area for placing removed materials.

2.2 PROTECTION

.1 Locate, identify, and protect utilities that remain, from damage.

.2 Protect bench marks, survey control points, and existing structures from damage or displacement.

2.3 CLEARING

.1 Clear areas required for access to site and execution of Work.

2.4 REMOVAL

.1 Partially remove paving, curbs, and concrete as indicated. Neatly saw cut edges at right angle to surface.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Removal of topsoil and subsoil.

.2 Cutting, grading, filling, rough contouring, and compacting, the site for new road construction.

1.2 RELATED SECTIONS

.1 Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this section.

.2 Section 01400 - Quality Requirements: Testing fill compaction.

.3 Section 02055 - Soil Materials.

.4 Section 02060- Aggregate Materials.

.5 Section 02231 - Site Clearing.

.6 Section 02316 - Excavating: Building excavation.

.7 Section 02317 - Trenching: Trenching and backfilling for utilities.

.8 Section 02320 - Backfilling: General building area backfilling.

1.3 REFERENCES

.1 AASHTO T180 - Moisture-Density Relations of Soils Using a 4.54 kg Rammer and a 457 mm Drop.

.2 ASTM C136 - Method For Sieve Analysis of Fine and Coarse Aggregates.

.3 ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m³ (12,400 ft - lb/ft³)).

.4 ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.

.5 ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN - m/m³ (56,000 ft - lb/ft³)).

.6 ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

.7 ASTM D2419 - Test Method For Sand Equivalent Value of Soils and Fine Aggregate.

.8 ASTM D2434 - Test Method For Permeability of Granular Soils (Constant Head).

.9 ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

.10 ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.4 QUALITY ASSURANCE

.1 Perform work in accordance with City of Woodstock and County of Oxford Standards.

1.5 PROJECT RECORD DOCUMENTS

.1 Section 01700: Submission procedures.

.2 Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 Products

2.1 EXAMINATION

.1 Section 01700: Verify site conditions.

.2 Verify that survey bench mark and intended elevations for the Work are as indicated.

2.2 PREPARATION

.1 Identify required lines, levels, contours, and datum.

.2 Stake and flag locations of known utilities.

.3 Locate, identify, and protect utilities that remain, from damage.

.4 Notify utility company to remove and relocate utilities.

.5 Protect above and below grade utilities that remain.

.6 Protect plant life, lawns and other features remaining as a portion of final landscaping.

.7 Protect bench marks, survey control point, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

2.3 SUBSOIL EXCAVATION

.1 Excavate subsoil from areas to be further excavated, re-landscaped, or re-graded.

.2 Do not excavate wet subsoil without approval from consultant.

.3 When excavating through roots, perform work by hand and cut roots with sharp axe.

.4 Stockpile in area designated on site to depth not exceeding 8 feet and protect from erosion. Remove from site, subsoil not being reused.

.5 Benching Slopes: Horizontally bench existing slopes greater than 1:3 to key placed fill material to slope to provide firm bearing.

.6 Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

2.4 FILLING

.1 Install Work in accordance with Municipality of Central Elgin guidelines or recommendations of soil consultant, whichever is more stringent.

.2 Fill areas to contours and elevations with unfrozen materials.

.3 Place fill material on continuous layers and compact in accordance with the recommendations of the soils report.

.4 Maintain optimum moisture content of fill materials to attain required compaction density.

.5 Slope grade away from building as per site grading plan.

.6 Make grade changes gradual. Blend slope into level areas.

.7 Remove surplus fill materials from site.

2.5 TOLERANCES

.1 Top Surface of Subgrade: Plus or minus 1 inch from required elevation.

2.6 FIELD QUALITY CONTROL

.1 Section 01400: Field inspection and testing.

.2 Testing: In accordance with inspection firm recommended practice.

.3 If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

.4 Frequency of Tests: As directed by soils consultant

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Final grade topsoil for finish landscaping.

1.2 RELATED SECTIONS

.1 Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this Section.

.2 Section 01400 - Quality Requirements: Testing fill compaction.

.3 Section 02055 - Soil Materials.

.4 Section 02311 - Rough Grading: Site contouring.

.5 Section 02317 - Trenching: Backfilling trenches.

.6 Section 02320 - Backfilling: Backfilling at building areas.

.7 Section 02922 - Seeding Finish ground cover.

PART 2 Products

2.1 MATERIAL

.1 Topsoil: As specified in Section 02055

PART 3 Execution

3.1 EXAMINATION

.1 Verify building and trench backfilling have been inspected.

.2 Verify substrate base has been contoured and compacted.

3.2 SUBSTRATE PREPARATION

.1 Eliminate uneven areas and low spots.

.2 Remove debris, roots, branches, stones, in excess of 25mm in size. Remove subsoil contaminated with petroleum products.

.3 Scarify surface to depth of 75mm where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.3 PLACING TOPSOIL

.1 Place topsoil in areas where seeding is required. Place topsoil during dry weather.

.2 Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.

.3 Remove roots, weeds, rocks, and foreign material while spreading.

.4 Manually spread topsoil close to retaining wall to prevent damage.

.5 Lightly compact placed topsoil.

.6 Remove surplus subsoil and topsoil from site.

.7 Leave stockpile area and site clean and raked, ready to receive landscaping.

3.4 TOLERANCES

.1 Top of Topsoil: Plus or minus 13mm.

3.5 PROTECTION

.1 Protect landscaping and other features remaining as final work.

.2 Protect existing structures, fences, sidewalks, utilities, paving and curbs.

3.6 SCHEDULES

.1 Seeded Grass: 150mm.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Excavating for slabs-on-grade, and press foundation.

1.2 RELATED SECTIONS

.1 Document 00320 - Subsurface Investigation Report: Geotechnical report; bore hole locations and findings of subsurface materials.

.2 Section 01200 - Price and payment Procedures: Requirements applicable to unit prices for the work of this Section.

.3 Section 01400 - Quality Requirements: Inspection of bearing surfaces.

.4 Section 01500 - Construction Facilities and Temporary Controls: Dewatering of excavations and water control.

.5 Section 02320 - Backfilling.

1.3 FIELD MEASUREMENTS

.1 Verify that survey bench mark and intended elevations for the Work are as indicated.

PART 2 Products

Not Used.

PART 3 Execution

3.1 PREPARATION

.1 Identify required lines, levels, contours, and datum locations.

.2 Protect bench marks, survey control points, existing structures, fences, from excavating equipment and vehicular traffic.

3.2 EXCAVATING

.1 Excavate subsoil to accommodate press foundations and slabs-on-grade.

.2 Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; perform compaction in accordance with Section 02320.

.3 Do not interfere with 45 degree bearing splay of foundations.

.4 Hand trim excavation. Remove loose matter.

.5 Notify Consultant of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

.6 Correct areas over excavated in accordance with Section 02320.

.7 Remove excavated material from site.

3.3 FIELD QUALITY CONTROL

.1 Section 01400 - Quality Requirements: Field inspection and testing.

.2 Provide for visual inspection of bearing surfaces.

3.4 PROTECTION

.1 Prevent displacement or loose soil from falling into excavation; maintain soil stability.

.2 Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Excavating trenches for utilities from five [5] feet outside building to main lines or for municipal utilities.

.2 Compacted fill from top of utility bedding to subgrade elevations.

.3 Backfilling and compaction.

1.2 RELATED SECTIONS

.1 Section 01400 - Quality Requirements: Testing fill compaction.

.2 Section 01500 - Temporary Facilities and Controls: Water control in excavations.

.3 Section 02055 - Soil Materials.

.4 Section 02060 - Aggregate Materials.

.5 Section 02311 - Rough Grading: Topsoil and subsoil removal from site surface.

.6 Section 02320 - Backfilling: General backfilling.

1.3 REFERENCES

.1 AASHTO T180 - Moisture-Density Relations of Soils Using a 4.54 kg Rammer and a 457 mm Drop.

.2 ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.

.3 ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m³ (12,400 ft - lb/ft³)).

.4 ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.

.5 ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN - m/m³ (56,000 ft - lb/ft³)).

.6 ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

.7 ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

.8 ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.4 DEFINITIONS

.1 Utility: Any buried pipe, duct, conduit, or cable.

1.5 FIELD MEASUREMENTS

.1 Verify that survey bench mark, control point, and intended elevations for the Work are as shown on drawings.

1.6 COORDINATION

.1 Coordinate work to Section 01300.

.2 Verify work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 Products

2.1 FILL MATERIALS

.1 Fill Type Granular 'B'.

.2 Structural Fill Type Granular 'A'.

.3 Concrete: Lean concrete with a compressive strength of 10 MPa.

2.2 ACCESSORIES

.1 Geotextile Fabric: Non-biodegradable, woven.

.2 Filter Fabric: Non-biodegradable, woven.

PART 3 Execution

3.1 PREPARATION

.1 Identify required lines, levels, contours, and datum locations.

.2 Protect plant life, lawns and other features remaining as a portion of final landscaping.

.3 Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

.4 Maintain and protect above and below grade utilities which are to remain.

.5 Identify areas of subgrade not capable of compaction in place using procedure in the soils investigation report. Follow procedure for required subexcavation called for in the soils investigation report.

3.2 EXCAVATING

.1 Excavate subsoil required for utilities to municipal utilities.

.2 Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.

.3 Do not interfere with 45 degree bearing splay of foundations.

.4 Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.

.5 Remove lumped subsoil, boulders, and rock.

.6 Correct areas over excavated in accordance with Section 02320.

.7 Stockpile excavated material in area designated on site and remove excess material not being used.

3.3 BACKFILLING

.1 Backfill trenches to contours and elevations with unfrozen fill materials.

.2 Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

.3 Granular Fill: Place and compact materials in equal continuous layers not exceeding 12 inches compacted depth.

.4 Employ a placement method that does not disturb or damage utilities in trench.

.5 Maintain optimum moisture content of fill materials to attain required compaction density.

.6 Remove surplus fill materials from site.

.7 Leave fill material stockpile areas completely free of excess fill materials.

3.4 TOLERANCES

.1 Top Surface of Backfilling under Paved Areas 25 mm from required elevations.

.2 Top Surface of General Backfilling: Plus or minus 1inch from required elevations.

3.5 FIELD QUALITY CONTROL

.1 Section 01400 - Quality Requirements: Field inspection and testing.

.2 Compaction testing will be performed in accordance with ASTM D1556

.3 If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

.4 Frequency of Tests: By Inspection Company

3.6 PROTECTION OF FINISHED WORK

.1 Protect finished Work to Section 01300.

.2 Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Building perimeter and site structure backfilling to subgrade elevations.

.2 Site filling and backfilling.

.3 Fill under slabs-on-grade.

.4 Consolidation and compaction as scheduled.

1.2 RELATED SECTIONS

.1 Document 00320 - Subsurface Investigation Report: Geotechnical report; bore hole locations and findings of subsurface materials.

.2 Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this section.

.3 Section 01400 - Quality Requirements: Compaction testing.

.4 Section 02316 - Excavating.

.5 Section 02317 - Trenching: Backfilling of utility trenches.

.6 Section 03300 - Cast-in-Place Concrete: Concrete materials.

1.3 REFERENCES

.1 AASHTO T180 - Moisture-Density Relations of Soils Using a 10 lb Rammer and an 18 inch Drop.

.2 ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft - lb/ft^3).

.3 ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.

.4 ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft - lb/ft^3).

.5 ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

.6 ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

.7 ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

PART 2 Products

2.1 FILL MATERIALS

.1 Fill Type Granular 'B'.

.2 Structural Fill Type Granular 'A'.

.3 Concrete: Lean concrete conforming to Section 03300 with a compressive strength of 10 MPa.

PART 3 Execution

3.1 EXAMINATION

.1 Verify subdrainage, dampproofing, or waterproofing installation has been inspected.

.2 Verify underground tanks are anchored to their own foundations to avoid flotation after backfilling.

.3 Verify structural ability of unsupported walls to support imposed loads by the fill.

3.2 PREPARATION

.1 Compact subgrade to density requirements for subsequent backfill materials.

.2 Cut out soft areas of subgrade not capable of compaction in place. Backfill with Type Granular 'B' fill and compact to density equal to or greater than requirements for subsequent fill material.

.3 Scarify and proof roll subgrade surface to a depth of 12 inches to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.3 BACKFILLING

.1 Backfill areas to contours and elevations with unfrozen materials.

.2 Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.

.3 Granular Fill: Place and compact materials in equal continuous layers not exceeding 12 inches compacted depth.

.4 Employ a placement method that does not disturb or damage other work.

.5 Maintain optimum moisture content of backfill materials to attain required compaction density.

.6 Backfill simultaneously on each side of unsupported foundation walls until supports are in place.

.7 Make gradual grade changes. Blend slope into level areas.

.8 Remove surplus backfill materials from site.

.9 Leave fill material stockpile areas free of excess fill materials.

3.4 TOLERANCES

.1 Top Surface of Backfilling: Plus or minus ½ inch from required elevations.

.2 Top Surface of General Backfilling: Plus or minus ½ inch from required elevations.

3.5 FIELD QUALITY CONTROL

.1 Section 01400 - Quality Requirements: Field inspection and testing.

.2 Compaction testing will be performed in accordance with ASTM D1556

.3 If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

.4 Proof roll compacted fill surfaces under slabs-on-grade, and press foundation

3.6 PROTECTION OF FINISHED WORK

.1 Protect finished Work to Section 01300.

.2 Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Modular precast concrete manhole sections with tongue-and-groove joints, covers, anchorage, and accessories.

1.2 RELATED SECTIONS

.1 Section 02316 - Excavating: Excavating for manholes and base pads.

.2 Section 02320 - Backfilling: Backfilling after manhole installation.

.3 Section 03300 - Cast-In-Place Concrete.

.4 Section 04060 - Mortar and Masonry Grout: Mortar and grout.

1.3 REFERENCES

.1 ASTM A48/A48M - Gray Iron Castings.

.2 ASTM C55 - Concrete Brick.

.3 ASTM C62 - Building Brick (Solid Masonry Units Made From Clay or Shale).

.4 ASTM C478 - Precast Reinforced Concrete Manhole Sections.

.5 ASTM C923/C923M - Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.

.6 ASTM D3753 - Glass-Fibre-Reinforced Polyester Manholes and Wetwells.

.7 IMIAC (International Masonry Industry All-Weather Council) - Recommended Practices and Guide Specification for Cold Weather Masonry Construction.

1.4 QUALIFICATIONS

.1 Manufacturer: Company specializing in manufacturing products specified in this section with minimum three (3) years experience.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Cold Weather Requirements: IMIAC - Recommended Practices and Specifications for Cold Weather Masonry Construction.

PART 2 Products

2.1 MATERIALS

.1 Manufacturers:

.1 Coldstream Concrete Limited.

.2 Con Cast Pipe.

.3 Forterra Pipe and Precast.

.4 Substitutions: Refer to Section 01600.

.2 Manhole Sections: Reinforced precast concrete in accordance with OPSS 701.010 with gaskets in accordance with ASTM C923.

.3 Mortar and Grout: As specified in Section 04060.

2.2 COMPONENTS

.1 Lid and Frame: Cast iron construction, machined flat bearing surface, removable lid, closed checkerboard grille.

.2 Manhole Steps: Formed aluminum rungs; 19 mm diameter. Formed integral with manhole sections.

2.3 CONFIGURATION

.1 As indicated on drawings.

.2 Steps: As required by code.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verify items provided by other sections of Work are properly sized and located.

.2 Verify that built-in items are in proper location, and ready for roughing into Work.

.3 Verify excavation for manholes is correct.

3.2 PREPARATION

.1 Coordinate placement of inlet and outlet pipe or duct sleeves required by other sections.

3.3 PLACING MANHOLE SECTIONS

.1 Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.

.2 Cut and fit for pipe and trench drain openings.

.3 Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour as required.

.4 Set cover frames and covers level without tipping, to correct elevations.

.5 Coordinate with other sections of work to provide correct size, shape, and location.

3.4 SCHEDULES

.1 Sanitary Manholes: as indicated on site servicing drawings.

.2 Storm Manholes and catch basins: as indicated on site servicing drawings.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Aggregate base course.

1.2 RELATED SECTIONS

.1 Section 01400 - Quality Requirements: Inspection of bearing surfaces.

.2 Section 02060 - Aggregate Materials.

.3 Section 02311 - Rough Grading: Preparation of site for base course.

.4 Section 02314 - Landscape Grading: Topsoil fill at areas adjacent to aggregate base course.

.5 Section 02317 - Trenching: Compacted fill under base course.

.6 Section 02320 - Backfilling: Compacted fill under base course.

.7 Section 02741 - Asphalt Concrete Paving: Binder and finish asphalt courses.

1.3 REFERENCES

.1 AASHTO T180 - Moisture-Density Relations of Soils Using a 10 lb Rammer and an 18 inch Drop.

.2 ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m³ (12,400 ft - lb/ft³)).

.3 ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN - m/m³ (56,000 ft - lb/ft³)).

.4 ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

.5 ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

.6 ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

PART 2 Products

2.1 MATERIALS

.1 in accordance with site servicing drawings.

PART 3 Execution

3.1 EXAMINATION

.1 Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.2 PREPARATION

.1 Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

.2 Do not place fill on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT

.1 Spread aggregate over prepared substrate to a total compacted thickness as per subsurface investigation report

.2 Place aggregate as per subsurface investigation report

.3 Level and contour surfaces to elevations and gradients indicated.

.4 Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.

.5 Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

.6 Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

.1 Flatness: Maximum variation of ¼ inch measured 10 foot straight edge.

.2 Scheduled Compacted Thickness: Within ¼ inch.

.3 Variation from Design Elevation: Within ½ inch.

3.5 FIELD QUALITY CONTROL

.1 Section 01400: Field inspection.

.2 Compaction testing will be performed in accordance with ASTM D1556

.3 If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.6 SCHEDULES

.1 Compact placed aggregate materials to achieve compaction per subsurface investigation report

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Asphaltic concrete paving, wearing binder or base course.

.2 Surface sealer.

.3 Aggregate base courses.

1.2 RELATED SECTIONS

.1 Section 02311 - Rough Grading: Preparation of site for paving and base.

.2 Section 02320 - Backfilling: Compacted subbase for paving.

.3 Section 02635 - Manholes and Covers:

.4 Section 02715 - Aggregate Base Course.

1.3 REFERENCES

.1 ASTM D946 - Penetration-Graded Asphalt Cement for Use in Pavement Construction.

.2 TAI - (The Asphalt Institute) - MS-2 Mix Design Methods for Asphalt.

.3 TAI - (The Asphalt Institute) - MS-3 Asphalt Plant Manual.

.4 TAI - (The Asphalt Institute) - MS-8 Asphalt Paving Manual.

.5 TAI - (The Asphalt Institute) - MS-19 Basic Asphalt Emulsion Manual.

1.4 PERFORMANCE REQUIREMENTS

.1 Paving: Designed for movement of trucks up to 120,000 lbs.

1.5 QUALITY ASSURANCE

.1 Perform Work in accordance with appropriate standards.

.2 Mixing Plant: Conform to Province of Ontario Ministry of Transport standard.

.3 Obtain materials from same source throughout.

1.6 ENVIRONMENTAL REQUIREMENTS

.1 Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 Products

2.1 ASPHALT PAVING MIX

.1 Use dry material to avoid foaming. Mix uniformly.

.2 Asphalt designs as shown on drawings.

PART 3 Execution

3.1 EXAMINATION

.1 Verify base conditions to Section 01700.

.2 Verify that compacted granular base is dry and ready to support paving and imposed loads.

.3 Verify gradients and elevations of base are correct.

3.2 SUBBASE

.1 Section 02715: Aggregate base course forms the base construction for work of this section.

3.3 PLACING ASPHALT PAVEMENT - DOUBLE COURSE

.1 Place binder course to thickness identified on drawings.

.2 Place wearing course to thickness identified on drawings.

.3 Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

.4 Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.4 TOLERANCES

.1 Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

.2 Scheduled Compacted Thickness: Within 1/4 inch.

.3 Variation from True Elevation: Within 1/2 inch.

3.5 FIELD QUALITY CONTROL

.1 Section 01400: Provide field inspection and testing.

3.6 PROTECTION

.1 Immediately after placement, protect pavement from mechanical injury for 1 day or until surface temperature is less than <60 degrees C> << 140 degrees F>>.

3.7 SCHEDULES

.1 Pave in areas as shown on drawings.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Preparation of subsoil.

.2 Placing topsoil.

.3 Hydroseeding, mulching and fertilizing.

.4 Maintenance.

1.2 RELATED SECTIONS

.1 Section 02055 - Soil Materials: Topsoil material.

.2 Section 02314 - Landscape Grading: Preparation of subsoil and placement of topsoil in preparation for the work of this section.

.3 Section 02317 - Trenching: Rough grading over cut.

.4 Section 02320 - Backfilling: Rough grading of site.

1.3 DEFINITIONS

.1 Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.4 SUBMITTALS AT PROJECT CLOSEOUT

.1 Section 01700 - Execution Requirements: Procedures for submittals.

.2 Maintenance Data: Include maintenance instructions, cutting method and maximum grass height.

1.5 QUALITY ASSURANCE

.1 Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.6 REGULATORY REQUIREMENTS

.1 Comply with regulatory agencies for fertilizer and herbicide composition.

.2 Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixture.

1.7 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01600 - Product Requirements: Transport, handle, store, and protect products.

.2 Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

.3 Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.8 MAINTENANCE SERVICE

.1 Section 01700 - Execution Requirements.

.2 Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition for two cuttings.

PART 2 Products

2.1 SEED MIXTURE

.1 Seed Mixture:

.1 40% Kentucky Bluegrass/40% Creeping Red Fescue/20% Perennial Ryegrass

.2 Seeding rate to be 250 kg/ha.

.3 Seed with nurse crop of Annual Rye at 22-25 kg/ha.

2.2 SOIL MATERIALS

.1 Topsoil: As specified in Section 02055.

2.3 ACCESSORIES

.1 Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

.2 Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

.3 Erosion Fabric: Jute matting, open weave.

.4 Herbicide.

.5 Stakes: Softwood lumber, chisel pointed.

.6 String: Inorganic fibre.

PART 3 Execution

3.1 EXAMINATION

.1 Verify that prepared soil base is ready to receive the work of this section.

3.2 PLACING TOPSOIL

.1 Spread topsoil to a minimum depth of 50 mm over area to be seeded. Rake until smooth.

.2 Place topsoil during dry weather and on dry unfrozen subgrade.

.3 Remove vegetable matter and foreign non-organic material from topsoil while spreading.

.4 Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.

.5 Install edging at periphery of seeded areas in straight lines to consistent depth.

.6 Coordinate with installation of underground sprinkler system piping and watering heads.

3.3 HYDROSEEDING

.1 Apply seeded slurry with a hydraulic seeder evenly in two intersecting directions.

.2 Do not hydroseed area in excess of that which can be mulched on same day.

.3 Immediately following seeding, apply mulch to a thickness of 3 mm. Maintain clear of shrubs and trees.

.4 Apply water with a fine spray immediately after each area has been mulched. Saturate to 100 mm of soil.

3.4 SEED PROTECTION

.1 Identify seeded areas with stakes and string around area periphery.

.2 Cover seeded slopes where grade is 1:3 or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.

.3 Lay fabric smoothly on surface, bury top end of each section in 150 mm deep excavated topsoil trench. Provide 300 mm overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.

.4 Secure outside edges and overlaps at 900 mm intervals with stakes.

.5 Lightly dress slopes with topsoil to ensure close contact between fabric and soil.

.6 At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 150 mm.

3.5 MAINTENANCE

.1 Mow grass at regular intervals to maintain at a maximum height of 65 mm. Do not cut more than 1/3 of grass blade at any one mowing.

.2 Neatly trim edges and hand clip where necessary.

.3 Immediately remove clippings after mowing and trimming.

.4 Water to prevent grass and soil from drying out.

.5 Roll surface to remove minor depressions or irregularities.

.6 Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.

.7 Immediately reseed areas which show bare spots.

.8 Protect seeded areas with warning signs during maintenance period.

3.6 SCHEDULE

.1 Grass areas noted on site plan.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Formwork for cast-in place concrete, with shoring, bracing and anchorage.

.2 Openings for other work.

.3 Form accessories.

.4 Form stripping.

1.2 RELATED SECTIONS

.1 Section 03200 - Concrete Reinforcement.

.2 Section 03300 - Cast-in-Place Concrete: Supply of concrete accessories for placement by this section.

.3 Section 05500 - Metal Fabrications: Supply of metal fabrications for placement by this section.

1.3 REFERENCES

.1 ACI 301 - Structural Concrete.

.2 ACI 318 - Building Code Requirements for Structural Concrete and Commentary.

.3 ACI 347 - Guide to Formwork for Concrete.

.4 CAN/CSA-A23.1 - Concrete Materials and Methods of Concrete Construction.

.5 CAN/CSA-O86.1 - Engineering Design in Wood (Limit States Design).

.6 CSA O151 - Canadian Softwood Plywood.

.7 CAN/CSA O188.0 - Standard Test Methods for Mat-Formed Wood Particleboards and Waferboard.

.8 CSA O437 Series - Standards on OSB and Waferboard.

.9 CSA S269.1 - Falsework for Construction Purposes.

.10 CAN/CSA-S269.3 - Concrete Formwork.

.11 COFI (Council of Forest Industries of British Columbia) - Exterior Plywood for Concrete Formwork.

.12 PS 1 - Construction and Industrial Plywood.

1.4 DESIGN REQUIREMENTS

.1 Design, engineer and construct formwork, shoring and bracing to conform to code requirements; resultant concrete to conform to required shape, line and dimension.

.2 Conform to CSA S269.1.

1.5 QUALITY ASSURANCE

.1 Perform Work in accordance with CAN/CSA-O86.1 standards.

1.6 DELIVERY, STORAGE, AND PROTECTION

.1 Transport, handle, store, and protect products.

.2 Deliver void forms and installation instructions in manufacturer's packaging.

.3 Store off ground in ventilated and protected manner to prevent deterioration from moisture.

PART 2 Products

2.1 WOOD FORM MATERIALS

.1 Form Materials: At the discretion of the Contractor.

2.2 FORMWORK ACCESSORIES

.1 Form Ties: Snap-off type, galvanized metal, adjustable length, cone type, with waterproofing washer, free of defects that could leave holes larger than 1 inch in concrete surface.

.2 Form Release Agent:

.1 Colourless mineral oil which will not stain concrete, or absorb moisture.

.2 Non-toxic, biodegradable, low VOC.

.3 Form Stripping Agent: Colourless mineral oil, non-toxic, biodegradable, low VOC, free of kerosene.

.4 Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

.5 Waterstops: Preformed mineral colloid strips, 3/8 thick, moisture expanding.

PART 3 Execution

3.1 EXAMINATION

.1 Verify lines, levels and centres before proceeding with formwork.

.2 Ensure that dimensions agree with drawings.

3.2 EARTH FORMS

.1 Earth forms are not permitted.

3.3 ERECTION - FORMWORK

.1 Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.

.2 Fabricate and erect false work in accordance with CSA S269.1.

.3 Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

.4 Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

.5 Align joints and make watertight. Keep form joints to a minimum.

.6 Obtain approval before framing openings in structural members which are not indicated on Drawings.

.7 Install void forms in accordance with manufacturer's recommendations. Protect forms from moisture or crushing.

.8 Coordinate this section with other sections of work which require attachment of components to formwork.

.9 If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Consultant.

3.4 APPLICATION - FORM RELEASE AGENT

.1 Apply form release agent on formwork in accordance with manufacturer's recommendations.

.2 Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

.3 Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS

.1 Provide formed openings where required for items to be embedded in passing through concrete work.

.2 Locate and set in place items which will be cast directly into concrete.

.3 Coordinate with work of other sections in forming and placing openings, slots, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.

.4 Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.

.5 Install waterstops in accordance with manufacturer's instructions continuous without displacing reinforcement. Heat seal joints watertight.

.6 Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

.7 Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

3.6 FORM CLEANING

.1 Clean forms as erection proceeds, to remove foreign matter within forms.

.2 Clean formed cavities of debris prior to placing concrete.

.3 Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

3.7 FORMWORK TOLERANCES

.1 Construct formwork to maintain tolerances required by ACI 301.

3.8 FIELD QUALITY CONTROL

.1 Section 01400: Field inspection and testing.

.2 Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

3.9 FORM REMOVAL

.1 Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

.2 Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

.3 Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Reinforcing steel bars, wire fabric and accessories for cast-in-place concrete.

1.2 RELATED SECTIONS

.1 Section 03100 - Concrete Forms.

.2 Section 03300 - Cast-in-Place Concrete.

.3 Section 03355 - Concrete Floor Finishing: Reinforcement for concrete floor toppings.

1.3 REFERENCES

.1 ACI 301 - Structural Concrete.

.2 ACI 318 - Building Code Requirements For Structural Concrete and Commentary.

.3 ACI SP-66 - American Concrete Institute - Detailing Manual.

.4 ASTM A82 - Steel Wire, Plain, for Concrete Reinforcement.

.5 ASTM A184/A184M - Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.

.6 ASTM A185 - Steel Welded Wire Reinforcement, Plain, for Concrete.

.7 ASTM A496 - Steel Wire, Deformed, for Concrete Reinforcement.

.8 ASTM A497 - Steel Welded Wire Reinforcement, Deformed, for Concrete.

.9 ASTM A615/A615M - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

.10 ASTM A704/A704M - Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.

.11 ASTM A706 - Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.

.12 ASTM A767/A767M - Zinc-Coated (Galvanized) Bars for Concrete Reinforcement.

.13 ASTM A775/A775M - Epoxy-Coated Reinforcing Steel Bars.

.14 ASTM D3963D3963M - Fabrication and jobsite handling of Epoxy-Coated Steel Reinforcing Bars.

.15 AWS (American Welding Society) D1.1 - Structural Welding Code -Steel.

.16 AWS (American Welding Society) D12.1 - Welding Reinforcement Steel, Metal Inserts and Connections in Reinforced Concrete Construction.

.17 CRSI - Concrete Reinforcing Steel Institute - Manual of Practice.

1.4 CRSI 63 - Recommended Practice For Placing Reinforcing Bars.

.1 CRSI 65 - Recommended Practice For Placing Bar Supports, Specifications and Nomenclature.

.2 CAN/CSA-A23.1 - Concrete Materials and Methods of Concrete Construction.

.3 CAN3-A23.3 - Design of Concrete Structures.

.4 CSA G30.3 - Cold-Drawn Steel Wire for Concrete Reinforcement.

.5 CSA G30.5 - Welded Steel Wire Fabric for Concrete Reinforcement.

.6 CSA G30.14 - Deformed Steel Wire for Concrete Reinforcement.

.7 CSA G30.15 - Welded Deformed Steel Wire Fabric for Concrete Reinforcement.

.8 CAN/CSA-G30.18 - Billet-Steel Bars for Concrete Reinforcement.

.9 CAN/CSA-G40.21 - Structural Quality Steels.

.10 CAN/CSA-G164 - Hot Dip Galvanizing of Irregularly Shaped Articles.

.11 CSA W186 - Welding of Reinforcing Bars in Reinforced Concrete Construction.

.12 RSIC (Reinforcing Steel Institute of Canada) - Reinforcing Steel Manual of Standard Practice.

1.5 SUBMITTALS FOR REVIEW

.1 Section 01300: Procedures for submittals.

.2 Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.

.3 Prepare reinforcement drawings in accordance with Reinforcing Steel Manual of Standard Practice - by Reinforcing Steel Institute of Canada.

.4 Detail lap lengths and bar development lengths to CAN3-A23.3.

1.6 SUBMITTALS FOR INFORMATION

.1 Section 01300: Procedures for submittals.

.2 Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

.3 Submit certified copies of mill test report of reinforcement materials analysis.

1.7 QUALITY ASSURANCE

.1 Perform Work in accordance with CRSI 63, 65 and Manual of Practice

PART 2 Products

2.1 REINFORCEMENT

.1 Reinforcing Steel: CAN/CSA-G30.18, billet steel, Grade 400, deformed bars, weldable low alloy bars, unfinished.

.2 Welded Steel Wire Fabric: CSA G30.14 - Deformed steel wire, CSA G30.15 - Welded deformed steel wire.

2.2 ACCESSORIES

.1 Tie Wire: Minimum 16 gauge annealed type.

.2 Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapour barrier puncture.

.3 Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic coated steel type; size and shape as required.

2.3 FABRICATION

.1 Fabricate concrete reinforcing in accordance with:

.1 CAN/CSA-A23.1.

.2 RSIC - Reinforcing Steel Manual of Standard Practice.

.2 Locate reinforcing splices not indicated on drawings, at point of minimum stress.

PART 3 Execution

3.1 PLACEMENT

.1 Place, support and secure reinforcement against displacement. Do not deviate from required position to CAN/CSA A23.1.

.2 Do not displace or damage vapour barrier.

.3 Accommodate placement of formed openings.

.1 Maintain concrete cover around reinforcing as per drawings.

3.2 FIELD QUALITY CONTROL

.1 Section 01400: Field inspection and testing.

.2 Inspect for acceptability.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Cast-in-place concrete floors, foundation walls.

.2 Floors and slabs on grade.

.3 Control, expansion and contraction joint devices associated with concrete work.

1.2 RELATED SECTIONS

.1 Section 03100 - Concrete Formwork: Formwork and accessories.

.2 Section 03200 - Concrete Reinforcement.

.3 Section 03355 - Concrete Floor Finishing.

.4 Section 03390 - Concrete Curing.

1.3 REFERENCES

.1 ACI 211.1 - Selecting Proportions for Normal, Heavyweight, and Mass Concrete.

.2 ACI 211.2 - Selecting Proportions for Structural Lightweight Concrete.

.3 ACI 301 - Structural Concrete.

.4 ACI 302 - Guide for Concrete Floor and Slab Construction.

.5 ACI 304 - Guide for Measuring, Mixing, Transporting and Placing Concrete.

.6 ACI 305R - Hot Weather Concreting.

.7 ACI 306R - Cold Weather Concreting.

.8 ACI 308 - Guide to Curing Concrete.

.9 ACI 318 - Building Code Requirements for Structural Concrete and Commentary.

.10 ASTM B221/B221M - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.11 ASTM C33 - Concrete Aggregates.

.12 ASTM C94/C94M - Ready-Mix Concrete.

.13 ASTM C150 - Portland Cement.

.14 ASTM C260 - Air Entraining Admixtures for Concrete.

.15 ASTM C330 - Light Weight Aggregates For Structural Concrete.

.16 ASTM C332 - Lightweight Aggregates For Insulating Concrete.

.17 ASTM C494/C494M - Chemical Admixtures for Concrete.

.18 ASTM C618 - Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.

.19 ASTM C827 - Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures.

.20 ASTM C948 - Test Method for Dry and Wet Bulk Density, Water Absorption and Apparent Porosity of Thin Sections of Glass-Fiber-Reinforced Concrete.

.21 ASTM D412 -Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.

.22 ASTM D624 - Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomer.

.23 ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type).

.24 ASTM D1190 - Concrete Joint Sealer, Hot-Poured Elastic Type.

.25 ASTM D1751 - Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).

.26 ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

.27 CAN/CSA A5 - Portland Cement.

.28 CAN/CSA A23.1 - Concrete Materials and Methods of Concrete Construction.

.29 CAN/CSA A23.2 - Methods of Test for Concrete.

.30 CAN/CSA A23.5 - Cementitious Materials Compendium.

.31 CAN/CSA A363 - Cementitious Materials Compendium.

1.4 SUBMITTALS FOR INFORMATION

.1 Section 01300: Procedures for submittals.

.2 Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent Work.

1.5 SUBMITTALS AT PROJECT CLOSEOUT

.1 Section 01700: Procedures for submittals.

.2 Accurately record actual locations of embedded utilities and components which are concealed from view.

1.6 QUALITY ASSURANCE

.1 Perform Work in accordance with ACI 301.

.2 Acquire cement and aggregate from same source for all work.

.3 Conform to ACI 305R when concreting during hot weather.

.4 Conform to ACI 306R when concreting during cold weather.

PART 2 Products

2.1 CONCRETE MATERIALS

.1 Portland Cement: CAN/CSA-A5, Type III, Natural colour.

.2 Portland Cement: ASTM C150, Type III - High Early Strength Natural colour.

.3 Fine and Coarse Aggregates: CAN/CSA-A23.1

.4 Water: CAN/CSA-A23.1, clean and not detrimental to concrete.

2.2 ADMIXTURES

.1 Air Entrainment: ASTM C260.

2.3 ACCESSORIES

.1 Shrinkage Compensating Grout: Premixed compound consisting of metallic non-metallic aggregate, Portland cement, water reducing and plasticizing agents.

- .1 Compressive strength: 48 MPa at 28 days.
- .2 Consistency:
  - .1 Fluid: to ASTM C827. Time of efflux through flow cone (ASTM C939), under 30 s.
  - .2 Flowable: to ASTM C827. Flow table, 5 drops in 3 s, (ASTM C109, applicable portion) 125 to 145%.
  - .3 Plastic: to ASTM C827. Flow table, 5 drops in 3 s, (ASTM C109, applicable portions) 100 to 125 %.
  - .4 Dry pack to manufacturer's requirements.
- .3 Net shrinkage at 28 days: maximum 1 %.

.2 Non-Premixed Dry Pack Grout: Composition of non metallic aggregate, Portland cement with sufficient water for mixture to retain its shape when made into a ball by hand and capable of developing compressive strength of 48 MPa when measured at 28 days.

.3 Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 17 MPa in 48 hours and 48 MPa in 28 days.

.4 Vapour Retarder: 6 mil thick clear polyethylene film fabric reinforced plastic film type recommended for below grade application.

.1 Vapour retarder to be 10 mil thick PERMINATOR as manufactured by W.R. Meadows.

2.4 JOINT DEVICES AND FILLER MATERIALS

.1 Joint Filler Type A: ASTM D1752; Closed cell polyvinyl chloride foam, resiliency recovery of 95 percent if not compressed more than 50 percent of original thickness.

.2 Sawcut Joint Filler: Euco QWIKjoint 200 semi-rigid, polyurea prepared and installed in accordance with manufacturer's instructions.

.3 Ribbed Water Stops: Extruded PVC, Arctic Grade:

.1 Tensile Strength: ASTM D412, Method A, Die "C", minimum 13.94 MPa.

.2 Elongation: ASTM D412, Method A, Die "C", minimum 275%.

.3 Tear Resistance: ASTM D624, Method A, Die "B", minimum 14.6 kN/m.

.4 Sealant: Cold applied.

2.5 CONCRETE MIX

.1 Mix and deliver concrete in accordance with CAN/CSA-A23.1.

.2 Mix and deliver concrete in accordance with ASTM C94, Alternative No. 2.

.3 Use accelerating admixtures in cold weather only when approved by Consultant. Use of admixtures will not relax cold weather placement requirements.

.4 Use calcium chloride only when approved by Consultant.

.5 Use set retarding admixtures during hot weather only when approved by Consultant.

.6 Add air entraining agent to normal weight concrete mix for work exposed to exterior.

PART 3 Execution

3.1 EXAMINATION

.1 Verify site conditions to Section 01700.

.2 Verify requirements for concrete cover over reinforcement.

.3 Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.2 PREPARATION

.1 Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

.2 In locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

.3 Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

3.3 PLACING CONCRETE

.1 Place concrete in accordance with CAN/CSA-A23.1.

.2 Notify Consultant minimum 24 hours prior to commencement of operations.

.3 Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.

.4 Install vapour retarder under interior slabs on grade. Lap joints minimum 6 inches and seal watertight by sealant applied between overlapping edges and ends.

.5 Repair vapour retarder damaged during placement of concrete reinforcing. Repair with vapour retarder material; lap over damaged areas minimum 6 and seal watertight.

.6 Water Stops.

.1 Install water stops to provide continuous water seal.

.2 Do not distort or pierce water stop in such a way as to hamper performance.

.3 Do not displace reinforcement when installing water stops.

.4 Use equipment to manufacturer's requirements to field splice water stops.

.5 Tie water stops rigidly in place.

.6 Use only straight heat sealed butt joints in field.

.7 Use factory welded corners and intersections.

.7 Separate slabs on grade from vertical surfaces with ½ inch thick joint filler.

.8 Extend joint filler from bottom of slab to within 1/8 inch of finished slab surface. Conform to Section 07900 for finish joint sealer requirements.

.9 Apply sealants in joint devices in accordance with Section 07900.

.10 Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

.11 Place concrete continuously between predetermined expansion, control, and construction joints.

.12 Do not interrupt successive placement; do not permit cold joints to occur.

.13 Place floor slabs in pattern indicated.

.14 Saw cut joints within 24 hours after placing. Use 3/16 inch thick blade, cut into ¼ depth of slab thickness.

.15 Screed floors and slabs on grade level, maintaining surface flatness of maximum 1/8 inch in 10 feet.

3.4 CONCRETE FINISHING

.1 Provide formed concrete surfaces to be left exposed with smooth rubbed finish.

.2 Finish concrete floor surfaces to requirements of Section 03355.

.3 Wood float surfaces which will receive ceramic tile with full bed setting system.

.4 Steel trowel surfaces which will receive carpeting and thin set ceramic

.5 Steel trowel surfaces which are scheduled to be exposed.

.6 In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on drawings.

3.5 CURING AND PROTECTION

.1 Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

.2 Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

.3 Cure concrete floor surfaces to requirements of Section 03390.

3.6 FIELD QUALITY CONTROL

.1 Section 01400 - Quality Requirement: Field inspection and testing.

.2 Provide free access to Work and cooperate with appointed firm.

.3 Submit proposed mix design to inspection and testing firm for review prior to commencement of Work.

.4 Tests of cement and aggregates may be performed to ensure conformance with specified requirements.

.5 Three concrete test cylinders will be taken for every 76 or less cu m of concrete placed.

.6 One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.

.7 One slump test will be taken for each set of test cylinders taken.

3.7 PATCHING

.1 Allow Consultant to inspect concrete surfaces immediately upon removal of forms.

.2 Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Consultant upon discovery.

.3 Patch imperfections as directed.

3.8 DEFECTIVE CONCRETE

.1 Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

.2 Repair or replacement of defective concrete will be determined by the Consultant.

.3 Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Consultant for each individual area.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Finishing slabs-on-grade and monolithic floor slab and separate floor toppings.

.2 Surface treatment with concrete densifier.

1.2 RELATED SECTIONS

.1 Section 03300 - Cast-in-Place Concrete:

.2 Section 03390 - Concrete Curing.

1.3 REFERENCES

.1 ACI 301 - Structural Concrete.

.2 ACI 302 - Guide for Concrete Floor and Slab Construction.

.3 ASTM E1155/E1155M - Determining Floor Flatness and Floor Levelness Numbers.

1.4 SUBMITTALS

.1 Section 01300: Submission procedures.

.2 Product Data: Provide data on concrete hardener and sealer compatibilities and limitations.

1.5 MAINTENANCE DATA

.1 Section 01700: Submission procedures.

.2 Maintenance Data: Provide data on maintenance renewal of applied coatings

1.6 QUALITY ASSURANCE

.1 Perform Work in accordance with ACI 301.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store, protect, and handle products to site.

.2 Deliver materials in manufacturer's packaging including application instructions.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 Temporary Heat: Ambient temperature of 10 degrees C minimum.

.2 Ventilation: Sufficient to prevent injurious gases from temporary heat or other sources affecting concrete.

1.9 COORDINATION

.1 Section 01300: Coordinate work.

.2 Coordinate the work with concrete floor placement and concrete floor curing.

PART 2 Products

2.1 COMPOUNDS - HARDENERS AND SEALERS

.1 Densifier:
- .1 EUCO Diamond Hard by Euclid Chemical
- .2 LIQUI-HARD by W.R.Meadows

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verify site conditions.

.2 Verify that floor surfaces are acceptable to receive the work of this section.

3.2 FLOOR FINISHING

.1 Finish concrete floor surfaces in accordance with CSA A23.1 and ACI 301.

.2 Wood float surfaces which will receive ceramic tile with full bed setting system.

.3 Steel trowel surfaces which will receive carpeting and thin set ceramic tile.

.4 Steel trowel surfaces which are scheduled to be exposed.

.5 In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on drawings.

3.3 FLOOR SURFACE TREATMENT

.1 Apply densifier to manufacturer's instructions on floor surfaces.

3.4 TOLERANCES

.1 Slabs-on-grade: slab flatness tolerances in accordance with CSA A23.1, Table 22, Class C: FF=50 and FL=33 minimum local. Levelness tolerances (FL) do not apply to inclined surfaces. Refer to CSA-A23.1 Clause 7.5.1.3.

.2 Correct defects in the defined traffic floor by grinding or removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Initial and final curing of horizontal and vertical concrete surfaces.

1.2 RELATED SECTIONS

.1 Section 03300 - Cast-In-Place Concrete.

.2 Section 03355 - Concrete Floor Finishing.

1.3 REFERENCES

.1 ACI 301 - Structural Concrete.

.2 ACI 302 - Recommended Practice for Concrete Floor and Slab Construction.

.3 ACI 308 - Guide to Curing Concrete.

.4 ASTM C171 - Sheet Materials for Curing Concrete.

.5 ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.

.6 ASTM D2103 - Polyethylene Film and Sheeting.

1.4 SUBMITTALS

.1 Submit to Section 01300.

.2 Product Data: Provide data on curing compounds compatibilities, and limitations.

1.5 QUALITY ASSURANCE

.1 Perform Work in accordance with ACI 301.

1.6 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store, protect, and handle products.

.2 Deliver curing materials in manufacturer's packaging including application instructions.

PART 2 Products

2.1 MATERIALS

.1 Water: Potable, not detrimental to concrete.

PART 3 Execution

3.1 EXAMINATION

.1 Verify substrate conditions to Section 01300.

.2 Verify that substrate surfaces are ready to be cured.

3.2 EXECUTION - HORIZONTAL SURFACES

.1 All concrete floor areas outside the maintenance shop and cooler/freezer to have EUCO DIAMOND HARD densifier and sealer. Apply KUREZ DR VOX curing compound for concrete curing prior to application of DIAMOND HARD.

.2 EUCO DIAMOND HARD and KUREZ DR VOX to be applied in strict accordance with manufacturer's instructions.

3.3 EXECUTION - VERTICAL SURFACES

.1 Cure surfaces in accordance with ACI 308.

3.4 PROTECTION OF FINISHED WORK

.1 Protect finished Work to Section 01500.

.2 Do not permit traffic over unprotected floor surface.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Mortar and grout for masonry.

1.2 RELATED SECTIONS

.1 Section 01400 - Quality Requirements: Testing laboratory services.

.2 Section 04812 - Veneer Masonry: Installation of mortar and grout.

.3 Section 04820 - Reinforced Unit Masonry: Installation of mortar and grout.

1.3 REFERENCES

.1 ACI 530 - Building Code Requirements for Masonry Structures.

.2 ACI 530.1 - Specifications For Masonry Structures.

.3 ASTM C5 - Quicklime for Structural Purposes.

.4 ASTM C91 - Masonry Cement.

.5 ASTM C94/C94M - Ready-Mixed Concrete.

.6 ASTM C144 - Aggregate for Masonry Mortar.

.7 ASTM C150 - Portland Cement.

.8 ASTM C199 - Test Method for Pier Test for Refractory Mortar.

.9 ASTM C207 - Hydrated Lime for Masonry Purposes.

.10 ASTM C270 - Mortar for Unit Masonry.

.11 ASTM C387 - Packaged, Dry, Combined Materials for Mortar and Concrete.

.12 ASTM C404 - Aggregates for Masonry Grout.

.13 ASTM C476 - Grout for Masonry.

.14 ASTM C595 - Blended Hydraulic Cement.

.15 ASTM C780 - Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.

.16 ASTM C1019 - Method of Sampling and Testing Grout.

.17 ASTM C1072 - Method for Measurement of Masonry Flexural Bond Strength.

.18 ASTM C1142 - Extended Life Mortar for Unit Masonry.

.19 ASTM E447 - Test Methods for Compressive Strength of Masonry Prisms.

.20 CSA A5/A8/A363 - Portland Cement, Masonry Cement, Blended Hydraulic Cement.

.21 CSA A179 - Mortar and Grout for Unit Masonry.

.22 IMIAC (International Masonry Industry All-Weather Council) - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

1.4 SAMPLES

.1 Submit samples in accordance with Section 01300 - Submittal Procedures.

.2 Submit two samples of mortar and coloured mortar.

1.5 QUALITY ASSURANCE

.1 Perform Work in accordance with applicable standards

1.6 DELIVERY, STORAGE, AND HANDLING

.1 Section 01600: Deliver, store, protect, and handle products to site.

.2 Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.7 ENVIRONMENTAL REQUIREMENTS

.1 Maintain materials and surrounding air temperature to minimum 10 degrees C prior to, during, and 48 hours after completion of masonry work or apply Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

.2 Maintain materials and surrounding air temperature to maximum 32 degrees C prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Use same brands of materials and source of aggregate for entire project.

.2 Mortar and grout: CSA A179.

.3 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.

.4 Colour: To match adjacent Water Treatment building.

.5 Mortar for exterior masonry above grade:

.1 Loadbearing: Type S based on Proportion specifications.

.2 Non-loadbearing: Type N based on Proportion specifications.

.3 Parapet walls, chimneys, unprotected walls: Type based on Proportion specifications.

.6 Mortar for foundation walls, manholes, sewers, pavements, walks, patios and other exterior masonry at or below grade: Type M based on Proportion specifications.

.7 Mortar for interior masonry:

.1 Loadbearing: Type S based on Proportion specifications.

.2 Non-loadbearing: Type O based on Proportion specifications.

.8 Following applies regardless of mortar types and uses specified above:

.1 Mortar for calcium silicate brick and concrete brick: Type O based on Proportion specifications.

.2 Mortar for stonework: Type N based on Proportion Property specifications.

.3 Mortar for grouted reinforced masonry: Type S based on Property Proportion specifications.

.4 Mortar for pointing: Type N based on Proportion specifications.

.5 Mortar for glass block: 1 part Portland cement, 1 part hydrated lime, 4 parts aggregate by volume.

.9 White mortar: use white masonry cement to produce mortar type specified.

.10 Coloured mortar: use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, to produce coloured mortar to match approved sample.

.11 Non-staining mortar: use non-staining masonry cement for cementitious portion of specified mortar type.

.12 Grout: to CSA A179, Table 3.

2.2 MIXES

.1 Colour and admixtures: mix grout to semi-fluid consistency.

.2 Coloured mortars: incorporate colour and admixtures into mixes in accordance with manufacturer’s instructions.

.1 Use clean mixer for coloured mortar.

.3 Pointing mortar: Prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp workable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour or more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.

PART 3 EXECUTION

3.1 CONSTRUCTION

.1 Do masonry mortar and grout work in accordance with CSA A179 except where specified otherwise.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Concrete masonry units.

.2 Reinforcement, anchorage, and accessories.

.3 Facebrick

1.2 RELATED SECTIONS

.1 Section 01400 - Quality Requirements: Testing laboratory services.

.2 Section 04060 - Mortar and Masonry Grout: Mortar and grout.

.3 Section 05500 - Metal Fabrications:

.4 Section 07620 - Sheet Metal Flashing and Trim:

.5 Section 07840 - Firestopping:

.6 Section 07900 - Joint Sealers: Rod and sealant at control joints.

1.3 REFERENCES

.1 ASTM A82 - Steel Wire, Plain, for Concrete Reinforcement.

.2 ASTM A123/A123M - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.3 ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.4 ASTM A580 - Stainless Steel Wire.

.5 ASTM A615/A615M - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

.6 ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.7 ASTM B370 - Copper Sheet and Strip for Building Construction.

.8 ASTM C55 - Concrete Brick.

.9 ASTM C90 - Load-Bearing Concrete Masonry Units.

.10 ASTM C216 - Facing Brick (Solid Masonry Units Made From Clay or Shale).

.11 ASTM C652 - Hollow Brick (Hollow Masonry Units Made From Clay or Shale).

.12 IMIAC (International Masonry Industry All-Weather Council) - Recommended Practices and Guide Specification for Cold Weather Masonry Construction.

.13 CAN/CSA A82.1- Burned Clay Brick (Solid Masonry Units Made From Clay or Shale).

.14 CSA A82.3 - Calcium Silicate (Sand-Lime) Building Brick.

.15 CAN/CSA A82.8 - Hollow Clay Brick.

.16 CAN/CSA A165 Series, CSA Standards on Concrete Masonry Units.

.17 CSA A370 - Connectors for Masonry.

.18 ULC (Underwriters Laboratories of Canada) - List of Equipment and Materials for:

.1 Building Materials.

.2 Fire Resistance.

.3 Firestop Systems and Components.

1.4 SUBMITTALS

.1 Section 01300: Submission procedures.

.2 Shop Drawings: Indicate bars sizes, spacings, locations, reinforcement quantities, bending and cutting schedules, supporting, and spacing devices for reinforcement and accessories.

.3 Product Data: Provide data for masonry units and fabricated wire reinforcement.

.4 Samples: Submit four samples of units to illustrate colour, texture and extremes of colour range.

.5 Design Data: Indicate required mortar strength, masonry unit assembly strength in all planes, supportive test data.

.6 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

.1 Perform Work in accordance with CSA A371 - Masonry Construction for Buildings.

1.6 QUALIFICATIONS

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

1.7 REGULATORY REQUIREMENTS

.1 Conform to applicable code for ULC assemblies as per architectural drawings and specifications

1.8 PRE-INSTALLATION CONFERENCE

.1 Section 01300: Convene one week prior to commencing work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

.1 Section 01600: Deliver, store, protect and handle products to site.

.2 Accept units on site. Inspect for damage.

1.10 ENVIRONMENTAL REQUIREMENTS

.1 Maintain materials and surrounding air temperature to minimum 10 degrees prior to, during, and 48 hours after completion of masonry work.

.2 Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

.3 Maintain materials and surrounding air temperature to maximum 32 degrees C prior to, during, and 48 hours after completion of masonry work.

1.11 COORDINATION

.1 Section 01300: Coordinate work.

.2 Coordinate the masonry work.

PART 2 Products

2.1 CONCRETE MATERIALS

CONCRETE MASONRY UNITS

.1 Standard concrete block units: to CAN3-A165 Series (CAN3-A165.1)
- .1 Classification: H/ 20/ A/ M Block grade
- .2 Size: modular.
- .3 Special shapes: provide square units for exposed corners. Provide purpose-made shapes for lintels and bond beams. Provide additional special shapes as indicated.

BRICK UNITS

.1 Face Brick: ASTM C216, Type FBS, Grade SW, Colour to match adjacent Water Treatment Building.

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2.2 REINFORCEMENT AND ANCHORAGE

.1 Single Wythe Joint Reinforcement: Heavy Duty Ladder type; stainless steel wire, 3/16 inch side rods with 9 gauge cross ties.
- .1 Manufacturers:
  - .1 Blok Lok Model BL10.

.2 Brick Ties: TYPE BL 407
- .1 Manufacturers:
  - .1 Blok Lok

.3 Reinforcing Bar to section 03200 – Reinforcing Bar

2.3 MOTAR AND GROUT

.1 Mortar and Grout: As specified in Section 04060.

2.4 FLASHINGS

.1 Per Section 07620

2.5 ACCESSORIES

.1 Preformed Control Joints: rubber chloride material. Provide with corner and tee accessories, fused joints.

.2 Joint Filler: Closed cell polyvinyl chloride oversized 50 percent to joint width; self expanding;

.3 Building Paper: No. 30 asphalt saturated felt.

.4 Nailing Strips: Softwood, preservative treated for moisture resistance, dovetail shape, sized to masonry joints.

.5 Weeps: Preformed plastic tubes or vents with sloping louvers. Coordinate with architect.

.6 Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

PART 3 Execution

3.1 EXAMINATION

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

.2 Verify items provided by other sections of work are properly sized and located.

.3 Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.2 PREPARATION

.1 Direct and coordinate placement of metal anchors supplied to other Sections.

.2 Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.3 COURSING

.1 Establish lines, levels, and coursing indicated. Protect from displacement.

.2 Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

.3 Concrete Masonry Units:

.1 Bond: Running

.2 Coursing: One unit and one mortar joint to equal 8 inches.

.3 Mortar Joints: Coordinate with architect

3.4 PLACING AND BONDING

.1 Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

.2 Lay hollow masonry units with face shell bedding on head and bed joints.

.3 Buttering corners of joints or excessive furrowing of mortar joints are not permitted.

.4 Remove excess mortar as Work progresses.

.5 Interlock intersections and external corners.

.6 Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

.7 Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

.8 Cut mortar joints flush where for finishes.

.9 Isolate masonry partitions from vertical structural framing members with a control joint.

.10 Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

3.5 CAVITY WALL

.1 Do not permit mortar to drop or accumulate into cavity air space or to plug weeps.

.2 Build inner wythe ahead of outer wythe to receive cavity insulation and air/vapour barrier adhesive.

3.6 REINFORCEMENT AND ANCHORAGE

.1 Install horizontal joint reinforcement 16 inches on centre.

.2 Place masonry joint reinforcement in first horizontal joint above and below openings. Extend minimum 16 inches each side of opening.

.3 Place joint reinforcement continuous in first joint below top of walls.

.4 Lap joint reinforcement ends minimum 6 inches.

.5 Support and secure reinforcing bars from displacement. Maintain position within ½ inch of dimensioned position.

.6 Embed anchors as required on the drawings.

.7 Reinforce joint corners and intersections with strap anchors 16 inches on centre.

3.7 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER

.1 Install horizontal joint reinforcement 16 inches on centre.

.2 Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

.3 Place joint reinforcement continuous in first and second joint below top of walls.

.4 Lap joint reinforcement ends minimum 6 inches.

.5 Embed wall ties in masonry back-up to bond veneer at maximum 16 inches on centre vertically and 36 inches on centre horizontally. Place at maximum 3 inches on centre each way around perimeter of openings, within 12 inches of openings.

.6 Secure wall ties and anchors to stud framed back-up and embed into masonry veneer at maximum 16 inches on centre vertically and 36 inches on centre horizontally. Place at maximum 3 inches on centre each way around perimeter of openings, within 12 inches of openings.

.7 Reinforce joint corners and intersections with strap anchors 16 inches on centre.

3.8 MASONRY FLASHINGS

.1 Extend flashings horizontally at foundation walls, above ledge or shelf angles and lintels, under parapet caps, at bottom of walls,] etc.

.2 Turn flashing up minimum 8 inches and bed into mortar joint of masonry seal to concrete seal to sheathing over wood, steel stud framed back-up.

.3 Lap end joints minimum 6 inches and seal watertight.

.4 Turn flashing, fold, and seal at corners, bends, and interruptions.

3.9 LINTELS

.1 Install as per the structural drawings.

.2 Do not splice reinforcing bars.

.3 Support and secure reinforcing bars from displacement. Maintain position within ½ inch of dimensioned position.

.4 Place and consolidate grout fill without displacing reinforcing.

.5 Allow masonry lintels to attain specified strength before removing temporary supports.

3.10 GROUTED COMPONENTS

.1 Grouted component’s and areas as per the structural drawings.

3.11 ENGINEERED MASONRY

.1 Lay masonry units with core cells vertically aligned clear of mortar and unobstructed.

.2 Place mortar in masonry unit bed joints back 1/4 inch from edge of unit grout spaces, bevel back and upward. Permit mortar to cure 7 days before placing grout.

.3 Reinforce masonry unit cores and cavities with reinforcement bars and grout as indicated.

.4 Retain vertical reinforcement in position at top and bottom of cells and at intervals not exceeding 192 bar diameters. Splice reinforcement in accordance with Section 03200 and the drawings. More strict requirement shall control.

.5 Grout placement techniques in accordance with CSA A371 - Masonry Construction for Buildings

.6 Grout spaces less than 2 inches in width with Fine grout using low lift grouting techniques. Grout spaces 2 inches or greater in width with Course grout using high or low lift grouting techniques.

.7 When grouting is stopped for more than one hour, terminate grout 1-1/2 inch below top of upper masonry unit to form a positive key for subsequent grout placement.

.8 Low Lift Grouting: Place first lift of grout to a height of 16 inches to three CMU courses and rod for grout consolidation. Place subsequent lifts in 8 inch increments and rod for grout consolidation.

.9 High Lift Grouting:

.1 Provide cleanout opening no less than 4 inches high at the bottom of each cell to be grouted by cutting one face shell of masonry unit.

.2 Clean out masonry cells and cavities with high pressure water spray. Permit complete water drainage.

.3 Request inspection the cells. Allow 3 days advance notice of inspection.

.4 After cleaning and cell inspection, seal openings with masonry units.

.5 Place grout into spaces. Maintain water content in grout to intended slump without aggregate segregation.

.6 Limit grout lift to 80 inches and mechanically vibrate for grout consolidation.

3.12 CONTROL AND EXPANSION JOINTS

.1 Do not continue horizontal joint reinforcement through control and expansion joints.

.2 Form control joint with a sheet building paper bond breaker fitted to one side of the hollow contour end of the block unit. Fill the resultant elliptical core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.

.3 Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

.4 Size control joint in accordance with Section 07900 for sealant performance.

3.13 BUILT-IN WORK

.1 As work progresses, install built-in metal door and glazed frames, fabricated metal frames, window frames, wood nailing strips, fireplace accessories, anchor bolts, plates, and other items to be built-in the work and furnished by other sections.

.2 Install built-in items plumb and level.

.3 Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.

.4 Do not build in organic materials subject to deterioration.

3.14 TOLERANCES

.1 As per applicable CSA standards

3.15 CUTTING AND FITTING

.1 Cut and fit for chases, pipes, conduit, sleeves, grounds and other items. Coordinate with other sections of work to provide correct size, shape, and location.

.2 Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.16 CLEANING

.1 Remove excess mortar and mortar smears as work progresses.

.2 Replace defective mortar. Match adjacent work.

.3 Clean soiled surfaces with cleaning solution.

.4 Use non-metallic tools in cleaning operations.

3.17 PROTECTION OF FINISHED WORK

.1 Section 01500: Protect finished Work.

.2 Without damaging completed work, provide protective boards at exposed external corners which may be damaged by construction activities.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Structural steel framing members, support members, sag rods and struts.

.2 Base plates.

.3 Grouting under base plates.

1.2 RELATED SECTIONS

.1 Section 05500 - Metal Fabrications: Steel fabrications affecting structural steel work.

1.3 REFERENCES

.1 AISC - Section 10 - Architecturally Exposed Structural Steel of AISC - Standard Practise for Steel Buildings and Bridges.

.2 ASTM A36/A36M - Carbon Structural Steel.

.3 ASTM A53/A53M - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.

.4 ASTM A108 - Steel Bars, Carbon, Cold-Finished, Standard Quality.

.5 ASTM A123/A123M - Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

.6 ASTM A153 - Zinc Coating (Hot Dip) on Iron and Steel Hardware.

.7 ASTM A242/A242M - High-Strength Low-Alloy Structural Steel.

.8 ASTM A307 - Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.9 ASTM A325/A325M - Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

.10 ASTM A449 - Quenched and Tempered Steel Bolts and Studs.

.11 ASTM A490 - Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength.

.12 ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

.13 ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

.14 ASTM A514/A514M - High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding.

.15 ASTM A529/A529M - High Strength Carbon-Managanese Steel of Structural Quality.

.16 ASTM A563 - Carbon and Alloy Steel Nuts.

.17 ASTM A568/A568M - Steel, Carbon and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled.

.18 ASTM A572/A572M - High-Strength Low-Alloy Columbium-Vanadium Structural Steel.

.19 AWS (American Welding Society) A2.1 - Standard Welding Chart.

.20 AWS (American Welding Society) D1.1 - Structural Welding Code - Steel.

.21 CAN/CGSB 1.40 - Anti-Corrosive Structural Steel, Alkyd Primer.

.22 CAN/CGSB 85-GP-14M - Painting Steel Surfaces Exposed to Normally Dry Weather.

.23 CAN/CSA G40.20 - General Requirements for Rolled or Welded Structural Quality Steel.

.24 CAN/CSA G40.21 - Structural Quality Steels.

.25 CAN/CSA G164 - Hot Dip Galvanizing of Irregularly Shaped Articles.

.26 CAN/CSA S16.1 - Limit States Design of Steel Structures.

.27 CISC - Code of Standard Practice - Manual of Steel Construction - Allowable Stress Design (ASD).

.28 CSA W47.1 - Certification of Companies for Fusion Welding of Steel Structures.

.29 CSA W48.1 - Carbon Steel Covered Electrodes for Shielded Metal Arc Welding.

.30 CSA W55.3 - Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.

.31 CSA W59 - Welded Steel Construction (Metal Arc Welding).

.32 FM (Factory Mutual) - Roof Assembly Classifications.

.33 ITS - Intertek Testing Services - Certification Listings.

.34 SSPC (The Society for Protective Coatings) (formerly SSPC - Steel Structures Painting Council) - Steel Structures Painting Manual.

.35 ULC (Underwriters Laboratories of Canada) - List of Equipment and Materials for:

.1 Building Materials.

.2 Fire Resistance.

.3 Firestop Systems and Components.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01300: Submission procedures.

.2 Shop Drawings:

.1 Indicate sizes, spacing, locations of structural members, openings, attachments, and fasteners.

.2 Connections;

.1 Shear connections to be designed for maximum shear generated by the moment capacity for a fully braced beam;

.2 Tension members to be designed for half of tension capacity.

.3 Cambers.

.4 Indicate welded connections with AWS A2.0 welding symbols. Indicate net weld lengths.

.3 Welders Certificates: Certify welders employed on the Work, verifying CWB qualification within the previous 12 months.

1.5 QUALITY ASSURANCE

.1 Fabricate structural steel members in accordance with CISC Code of Standard Practice, and CSA W47.1, CSA W55.3 and CSA W59.

1.6 QUALIFICATIONS

.1 Welders' Certificates: Submit to Section 01300 certifying welders employed on the Work, verifying qualification within the previous 12 months to CSA W47.1 (steel), CSA W55.3, CSA W59.

.2 Design connections not detailed on the Drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the Province of Ontario. Fabrication drawings to be stamped by a Professional Structural Engineer experienced in design of this work and licensed in the Province of Ontario.

PART 2 Products

2.1 MATERIALS

.1 Structural Steel Members: CAN/CSA G40.20, CAN/CSA G40.21 Grade 350W

.2 Bolts, Nuts, and Washers: ASTM A325 bolts.

.3 Anchor Bolts: ASTM A307.

.4 Welding Materials: Type required for materials being welded.

.5 Grout: Non-shrink type, pre-mixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing additives, capable of developing a minimum compressive strength of 48 MPa at 28 days.

.6 Shop and Touch-Up Primer: SPCC 15, Type 1, red oxide.

2.2 FABRICATION

.1 Fabricate structural steel in accordance with CAN/CSA-S16.1 and in accordance with reviewed shop drawings.

.2 Fabricate connections for bolt, nut, and washer connectors.

.3 Develop required camber for members.

2.3 FINISH

.1 Clean, prepare surfaces, and shop prime structural members to CAN/CSA-S16.1 and CAN/CGSB-85.100, except as noted below.

.2 Prepare structural component surfaces in accordance with SPCC SP 1 to SP-10.

.3 Shop prime structural steel members. Do not prime surfaces that will be in contact with concrete.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01300: Verification of existing conditions prior to beginning work.

3.2 ERECTION

.1 Erect structural members in accordance with CAN/CSA-S16.1.

.2 Perform welding: to CSA W59.

.3 Allow for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.

.4 Field weld components indicated on shop drawings.

.5 Field connect members with threaded fasteners; torque to required resistance.

.6 Do not field cut or alter structural members without approval of Consultant.

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

.8 Grout under base plates. Trowel grouted surface smooth, splay neatly to 45 degrees.

.9 Field Painting - Touch-Up:

.1 Paint to requirements of Section 09910- Paint and Coatings.

.2 Touch up all damaged surfaces and exposed surfaces without shop coat, with primer to CAN/CGSB 1.40.

.3 Apply in accordance with CGSB 85-GP-14M.

3.3 ERECTION TOLERANCES

.1 Maximum Offset From True Alignment: 1/4 inch.

3.4 FIELD QUALITY CONTROL

.1 Section 01400: Field inspection, testing of bolt torquing, welds, torquing of fasteners.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Steel roof deck and accessories.

.2 Framing for openings up to and including 6 inches.

.3 Bearing plates and angles.

1.2 RELATED SECTIONS

.1 Section 03300 - Cast-in-Place Concrete: Concrete topping over metal roof deck.

.2 Section 05120 - Structural Steel.

.3 Section 05210 - Steel Joists.

1.3 REFERENCES

.1 ASTM A36/A36M - Carbon Structural Steel.

.2 ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.3 ASTM A1008 - Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Allow With Improved Formability.

.4 AWS (American Welding Society) D1.1 - Structural Welding Code. - Steel

.5 CSA S136 - Cold Formed Steel Structural Members.

.6 CSA W59 - Welded Steel Construction (Metal Arc Welding).

.7 CSSBI (Canadian Sheet Steel Building Institute) - 10M - Standard for Steel Roof Deck.

.8 CSSBI - Design in Cold Formed Steel.

.9 FM (Factory Mutual) - Roof Assembly Classifications.

.10 SDI (Steel Deck Institute) - Design Manual for Composite Decks, Form Decks, Roof Decks, Cellular Metal Floor Deck with Electrical Distribution.

.11 SSPC (The Society for Protective Coatings) (formerly SSPC - Steel Structures Painting Council) - Steel Structures Painting Manual.

.12 ULC (Underwriters Laboratories of Canada) - List of Equipment and Materials for:

- .1 Building Materials.
- .2 Fire Resistance.
- .3 Firestop Systems and Components.

.13 ITS - Intertek Testing Services - Certification Listings.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01300: Submission procedures.

.2 Shop Drawings: Indicate deck plan, support locations, projections, openings and reinforcement, pertinent details, and accessories.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01300: Submission procedures.

.2 Certificates: Certify that Products meet or exceed specified requirements.

.3 Submit manufacturer's installation instructions.

.4 Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.6 QUALITY ASSURANCE

.1 Conform to CSA S136 and CSSBI 10M.

.2 Conform to CSSBI - Design in Cold Formed Steel.

.3 Welders' Certificates: Submit to Section 01300, certifying welders employed on the Work, verifying qualification within the previous 12 months to CSA W47.1, CSA W55.3, CSA W59, CSA W59.2.

.4 Installer: Company specializing in performing the work of this Section approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Section 01600: Transport, handle, store, and protect products.

.2 Cut plastic wrap to encourage ventilation.

.3 Separate sheets and store deck on dry wood sleepers; slope for positive drainage.

PART 2 Products

2.1 MATERIALS

.1 Manufacturers:

.1 Vicwest Building products. See structural Drawings

.2 Substitutions: Approved equivalent will be permitted.

2.2 ACCESSORIES

.1 Flute Closures: Closed cell foam rubber 1 inch thick; profiled to fit tight to the deck.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verification of existing conditions prior to beginning work.

3.2 INSTALLATION

.1 Erect metal deck in accordance with CSSBI 12M, and manufacturer's instructions.

.2 Bear deck on masonry support surfaces with 4 inch minimum bearing. Align and level.

.3 Bear deck on steel supports with 3 inch minimum bearing. Align and level.

.4 Fasten deck to steel support members at ends and intermediate supports as noted on drawings.

.5 Mechanically clinch male/female side laps as noted on drawings.

.6 Install sheet steel closures and angle flashings to close openings between deck and walls, columns, and openings.

.7 Install single row of foam flute closures above walls and partitions perpendicular to deck flutes.

.8 Position roof sump pans with flange bearing on top surface of deck. Fusion weld at each deck flute.

.9 Place metal cant strips in position and mechanically attach.

.10 Immediately after welding deck and other metal components in position, coat welds, burned areas, and damaged surface coating, with touch-up prime paint.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Formed steel joists, girts, and framing and bridging.

1.2 RELATED SECTIONS

.1 Section 07465-Preformed Metal Siding: Wall sheathing.

.2 Section 07620 – Sheet Metal Flashing and Trim: Head and sill flashings.

.3 Section 07213 - Batt Insulation: Insulation within framing members.

.4 Section 09110 - Metal Stud Framing System.

.5 Section 09205 - Metal Furring and Lathing.

.6 Section 09260 - Gypsum Board Assemblies: Light weight, non-load bearing metal stud framing.

1.3 REFERENCES

.1 CISC - Cold-Formed Steel Design Manual.

.2 ASTM A123/A123M - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.3 ASTM A645/A645M - Standard Specification for Pressure Vessel Plates, Five Percent Nickel Alloy Steel, Specially Heat Treated.

.4 ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.5 ASTM A1011 - Steel, Sheet, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy With Improved Formability.

.6 ASTM C955 - Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Board and Metal Plaster Bases.

.7 CSA W47.1 - Certification of Companies for Fusion Welding of Steel Structures.

.8 CSA W55.3 - Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.

.9 CSA W59 - Welded Steel Construction (Metal Arc Welding).

.10 CSSBI (Canadian Sheet Steel Building Institute - 51M - Lightweight Steel Framing Design Manual.

.11 CSSBI (Canadian Sheet Steel Building Institute - 52M - Lightweight Steel Framing Binder.

.12 MFMA (Metal Framing Manufacturers Association) - Guidelines for the Use of Metal Framing.

.13 ML/SFA 540 - (Metal Lath/Steel Framing Association, Division of National Association of Architectural Metal Manufacturers; NAAMM) - Lightweight Steel Framing Systems Manual.

.14 SSPC - Society for Protective Coatings (formerly Steel Structures Painting Council):

.1 Paint 15, Steel Joist Shop Paint.

.2 Paint 20, Zinc Rich Primers.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01300: Submission procedures.

.2 Shop Drawings:

.1 Indicate component details, type and location of fasteners, and accessories or items required of related work.

.2 Indicate girt layout.

.3 Describe method for securing studs to tracks and for bolted framing connections.

.4 Provide calculations for loadings and stresses of specially fabricated framing, roof trusses under the Professional Structural Engineer's seal.

.3 Product Data: Provide data on standard framing members; describe materials and finish, product criteria, and limitations.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01300: Submission procedures.

.2 Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

1.6 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section.

.2 Installer Qualifications: Company specializing in performing the work of this section approved by manufacturer.

.3 Design structural elements under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the Province of Ontario.

.4 Form, fabricate, install, and connect components in accordance with ML/SFA 540 - Lightweight Steel Framing Systems Manual.

1.7 PROJECT CONDITIONS

.1 Section 01300: Coordination.

PART 2 Products

2.1 MANUFACTURERS

.1 Canam Steel cold formed ‘C’ channels.

.2 Substitutions: Refer to Section 01600.

2.2 FRAMING MATERIALS

.1 As noted on drawings.

.2 Framing Materials: Roll from new sheet steel; re-rolled steel not acceptable.

2.3 ACCESSORIES

.1 Bracing, Furring, Bridging, Plates, Gussets, Clips: Formed sheet steel, as noted on drawings.

.2 Shop and Touch-Up Primer: SSPC Paint 15, Type I, red oxide.

2.4 FASTENERS

.1 Self-drilling, Self-tapping Screws, Bolts, Nuts, and Washers: Steel, hot dip galvanized to ASTM A123.

.2 Anchorage Devices: Drilled expansion bolts.

.3 Welding: In conformance with CSA W47.1, CSA W55.3, CSA W59.

2.5 FABRICATION

.1 Fabricate assemblies of sizes and profiles required.

.2 Fit, reinforce, and brace framing members to suit design requirements.

.3 Fit and assemble in largest practical sections for delivery to site, ready for installation.

2.6 FINISHES

.1 Studs, Tracks and Headers: Galvanize to Z275 G60 coating class.

.2 Bracing, Furring, and Bridging: Same finish as framing members.

.3 Plates, Gussets, and Clips: Same finish as framing members.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01300: Verification of existing conditions before starting work.

.2 Verify that substrate surfaces and building framing components are ready to receive work.

.3 Verify that rough-in utilities are in proper location.

3.2 ERECTION OF STUD WORK

.1 Install components in accordance with manufacturer's instructions.

.2 Align floor and ceiling tracks; locate to wall and partition layout. Secure in place with fasteners at maximum 24 inches on centre. Coordinate installation of acoustic sealant with floor and ceiling tracks.

.3 Place studs as noted on drawings or at 16 inches on centre; not more than 2 inches from abutting walls and at each side of openings. Connect studs to tracks using fastener method.

.4 Construct corners using minimum three studs. Double stud wall openings, door jambs, and window jambs.

.5 Erect load bearing studs one-piece full length. Splicing of studs is not permitted.

.6 Erect load bearing studs, brace, and reinforce to develop full strength, to achieve design requirements.

.7 Coordinate placement of insulation in multiple stud spaces after erection.

.8 Install intermediate studs above and below openings to align with wall stud spacing.

.9 Provide deflection allowance in stud track, directly below horizontal building framing at non-load bearing framing.

.10 Attach cross studs to studs for attachment of fixtures anchored to walls.

.11 Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

.12 Touch-up field welds and damaged galvanized or primed surfaces with primer.

.13 Complete framing ready to receive finish.

3.3 ERECTION TOLERANCES

.1 Section 01400: Tolerances.

.2 Maximum Variation from True Position: ¼” inch.

.3 Maximum Variation of any Member from Plane: ¼” inch.

3.4 SCHEDULES

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Shop fabricated ferrous metal items.

1.2 RELATED SECTIONS

.1 Section 03300 - Cast-In-Place Concrete: Placement of metal fabrications in concrete.

.2 Section 05120 - Structural Carbon Steel: Structural steel and anchor bolts.

.3 Section 05521 - Handrails and Railings.

.4 Section 09910 - Paint and Coatings: Paint finish.

1.3 REFERENCES

.1 AAMA 611 - Specifications for Anodized Architectural Aluminum.

.2 AAMA 2603 - Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.

.3 AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

.4 ANSI A14.3 - Ladders, Fixed, Safety Requirements.

.5 ASTM A36/A36M - Carbon Structural Steel.

.6 ASTM A53/A53M - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.

.7 ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.8 ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

.9 ASTM A283 - Low and Intermediate Tensile Strength Carbon Steel Plates.

.10 ASTM A307 - Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

.11 ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

.12 ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

.13 ASTM B26 - Aluminum-Alloy Sand Castings.

.14 ASTM B85 - Aluminum-Alloy Die Castings.

.15 ASTM B177 - Engineering Chromium Electroplating.

.16 ASTM B209/B209M - Aluminum and Aluminum-Alloy Sheet and Plate.

.17 ASTM B210 - Aluminum-Alloy Drawn Seamless Tubes.

.18 ASTM B211 - Aluminum and Aluminum-Alloy Bar, Rod, and Wire.

.19 ASTM B221/B221M - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.20 AWS (American Welding Society) A2.1 - Standard Welding Chart.

.21 AWS (American Welding Society) D1.1 - Structural Welding Code - Steel.

.22 AWS (American Welding Society) D1.2 - Structural Welding Code - Aluminum.

.23 CSA W47.1 - Certification of Companies for Fusion Welding of Steel Structures.

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

.25 CSA W48.1 - Carbon Steel Covered Electrodes for Shielded Metal Arc Welding.

.26 CSA W55.3 - Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.

.27 CSA W59 - Welded Steel Construction (Metal Arc Welding).

.28 CSA W59.2 - Welded Aluminum Construction.

.29 SSPC (The Society for Protective Coatings) (formerly SSPC - Steel Structures Painting Council) - Steel Structures Painting Manual.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01300: Submission procedures.

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

.3 Indicate welded connections using standard AWS A2.1 welding symbols. Indicate net weld lengths.

1.5 QUALITY ASSURANCE

.1 Welders' Certificates: Submit to Section 01300 certifying welders employed on the Work, verifying qualification within the previous 12 months to CSA W47.1 (steel), CSA W59, CSA W59.2.

1.6 QUALIFICATIONS

.1 Prepare Shop Drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the Province of Ontario.

.2 Welders Certificates: Submit to Section 01300, certifying welders employed on the Work, verifying qualification within the previous 12 months.

PART 2 Products

2.1 MATERIALS - STEEL

.1 Steel Sections: CAN/CSA G40.20, CAN/CSA G40.21 Grade 350W.

.2 Steel Tubing: CAN/CSA G40.20, CAN/CSA G40.21 Grade 350W

.3 Plates: ASTM A283.

.4 Pipe: ASTM A53, Grade B.

.5 Bolts, Nuts, and Washers: ASTM A325.

.6 Welding Materials: Type required for materials being welded.

.7 Ladders: ANSI A14.3.

.8 Shop and Touch-Up Primer: SPCC 15, Type 1, red oxide.

2.2 FABRICATION

.1 Fit and shop assemble items in largest practical sections, for delivery to site.

.2 Fabricate items with joints tightly fitted and secured.

.3 Continuously seal joined members by continuous welds.

.4 Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

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

.6 Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.3 FABRICATION TOLERANCES

.1 Squareness: 1/8 inch maximum difference in diagonal measurements.

.2 Maximum Offset Between Faces: 1/16 inch.

.3 Maximum Misalignment of Adjacent Members: 1/16 inch.

.4 Maximum Bow: 1/8 inch in 48 inches.

.5 Maximum Deviation From Plane: 1/16 inch in 48 inches.

2.4 FINISHES - STEEL

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

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

.3 Prime paint items with one coat.

PART 3 Execution

3.1 EXAMINATION

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

3.2 PREPARATION

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

.2 Supply steel items required to be 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 in accordance with CWB requirements.

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

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

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Steel pipe handrails, balusters, and fittings.

1.2 RELATED SECTIONS

.1 Section 09910 - Painting: Paint finish.

1.3 REFERENCES

.1 ASTM A53/A53M - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.

.2 ASTM A123/A123M - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.3 ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

.4 ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

.5 ASTM B211 - Aluminum and Aluminum-Alloy Bar, Rod, and Wire.

.6 ASTM B221/B221M - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.7 ASTM B241/B241M - Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

.8 ASTM B483/B483M - Aluminum and Aluminum-Alloy Drawn Tubes For General Purpose Applications.

.9 ASTM E935 - Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.

.10 ASTM E985 - Permanent Metal Railing Systems and Rails for Buildings.

.11 AWS (American Welding Society) D1.1 - Structural Welding Code - Steel.

.12 CSA W59 - Welded Steel Construction (Metal Arc Welding).

.13 SSPC (The Society for Protective Coatings) (formerly SSPC - Steel Structures Painting Council) - Steel Structures Painting Manual.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01300: Submission procedures.

.2 Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

1.5 QUALITY ASSURANCE

.1 Perform welding to CSA W59.

PART 2 Products

2.1 STEEL RAILING SYSTEM

.1 Rails, Posts and mounting: as specified on drawings.

.2 Shop Prefinishing: see section 09910.

2.2 FABRICATION

.1 Fit and shop assemble components in largest practical sizes for delivery to site.

.2 Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.

.3 Provide anchors required for connecting railings to structure.

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

.5 Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

.6 Interior Components: Continuously seal joined pieces by continuous welds.

.7 Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

.8 Accurately form components to each other and to building structure.

.9 Accommodate for expansion and contraction of members and building movement without damage to connections or members.

PART 3 Execution

3.1 EXAMINATION

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

3.2 PREPARATION

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

.2 Supply items required to be cast into concrete with setting templates, to appropriate sections.

3.3 INSTALLATION

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

.2 Field weld anchors as indicated on shop drawings. Touch-up welds with primer. Grind welds smooth.

.3 Conceal bolts and screws whenever possible.

END OF SECTION

1. PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Requirements of the Contract Documents, including Toyota Front End, apply to work of this section.

1.1.2 Requirements of the following sections apply to the work of this section:

A. Section 06105 "Miscellaneous Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.

1.1.3 Refer to Specification 01999 "Quality Confirmation and Equipment Handover Procedures" and 01999 attachment "Punchlist and Kanban Procedures," for the Toyota Quality Confirmation Process.

1.2 SUMMARY

1.2.1 This section includes the following:

A. Millwork complete with plastic-laminate countertops.

1.3 DEFINITIONS

1.3.1 Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.4 SUBMITTALS

1.4.1 Product data: For each type of product indicated, including cabinet hardware and accessories.

1.4.2 Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

A. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other sections.

B. Show locations and sizes of cutouts and holes for plumbing fixtures and other items installed in architectural woodwork.

1.5 QUALITY ASSURANCE

1.5.1 Fabricator qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.

1.5.2 Installer qualifications: Fabricator of products.

1.5.3 Quality standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.

A. Provide AWI Quality Certification Program labels indicating that woodwork, including installation, complies with requirements of grades specified.

1.6 DELIVERY, STORAGE, AND HANDLING

1.6.1 Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.7 PROJECT CONDITIONS

1.7.1 Environmental limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.7.2 Field measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

A. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.

B. Established dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

1.8.1 Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

2. PART 2 - PRODUCTS

2.1 MATERIALS - GENERAL

2.1.1 Wood Products: Comply with the following:

A. Particleboard: 720 kg/m^3 density conforming to CAN/CSA O188.1M, sanded face.

B. Softwood plywood: Douglas Fir conforming to CSA O121-M, G2S.

2.1.2 High-Pressure Decorative Laminate

A. NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.

B. Acceptable manufacturers: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:

1. Formica Corporation.

2. Lamin-Art, Inc.

3. Nevamar Company, LLC; Decorative Products Div.

4. Wilsonart International; Division of Premark International, Inc.

2.2 CABINET HARDWARE AND ACCESSORIES

2.2.1 General: Provide cabinet hardware and accessory materials associated with architectural cabinets.

2.2.2 Frameless concealed hinges (European type): BHMA A156.9, B01602, 135 degrees of opening, self-closing.

2.2.3 Wire pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter.

2.2.4 Catches: Magnetic catches, BHMA A156.9, B03141.

2.2.5 Shelf rests: BHMA A156.9, B04013; metal, two-pin type with shelf hold-down clip.

2.2.6 Drawer slides: BHMA A156.9, B05091; side mounted and extending under bottom edge of drawer; full-extension type; epoxy-coated-steel with steel ball-bearings; of the following grades:

A. Box drawer slides: Grade 1HD-100.

2.2.7 Door locks: BHMA A156.11, E07121.

2.2.8 Exposed hardware finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

A. Bright chromium plated: BHMA 625 for brass or bronze base; BHMA 651 for steel base.

2.2.9 For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.3 MISCELLANEOUS MATERIALS

2.3.1 Furring, blocking, shims, and hanging strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.

2.3.2 Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.4 PLASTIC-LAMINATE CABINETS

2.4.1 Grade: Custom.

2.4.2 AWI type of cabinet construction: Flush overlay.

2.4.3 Laminate cladding for exposed surfaces: High-pressure decorative laminate complying with the following requirements:

A. Horizontal surfaces other than tops: Grade HGS.

B. Postformed surfaces: Grade HGP.

C. Vertical surfaces: Grade HGS.

D. Edges: Grade HGS.

2.4.4 Materials for Semi-Exposed Surfaces:

A. Surfaces other than drawer bodies: High-pressure decorative laminate, Grade VGS.

1. Edges of plastic-laminate shelves: PVC tape, 0.018-inch minimum thickness, matching laminate in color, pattern, and finish.

2. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, Grade VGS.

B. Drawer sides and backs: Thermoset decorative panels.

C. Drawer bottoms: Thermoset decorative panels.

2.4.5 Concealed backs of panels with exposed plastic laminate surfaces: High-pressure decorative laminate, Grade BKL.

2.4.6 Colors, patterns, and finishes: As selected by Owner's Representative.

2.5 PLASTIC-LAMINATE COUNTERTOPS, SHELVES AND SILLS

2.5.1 Grade: Custom.

2.5.2 High-pressure decorative laminate grade: HGS.

2.5.3 Edge treatment: Same as laminate cladding on horizontal surfaces.

2.5.4 Core material: Particleboard or medium-density fiberboard; use plywood for sills.

2.5.5 Core material at sinks: Particleboard made with exterior glue.

2.5.6 Paper backing: Provide paper backing on underside of countertop substrate.

2.5.7 Colors, patterns, and finishes: As selected by Owner's Representative.

2.6 FABRICATION, GENERAL

2.6.1 Interior woodwork grade: Unless otherwise indicated, provide Custom-grade interior woodwork complying with referenced quality standard.

2.6.2 Wood moisture content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

2.6.3 Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

2.6.4 Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

A. Seal edges of openings in countertops with a coat of varnish.

2.7 SHOP FINISHING

2.7.1 Grade: Provide finishes of same grades as items to be finished.

2.7.2 General: Finish architectural woodwork at fabrication shop as specified in this section. Defer only final cleaning and polishing until after installation.

2.7.3 Preparation for finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

A. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.

3. PART 3 - EXECUTION

3.1 PREPARATION

3.1.1 Before installation, condition woodwork to average prevailing humidity conditions in installation areas.

3.1.2 Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

3.2.1 Grade: Install woodwork to comply with requirements for the same grade specified in PART 2 for fabrication of type of woodwork involved.

3.2.2 Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in PART 2, to extent that it was not completed in the shop.

3.2.3 Install work level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 3 mm in 2440 mm.

3.2.4 Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

3.2.5 Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

A. Install cabinets with no more than 3 mm in 2440 mm sag, bow, or other variation from a straight line.

B. Fasten wall cabinets through back, near top and bottom, at ends and not more than 400 mm o.c.

3.2.6 Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

A. Install countertops with no more than 3 mm in 2440 mm sag, bow, or other variation from a straight line.

B. Secure backsplashes to tops with concealed metal brackets at 400 mm o.c. and to walls with adhesive.

C. Caulk space between backsplash and wall with sealant specified in Section 07900 "Sealants and Firestopping Systems."

3.3 ADJUSTING AND CLEANING

3.3.1 Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

3.3.2 Clean, lubricate, and adjust hardware.

3.3.3 Clean woodwork on exposed and semiexposed surfaces.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Insulation in exterior wall and roof construction.

1.2 RELATED SECTIONS

.1 Section 07260 - Vapour Retarders: Vapour retarder materials to adjacent insulation.

1.3 REFERENCES

.1 ASTM C665 - Mineral-Fibre Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

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

.3 NFPA 255 - Test of Surface Burning Characteristics of Building Materials.

.4 UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.4 SYSTEM DESCRIPTION

.1 Materials of This Section: Provide continuity of thermal barrier at building enclosure elements.

.2 Materials of This Section: Provide thermal protection to vapour retarder in conjunction with vapour retarder materials in Section 07260.

1.5 SUBMITTALS

.1 Section 01300: Submission procedures.

.2 Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.6 COORDINATION

.1 Section 01300: Coordinate work.

.2 Coordinate the work with Section 07260 for installation of vapour retarder.

PART 2 Products

2.1 MANUFACTURERS - INSULATION MATERIALS

.1 Owens Corning fibreglass insulation or equal

.2 Substitutions: Permitted on approval.

2.2 MATERIALS

.1 Batt Insulation: ASTM C665; preformed glass fibre roll, conforming to the following:

.1 Thermal Resistance: R of 21 (minimum; see drawings)

.2 Batt Size: 16 and 24 inch width.

.3 Facing: Unfaced.

.4 Flame/Smoke Properties: UL 723.

.2 Sheet Vapour Retarder: Polyethylene film for above grade application, 6 mil thick; manufactured by Lamtec.

.3 Tape: Polyethylene self-adhering type, mesh reinforced, 2 inches wide.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verify site conditions.

.2 Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.

3.2 INSTALLATION

.1 Install insulation and vapour retarder in accordance with manufacturer's instructions.

.2 Install in exterior wall spaces without gaps or voids. Do not compress insulation.

.3 Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

.4 Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.

.5 Install with factory applied vapour retarder membrane facing warm side of building spaces. Lap ends and side flanges of membrane over framing members.

.6 Tape seal butt ends, lapped flanges, and tears or cuts in membrane.

.7 Wood Framing: Place vapour retarder on warm side of insulation by stapling 6 on centre. Lap and seal sheet retarder joints over member face.

.8 Metal Framing: Place vapour retarder on warm side of insulation; lap and seal sheet retarder joints over member face.

.9 Tape seal tears or cuts in vapour retarder.

.10 Extend vapour retarder tight to full perimeter of adjacent window and door frames and other items interrupting the plane of membrane. Tape seal in place.

.11 Coordinate work of this section with construction of vapour retarder specified in Section 07260.

3.3 SCHEDULES

.1 Provide insulation as shown on Drawings.

END OF SECTION

PART 1 GENERAL

1.01 EXTENT OF WORK

A. Provide all labor, material, tools, equipment, and supervision necessary to complete the installation of the Sure-Weld .060-mil thick white, reinforced TPO (Thermoplastic Polyolefin) membrane (or approved equal) Mechanically-Fastened Roofing System including flashings and insulation as specified herein and as indicated on the drawings in accordance with the manufacturer's most current specifications and details.

B. The roofing contractor shall be fully knowledgeable of all requirements of the contract documents and shall make themselves aware of all job site conditions that will affect their work.

C. The roofing contractor shall confirm all given information and advise the building owner, prior to bid, of any conflicts that will affect their cost proposal.

1.02 SUBMITTALS

A. Prior to starting work, the roofing contractor must submit the following:

1. Shop drawings showing layout, details of construction and identification of materials.

2. Shop drawings shall provide engineered details for connections to existing. This shall include for scupper details, etc.

3. Sample of the manufacturer's Membrane System Warranty.

4. Submit a letter of certification from the manufacturer which certifies the roofing contractor is authorized to install the manufacturer's roofing system and lists foremen who have received training from the manufacturer along with the dates training was received.

.5 Certification from the membrane manufacturer indicating the fasteners are capable of providing a static backout resistance of 10 inch pounds minimum is required.

.6 Certification from the membrane manufacturer indicating the membrane thickness over the reinforcing scrim (top ply membrane thickness) is nominal .15-mil or thicker.

.7 Certification of the manufacturer's warranty reserve.

B. Upon completion of the installed work, submit copies of the manufacturer's final inspection to the specifier prior to the issuance of the manufacturer's warranty.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.

B. Comply with the manufacturer's written instructions for proper material storage.

1. Store Sure-Weld membrane in the original undisturbed plastic wrap in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. Sure-Weld membrane that has been exposed to the elements for approximately 7 days must be prepared with Carlisle Weathered Membrane Cleaner prior to hot air welding.

2. Store curable materials (adhesives and sealants) between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.

3. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.

C. Insulation must be on pallets, off the ground and tightly covered with waterproof materials.

D. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

1.04 WORK SEQUENCE

A. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.

B. Do not disrupt activities in occupied spaces.

1.05 EXISTING CONDITIONS

If discrepancies are discovered between the existing conditions and those noted on the drawings, immediately notify the owner's representative by phone and solicit the manufacturer's approval prior to commencing with the work. Necessary steps shall be taken to make the building watertight until the discrepancies are resolved.

1.06 JOB SITE PROTECTION

A. The roofing contractor shall adequately protect building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. Provide canvas, boards and sheet metal (properly secured) as necessary for protection and remove protection material at completion. The contractor shall repair or be responsible for costs to repair all property damaged during the roofing application.

B. During the roofing contractor's performance of the work, the building owner will continue to occupy the existing building. The contractor shall take precautions to prevent the spread of dust and debris, particularly where such material may sift into the building. The roofing contractor shall provide labor and materials to construct, maintain and remove necessary temporary enclosures to prevent dust or debris in the construction area(s) from entering the remainder of the building.

C. Do not overload any portion of the building, either by use of or placement of equipment, storage of debris, or storage of materials.

D. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.

E. Take precautions to prevent drains from clogging during the roofing application. Remove debris at the completion of each day's work and clean drains, if required. At completion, test drains to ensure the system is free running and drains are watertight. Remove strainers and plug drains in areas **where work is in progress**. Install flags or other telltales on plugs. Remove plugs each night and screen drain.

F. Store moisture susceptible materials above ground and protect with waterproof coverings.

G. Remove all traces of piled bulk materials and return the job site to its original condition upon completion of the work.

1.07 SAFETY

The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related. **Safety shall be the responsibility of the roofing contractor.** All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

1.08 WORKMANSHIP

A. Applicators installing new roof, flashing and related work shall be factory trained and approved by the manufacturer they are representing.

B. All work shall be of highest quality and in strict accordance with the manufacturer's published specifications and to the building owner's satisfaction.

C. There shall be a supervisor on the job site at all times while work is in progress.

1.9 QUALITY ASSURANCE

A. The Sure-Weld Roofing System must achieve a UL Class A.

B. The specified roofing assembly must be rated by FM Global (FMG) to meet or exceed the factored uplift pressures outlined in FMG Property Loss Prevention Data Sheet 1-28, and complies with FMG Property Loss Prevention Data Sheet 1-29 for enhancements at the perimeter and corners.

C. The membrane must be manufactured by the material supplier. Manufacturer’s supplying membrane made by others are not acceptable.

D. Unless otherwise noted in this specification, the roofing contractor must strictly comply with the manufacturer's current specifications and details.

E. The roofing system must be installed by an applicator authorized and trained by the manufacturer in compliance with shop drawings as approved by the manufacturer. The roofing applicator shall be thoroughly experienced and upon request be able to provide evidence of having at least five (5) years successful experience installing single-ply TPO roofing systems and having installed at least one (1) roofing application or several similar systems of equal or greater size within one year.

F. Provide adequate number of experienced workmen regularly engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and experienced superintendent on the job at all times roofing work is in progress.

G. There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the specifier. Any deviation from the manufacturer's installation procedures must be supported by a written certification on the manufacturer's letterhead and presented for the specifier's consideration.

H. The Sure-Weld TPO White membrane meets CRRC (Cool Roof Rating Council) for reflectance and emittance. When tested in accordance with ASTM C1549, the Sure-Weld White material has an initial solar reflectance of 0.79 and a 3-year aged reflectance of 0.70. The material has also been tested for emittance in accordance with ASTM C1371; an initial emittance of 0.90 and a 3-year aged emittance of 0.86 were achieved.

I. The Sure-Weld White TPO membrane meets the emittance requirements set forth by the USGBC (U. S. Green Building Council) for their LEED (Leadership in Energy and Environmental Design) Program. The Sure-Weld White TPO material has an emittance of 0.90 (when tested in accordance with ASTM E408) and an SRI (solar reflectance index) of 99 (calculated using ASTM E 1980).

J. Upon completion of the installation, the applicator shall arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to determine whether or not corrective work will be required before the warranty will be issued. Notify the building owner seventy-two (72) hours prior to the manufacturer's final inspection.

1.10 JOB CONDITIONS, CAUTIONS AND WARNINGS

Refer to Carlisle's Sure-Weld Roofing System specification for General Job Site Considerations.

A. Safety Data Sheets (SDS) must be on location at all times during the transportation, storage and application of materials.

B. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.

C. When loading materials onto the roof, the Carlisle Authorized Roofing Applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.

D. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.

E. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.

F. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.

G. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.

H. New roofing shall be complete and weathertight at the end of the work day.

I. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.

1.11 WARRANTY

A. Provide manufacturer’s 20-year transferable Total System Warranty covering both labor and material with no dollar limitation (base bid).

B. For .080-mil option provide maximum manufactures warranty (which is to be indicated as part of the bid). Warranty shall also cover leaks caused by accidental punctures: 16 man-hours per year for .080-mil Sure-Weld

C. Pro-rated System Warranties shall not be accepted.

D. Evidence of the manufacturer's warranty reserve shall be included as part of the project submittals for the specifier's approval.

PART 2 PRODUCTS

2.01 GENERAL

A. All components of the specified roofing system shall be products of Carlisle SynTec or accepted by Carlisle SynTec as compatible.

B. All products (including insulation, fasteners, fastening plates, prefabricated accessories and edgings) must be **manufactured and/or supplied** by the roofing system manufacturer and covered by the warranty.

2.02 MEMBRANE

Furnish Sure-Weld .060-mil thick white reinforced TPO (Thermoplastic Polyolefin) membrane as needed to complete the roofing system. Membrane thickness over the reinforcing scrim (top-ply thickness) shall be nominal .015-mil or thicker. Membrane sheets in rolls 12', 10' or 8' wide by 100' long.

2.03 INSULATION/UNDERLAYMENT

A. When applicable, insulation shall be installed in multiple layers. The first and second layer of insulation shall be mechanically fastened to the substrate in accordance with the manufacturer's published specifications.

B. Insulation shall be **Carlisle HP-H Polyiso** as supplied by Carlisle SynTec. Minimum R-value requiredas noted on drawings.

1. **Carlisle HP-H Polyiso** – A foam core insulation board covered on both sides with a medium weight fiber-reinforced felt facer meeting ASTM C 1289-06, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4’ x 8’ standard size with a thickness from 1 to 4 inches. 4’ x 4’ tapered panels are also available.

2. **Sure-Seal HP Recovery Board** - A 1/2” thick high-density wood fiberboard with an asphalt coated facer for use as a cover board or recover board. Available ½” or 1” thick and 4’ x 4’ or 4’ x 8’ size boards.

C. Air / Vapour Retarder: Vap Air Seal 725 TR (Peel and Stick AVB Retarder).

2.04 ADHESIVES AND CLEANERS

All products shall be furnished by Carlisle and specifically formulated for the intended purpose.

A. **Sure-Weld Bonding Adhesive:** A high-strength, synthetic rubber adhesive used for bonding Sure-Weld membrane to various surfaces. The adhesive is applied to both the membrane and the substrate at a coverage rate of approximately 60 square feet per gallon per finished surface (includes coverage on both surfaces).

B. **Low VOC Bonding Adhesive for TPO:** This product meets the <250 gpl VOC (volatile organic compound) content requirements of the OTC Model Rule for Single-Ply Roofing Adhesives. A high strength, solvent-based contact adhesive that allows bonding of TPO membrane to various porous and non-porous substrates. Apply at a rate of 60 ft2 per gallon finished surface. Available in 5 gallon pails. This product does not comply with southern California counties with additional restrictions on solvents.See Carlisle’s Product Data Sheet for a listing of the counties involved.

C. **Low VOC Bonding Adhesive 1168:** This product meets the <250 gpl VOC (volatile organic compound) content requirements of the OTC Model Rule for Single Ply Roofing Adhesives. A high strength, solvent-

based contact adhesive the allows bonding of TPO membrane to various porous and non-porous substrates. Apply at a rate of 60 ft2 per gallon finished surface. Available in 5-gallon cans. This product complies with southern California counties with additional restrictions on solvents. See Carlisle's Product Data Sheet for a listing of the counties involved.

D. **Cut-Edge Sealant:** A white or clear colored sealant used to seal cut edges of reinforced Sure-Weld membrane. A coverage rate of approximately 225 - 275 linear feet per squeeze bottle can be achieved when a 1/8" diameter bead is applied.

E. **Water Cut-Off Mastic:** Used as a mastic to prevent moisture migration at drains, compression terminations and beneath conventional metal edging (at a coverage rate of approximately 10' per tube or 100' per gallon).

F. **Universal Single-Ply Sealant:** A 100% solids, solvent free, voc free, one part polyether sealant that provides a weather tight seal to a variety of building materials. It is white in color and is used for general caulking such as above termination bars and metal counter flashings and at scuppers.

G. **Thermoplastic One-Part Pourable Sealer**: A one-part, moisture curing, elastomeric polyether sealant used to fill TPO Molded Pourable Sealant Pockets. Packaged in 4, 2-liter foil pouches inside a reusable plastic bucket. 1 pouch will fill 2 TPO Molded Pourable Sealant Pockets.

H. **Weathered Membrane Cleaner:** Used to prepare membrane for heat welding that has been exposed to the elements or to remove general construction dirt at an approximate coverage rate of 400 square feet per gallon (one surface).

I. **TPO Primer:** A solvent-based primer used to prepare the surface of Sure-Weld Membrane prior to application of Pressure-Sensitive Coverstrip and TPO Pressure-Sensitive RUSS.

J. **TPO Low VOC Primer::** A solvent-based, low solids primer used to prepare the surface of Sure-Weld Membrane prior to application of Pressure-Sensitive Coverstrip and TPO Pressure-Sensitive RUSS. This low VOC product is ideal for use in states where environmental issues are a concern.

2.05 FASTENERS AND PLATES

To be used for mechanical attachment of insulation and to provide additional membrane securement

A. **HP-X Fasteners**: A heavy duty #15 threaded fastener with a #3 phillips drive used for membrane or insulation securement into steel, wood plank or minimum 15/32 inch thick plywood.

B. **RhinoBond or Isoweld TPO Welding Plate:** A 3" diameter, 0.028" thick, corrosion-resistant steel plate with high solids coating on the top surface. The plate is secured with Carlise's HP-X Fastener or Purlin Fastener and the membrane is welded to the top surface using the RhinoBond or Isoweld Induction Welding Tool.

C. **Sure-Weld Pressure-Sensitive RUSS™** (Reinforced Universal Securement Strip): a 6" wide, nominal 45-mil thick reinforced TPO membrane with 3" wide Pressure Sensetive Tape laminated along one edge. The 6" wide Pressure-Sensitive RUSS is used horizontally at the base of walls, curbs, etc., in conjunction with 2" diameter Seam Fastening Plates below the TPO deck membrane for additional membrane securement.

1. **6" wide Pressure-Sensitive RUSS** is used horizontally or vertically at the base of walls, curbs, etc., in conjunction with PiranhaFastening Plates below the TPO deck membrane for additional membrane securement.

2.06 METAL EDGING AND MEMBRANE TERMINATIONS

A. **General:** All metal edging shall be tested and meet ANSI/SPRI ES-1 standards.

B. **SecurEdge One Fascia:** A snap-on edge system consisting of an extruded aluminum retainer bar, corrosion resistant fasteners and a 24 gauge or 0.040 Kynar finished aluminum fascia cover. Available with a 3" fascia height 12' long. Metal fascia color shall be designated by the Owner's Representative.

C. **SecurEdge One Edge:** A snap-on edge system consisting of a 24 gauge retainer bar, corrosion resistant fasteners and a 24 gauge or 0.040 aluminum Kynar finished fascia cover. A spring clip holds the fascia cover in place. Available in sizes up to 8" fascia height 12' long. Metal fascia color shall be designated by the Owner's Representative.

D. **SecurWeld Drip Edge**: 4'x 10' coated metal sheets made from 24 gauge galvanized steel with a minimum .035" thick non-reinforced white Sure-Weld laminate. Sure-Weld membrane can be welded directly to the Sure-Weld Coated Metal in accordance with the manufacturer's detail.

E. **SecurEdge Coping**: incorporates a 20 gauge anchor cleat with 4 pre-slotted holes, a concealed joint cover and 10 foot continuous sections of coping cap; can accommodate minimum 5 " wide parapet walls. Metal coping cap color shall be as designated by the Owner's Representative.

F. **SecurEdge One Coping:** A snap-on coping edge system consisting of a 24 gauge retainer bar (face side only), corrosion resistant fasteners and a 24 gauge or 0.040 aluminum Kynar finished coping cover. The coping cover is secured by clipping on the retainer bar and fastened on the backside with corrosion resistant fasteners (with rubber washer). Available for wall thicknesses up to 30". Metal coping cap color shall be as designated by the Owner's Representative.

G. **Termination Bar**: a 1" wide and .098" thick extruded aluminum bar pre-punched 6" on center; incorporates a sealant ledge to support Lap Sealant and provide increased stability for membrane terminations.

2.07 WALKWAYS

Protective surfacing for roof traffic shall be Sure-Weld TPO Walkway Rolls installed per manufacturer's requirements leading from an entry point to all roof top units.

2.08 OTHER PRODUCTS / TOOLS

A. **RhinoBond or Isoweld Portable Induction Welding Tool**: An induction heating tool is used to emit the magnetic field that activates the high solid coating on the top surface of the RhinoBond or Isoweld Welding Plate to fuse with the roofing membrane.

B. **Magnet**: A stand-up device that allows the weld to cool as it holds the membrane to the heated plate.

C. Metal Flashing, if required, and miscellaneous items needed to fulfill the project requirements

PART 3 EXECUTION

3.01 GENERAL

A. Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, jobsite considerations and weather restrictions.

B. Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

3.02 INSULATION PLACEMENT AND ATTACHMENT

A. Install Air/Vapour Retarder as per manufacturer instructions.

B. Install insulation or membrane underlayment over the substrate with boards butted tightly together with no joints or gaps greater than 1/4 inch. Stagger joints both horizontally and vertically if multiple layers are provided.

C. Secure insulation to the substrate with the required Carlisle fasteners and RhinoBond or Isoweld TPO Welding Plate in accordance with manufacturers specifications.

D. Securement to meet FM Global requirements

3.03 RHINOBOND or ISOWELD INDUCTION TOOL CALIBRATION

Prior to proceeding with membrane attachment to the plate, the RhinoBond or Isoweld Induction Tool must be calibrated. Follow calibration process as published by manufacture with the specified insulation thickness and type and specified membrane thickness.

3.04 MEMBRANE PLACEMENT AND INDUCTION WELDING

A. After placement of insulation on substrate, secure the insulation at a rate of six HP-X Fasteners and RhinoBond or Isoweld Plates per 4’ x 8’ board in the designated field and eight HP-X Fasteners and RhinoBond or Isoweld Plates around the perimeter. Refer to appropriate Carlisle detail for patterns and depth of perimeter area. Ensure details meet FM Global Requirements.

Note: Avoiding fastener overdrive to prevent plate from deforming.

B. Place Sure-Weld membrane over the appropriate RhinoBond or Isoweld Plates and allow membrane to relax.

C. Place RhinoBond Induction Tool over the RhinoBond TPO Welding Plate, under the roofing membrane OR Place the Isowled Induction Tool over the Isoweld TPO Welding Plate, until the acoustic search mode signals the inductor is properly positioned.

D. Activate induction welding tool and leave in place until heating cycle is complete.

E. Immediately place Magnet on the membrane over the plate and leave in place for at least 60 seconds.

F. Resume process ensuring membrane is attached to all plates.

Note: Additional securement must be provided at the perimeter of each roof level, roof section, expansion joint, curb flashing, skylight, interior wall, penthouse, etc., at any inside angle change where slope exceeds 2" in one horizontal foot, and at other penetrations in accordance with membrane manufacture's published details.

3.05 MEMBRANE HOT AIR WELDING PROCEDURES

A. Hot air weld the Sure-Weld membrane using an Automatic Hot Air Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's specifications. At all splice intersections, roll the seam with a silicone roller immediately after welder crossed the membrane step-off to ensure a continuous hot air welded seam. When using .060-mil thick or thicker membrane, all splice intersections shall be overlaid with Sure-Weld non-reinforced flashing or TPO T-Joint covers.

B. Probe all seams once the hot air welds have thoroughly cooled (approximately 30 minutes).

C. Repair all seam deficiencies the same day they are discovered.

D. Apply Cut Edge Sealant on all cut edges of reinforced membrane (where the scrim reinforcement is exposed) after seam probing is complete. Cut edge sealant is not required on vertical splices.

3.06 FLASHING

A. Flashing of parapets, curbs, expansion joints and other parts of the roof must be performed using Sure-Weld reinforced membrane. Sure-Weld non-reinforced membrane can be used for flashing pipe penetrations, Sealant Pockets, scuppers, as well as inside and outside corners when the use of pre-fabricated accessories is not feasible.

B. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

3.07 WALKWAYS

A. Install walkways at all traffic concentration points (such as roof hatches, access doors, rooftop ladders, etc.) and all locations leading from entry to this roof and to each of the roof top units as identified on the specifier's drawing.

3.08 DAILY SEAL

A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.

B. Complete an acceptable membrane seal in accordance with the manufacturer's requirements.

3.09 CLEAN UP

A. Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.

B. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

END OF SPECIFICATION

PART 1 General

1.1 SECTION INCLUDES

.1 Coping, parapet, cap, sill, and lintel flashings.

.2 Facias, scuppers, pitch pockets, and snow guards.

.3 Counterflashings at roof mounted equipment and vent stacks.

1.2 RELATED SECTIONS

.1 Section 07900 - Joint Sealers.

.2 Section 09910 - Paint and Coatings: Prime and finish painting.

1.3 REFERENCES

.1 AISI - (American Iron and Steel Institute) - Stainless Steel - Uses in Architecture.

.2 ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.3 ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.4 ASTM B32 - Solder Metal.

.5 ASTM B209/B209M - Aluminum and Aluminum-Alloy Sheet and Plate.

.6 ASTM B370 - Copper Sheet and Strip for Building Construction.

.7 ASTM D226 - Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

.8 ASTM D4586 - Asphalt Roof Cement, Asbestos-Free.

.9 CDA (Copper Development Association) - Contemporary Copper, A Handbook of Sheet Copper Fundamentals, Design, Details and Specifications.

.10 CDA - Copper Roofing - A Practical Handbook.

.11 FS O-F-506 - Flux, Soldering, Paste and Liquid.

.12 NRCA (National Roofing Contractors Association) - Roofing and Waterproofing Manual.

.13 SMACNA - Architectural Sheet Metal Manual.

1.4 QUALITY ASSURANCE

.1 Perform work in accordance with SMACNA and NRCA standard details and requirements.

1.5 QUALIFICATIONS

.1 Fabricator and Installer: Company specializing in sheet metal flashing work.

1.6 PRE-INSTALLATION CONFERENCE

.1 Section 01300: Convene one week prior to commencing work of this section.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Section 01600: Deliver, store, protect and handle products to site.

.2 Stack preformed and prefinished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

.3 Prevent contact with materials which may cause discolouration or staining.

1.8 COORDINATION

.1 Section 01300: Coordinate work.

PART 2 Products

2.1 SHEET MATERIALS

.1 Prefinished Galvanized Steel: ASTM A653/A653M, G90 zinc coating; 24 gauge core steel.

2.2 ACCESSORIES

.1 Fasteners: Same material and finish as flashing metal.

.2 Primer: Zinc chromate.

.3 Protective Backing Paint: Zinc chromate alkyd.

.4 Sealant: specified in Section 07900.

.5 Bedding Compound: Butyl.

.6 Plastic Cement: ASTM D4586, Type II.

2.3 FABRICATION

.1 Form sections true to shape, accurate in size, square, and free from distortion or defects.

.2 Fabricate cleats of same material as sheet, interlockable with sheet.

.3 Form pieces in longest possible lengths.

.4 Hem exposed edges on underside 1/2inch; mitre and seam corners.

.5 Form material with flat lock seams.

.6 Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

.7 Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

.8 Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

2.4 FINISH

.1 Use prefinished flashing to match finish and colour of siding.

.2 Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

PART 3 Execution

3.1 EXAMINATION

.1 Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets in place, and nailing strips located.

.2 Verify roofing termination and base flashings are in place, sealed, and secure.

3.2 PREPARATION

.1 Install starter and edge strips, and cleats before starting installation.

3.3 INSTALLATION

.1 Conform to drawing details included in the CDA, SMACNA and NRCA manual.

.2 Secure flashings in place using concealed fasteners.

.3 Apply plastic cement compound between metal flashings and felt flashings.

.4 Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

.5 Seal metal joints watertight.

.6 Secure gutters and downspouts in place using [concealed] fasteners.

.7 Slope gutters 1/4 inch per foot minimum.

.8 Connect downspouts to system. Seal connection watertight.

.9 Seal metal joints watertight.

3.4 FIELD QUALITY CONTROL

.1 Section 01400: Field inspection.

.2 Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Preparing substrate surfaces.

.2 Sealant and joint backing.

1.2 RELATED SECTIONS

.1 Section03300: Sealants required in conjunction with cast-in-place concrete.

.2 Section 04810: Sealants required in conjunction with masonry.

.3 Section 07840 Firestopping: Sealants required in conjunction with firestopping.

.4 Section 07511: Sealants required in conjunction with roofing.

.5 Section 07620: Sealants required in conjunction with metal flashings.

.6 Section 08111: Sealants required in conjunction with door frames.

.7 Section 08800 Glazing: Sealants required in conjunction with glazing methods.

.8 Section 09306: Sealants required in conjunction with floor and base finish.

.9 Section 13038: sealants required in conjunction with Cold Storage rooms.

1.3 REFERENCES

.1 ASTM C1193 - Standard Guide for Use of Joint Sealants.

.2 ASTM C834 - Latex Sealants.

.3 ASTM C919 - Use of Sealants in Acoustical Applications.

.4 ASTM C920 - Elastomeric Joint Sealants.

.5 ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.

.6 SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

1.4 QUALITY ASSURANCE

.1 Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

.2 Perform acoustical sealant application work in accordance with ASTM C919.

1.5 QUALIFICATIONS

.1 Manufacturer: Company specializing in manufacturing the Products specified in this section.

.2 Applicator: Company specializing in performing the work of this section approved by manufacturer.

1.6 ENVIRONMENTAL REQUIREMENTS

.1 Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.7 COORDINATION

.1 Section 01300: Coordinate work.

.2 Coordinate the work with all sections referencing this section.

1.8 WARRANTY

.1 Section 01700: Provide five year warranty.

.2 Warranty: Include coverage for installed sealants and accessories which fail to achieve air or water tight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 Products

2.1 SEALANTS

.1 Manufacturers:
- .1 GE Silicone
- .2 Tremco Silicone.

2.2 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 D1056; round, closed cell polyethylene foam rod; oversized 30 to 50 percent larger than joint width.

.4 Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 Execution

3.1 EXAMINATION

.1 Verify that substrate surfaces and joint openings are ready to receive work.

.2 Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

.1 Remove loose materials and foreign matter which might impair adhesion of sealant.

.2 Clean and prime joints in accordance with manufacturer's instructions.

.3 Perform preparation in accordance with manufacturer's instructions.

.4 Protect elements surrounding the work of this section from damage or disfiguration.

3.3 INSTALLATION

.1 Install sealant in accordance with manufacturer's instructions.

.2 Measure joint dimensions and size materials to achieve required width/depth ratios.

.3 Install joint backing to achieve a neck dimension no greater than 1/3 of the joint width.

.4 Install bond breaker where joint backing is not used.

.5 Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

.6 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

.7 Tool joints concave.

3.4 CLEANING

.1 Clean adjacent soiled surfaces.

3.5 PROTECTION OF FINISHED WORK

.1 Section 01700: Protect finished installation.

.2 Protect sealants until cured.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Non-rated and fire rated thermally insulated steel frames for doors and windows.

.2 Interior and exterior glazed light frames.

1.2 RELATED SECTIONS

.1 Section 08112 - Standard Steel Doors.

.2 Section 08710 - Door Hardware: Hardware, weatherstripping.

.3 Section 08800 - Glazing.

.4 Section 09910 - Paint and Coatings: Field painting of doors.

1.3 REFERENCES

.1 ANSI A117.1 - Accessible and Usable Buildings and Facilities.

.2 ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.3 ASTM E2074- Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.

.4 CSDFMA (Canadian Steel Door and Frame Manufacturers Association).

.5 DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.

.6 NFPA 80 - Fire Door, Fire Windows.

.7 NFPA 252 - Fire Tests for Door Assemblies.

.8 SDI-100 - Standard Steel Doors and Frames.

.9 UL 10B - Fire Tests of Door Assemblies.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01300: Submission procedures.

.2 Product Data: Indicate frame configuration and finishes.

.3 Shop Drawings: Indicate frame elevations, reinforcement, anchor types and spacings, location of cut-outs for hardware, and finish.

1.5 SUBMITTALS FOR INFORMATION

.1 Submit shop drawings in accordance with Section 01300: Submission procedures.

.2 Clearly indicate each type of frame, elevation, material, material thicknesses, mortises, reinforcements, anchor types and spacing, finish, reinforcement and special features.

.3 Reference frames to door schedule. Indicate door numbers and construction where applicable.

1.6 QUALITY ASSURANCE

.1 Manufacture fire door and frame components and assemblies to ULC/ULI/WARNOCK HERSHEY/FACTORY MUTUAL requirements.

.2 Hollow Metal Trades Association - Canadian Manufacturing Standards for Metal Doors and Frames.

1.7 REGULATORY REQUIREMENTS

.1 Fire Rated Frame Construction: Conform to ASTM E2074, NFPA 252 and UL 10B.

.2 Installed Frame Assembly: Conform to NFPA 80 for fire rated class same as fire door.

.3 Door assemblies to be fire rated based on results of tests to CAN4-S104-M and as required by the Ontario Building Code.

1.8 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01600: Transport, handle, store, and protect products.

.2 Accept frames on site in manufacturer's packaging. Inspect for damage.

1.9 PROJECT CONDITIONS

.1 Section 01300: Coordination and meetings.

.2 Coordinate the work with frame opening construction, door, and hardware installation.

.3 Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

PART 2 Products

2.1 FRAME MANUFACTURERS

.1 Daybar.

.2 All Steel Doors.

.3 Artek Doors.

2.2 FRAMES

.1 Frames: 1.6 mm, commercial quality steel cold rolled to ASTM A653M-96; standard wipe coat finish; 2.0 mm for frames with opening width in excess of 1200 mm. Note Underwriters thickness requirements for labeled frames.

.2 Accessories: Glazing stops, floor anchors, channel spreaders, 1.6 mm tee anchors, 1.2 mm wall stud anchors, zinc coated to ASTM A653M-96, standard wipe coat finish. Corrugate tee anchors for masonry bond. Drill stud anchors for wire tie to studs. Lag bolts, shields and bushing for existing or concrete openings.

.3 Guard Boxes: 0.50 mm steel, ZF075 coating designation zinc finish to ASTM A653M-96.

.4 Door Bumpers: black neoprene.

.5 Reinforcement for Hardware: carbon steel, prime painted, to the following thicknesses:

Hinge & Pivot reinforcements	30 mm x 250 mm 3.5 mm
Strike reinforcements	1.6 mm
Flush Bolt reinforcements	1.6 mm
Closer reinforcements	2.5 mm
Surface hardware reinforcements	2.5 mm

.6 Door Jamb Reinforcement: 100 mm x 40 mm structural steel channel to CAN3-G40.21-92.

2.3 ACCESSORIES

.1 Weatherstripping: Resilient rubber set in aluminum frame.

2.4 FABRICATION

.1 Fabricate frames in accordance with details and approved shop drawings to Underwriters requirements and provide Underwriters labels. Provide 100 mm head section where detailed.

.2 Mortise, reinforce, drill and tap frames and reinforcements to receive hardware using templates provided. Locate mortising to National Builders Hardware Association Standards.

.3 Install 2 double stud bumpers on strike jamb of frame for each single door and 2 bumpers at head of double door frames.

.4 Protect strike, hinge [and overhead concealed door closer] reinforcement completely by guard boxes welded to frame.

.5 Weld in 50 mm channel spreaders to frame; ensure proper frame alignment.

.6 Where frames terminate at finished floor, provide floor plates for anchorage to floor structure.

.7 Cut mitres accurately and secure bent tabs on inside of frame profile.

.8 Grind welded corners to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

.9 Fill surface depressions and butted joints with metallic paste filler and sand to a uniform smooth finish.

.10 Touch-up frames by priming areas where galvanizing is damaged.

.11 Reinforce head of frames wider than 1200 mm with 2.5 mm formed steel channel welded in place, flush with top of frame.

.12 Provide three jamb anchors per jamb for frames up to 2130 mm high and one additional for each 600 mm over 2130 mm high.

.13 Minimum depth of stop: 15 mm. Glazing stops, butt, miter, joints, channel shape 15 mm wide with counter screws.

.14 Cut-off hospital stops at 45 deg. to height same as adjacent base finish; weld, fill, grind smooth and apply primer finish.

.15 Reinforce head section at junction with removable mullion.

.16 Reinforce both jambs where door openings occur in screens. Install reinforcing continuous structure to structure.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verification of existing conditions before starting work.

.2 Verify that opening sizes and tolerances are acceptable.

3.2 INSTALLATION

.1 Set frames in plumb and square at correct elevation. Limit of acceptable frame distortion - 2 mm out of plumb measured on face of frame, maximum twist corner to corner of 3 mm.

.2 Secure anchorages and connections to adjacent construction. Anchor door jamb reinforcement securely to structure.

.3 Brace frames solidly to maintain in position while being built-in. Erect knocked down frames in accordance with fabricator’s instructions.

.4 Install a temporary horizontal wood spreader at mid-height of door opening to maintain frame width until building work completed.

.5 For frames over 1200 mm in width, provide vertical support at the centre of head.

.6 Remove temporary spreaders only after completion of adjacent work.

.7 Co-ordinate grouting of all frames solid to adjacent construction.

.8 Provide formed metal drip section full width of frame opening for exterior doors.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Non-rated and fire rated, thermally insulated and acoustic steel doors.

.2 Louvres, glass and glazing.

1.2 RELATED SECTIONS

.1 Section 08111 - Standard Steel Frames.

.2 Section 08710 - Door Hardware.

.3 Section 08800 - Glazing: Glass for doors.

.4 Section 09910 - Paint and Coatings: Field painting of doors.

1.3 REFERENCES

.1 ANSI A117.1 - Accessible and Usable Buildings and Facilities.

.2 ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.3 ASTM C1363 - Method for Thermal Performance of Building Assemblies by Means of a Hot-Box Apparatus.

.4 ASTM E2074 - Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.

.5 ASTM E413 - Classification for Rating of Sound Insulation.

.6 CSDFMA (Canadian Steel Door and Frame Manufacturers Association).

.7 DHI (Door Hardware Institute) - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.

.8 NFPA 80 - Fire Doors, Fire Windows.

.9 NFPA 252 - Fire Tests for Door Assemblies.

.10 SDI-100 - Standard Steel Doors and Frames.

.11 UL 10B - Fire Tests of Door Assemblies.

1.4 SUBMITTALS FOR REVIEW

.1 Section 01300: Submission procedures.

.2 Product Data: Indicate door configurations, location of cut-outs for hardware reinforcement.

.3 Shop Drawings: Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, louvres and finishes.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01300: Submission procedures.

.2 Manufacturer's Installation Instructions: Indicate special installation instructions.

.3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

.1 Conform to requirements of CSDFMA and SDI-100.

.2 Manufacturer: Company specializing in manufacturing the Products specified in this section.

1.7 REGULATORY REQUIREMENTS

.1 Fire Rated Door Construction: Conform to ASTM E2074, NFPA 252 and UL 10B.

.2 Door assemblies to be fire rated based on results of tests to CAN4-S104-M and as required by the Ontario Building Code.

1.8 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01600: Transport, handle, store, and protect products.

.2 Accept doors on site in manufacturer's packaging. Inspect for damage.

.3 Break seal on site to permit ventilation.

1.9 PROJECT CONDITIONS

.1 Section 01300: Coordination and meetings.

.2 Coordinate frame installation with size, location, and installation of service utilities.

.3 Coordinate the work with door opening construction, door frame, and door hardware installation.

.4 Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

PART 2 Products

2.1 MATERIALS

.1 Sheet Steel: to ASTM A653M-96 commercial quality steel, cold rolled, zinc coated to ZF075 coating designation.

.2 Honeycomb core material: rigid pre-expanded resin impregnated kraft paper having maximum 25 mm hexagonal shaped cells.

.3 Reinforcement for Hardware: carbon steel, welded in place, prime painted, to the following thicknesses:

.1	Hinge, pivot and panic bar reinforcements:	3.5 mm
.2	Lock face, flush bolts, concealed bolts:	2.5 mm
.3	Concealed or surface closer reinforcements:	2.5 mm
.4	Other surface hardware reinforcements:	2.5 mm

.4 Glazing stops: 1.0 mm steel, primed, butt, miter joints, counter sink for screws.

2.2 FABRICATION

.1 Hollow metal doors shall be of seamless construction with no visible seams or joints on faces at vertical edges.

.2 Steel face sheet thickness:

.1 Interior doors: 1.2 mm.

.2 Exterior doors: 1.6 mm.

.3 Core Construction shall be one of the following:

.1 Internally steel stiffened with continuous vertical steel stiffeners at 150 mm O.C. spot welded to both face sheets; fill voids with glass fibre insulation.

.2 Composite construction consisting of honeycomb core with steel face sheets pressure laminated to core.

.4 Refer to door schedule for required classes and ratings of fire doors, glazing or other requirements.

.5 Mortise, reinforce, drill and tap doors and reinforcements to receive hardware using templates provided.

.6 Join door faces at intersecting edges with continuous welds, fill and grind smooth. Finish door faces flush without visible joints or distortion.

.7 Close top and bottom edges of door with recessed 1.2 mm steel channel, full width welded. Provide closure channel at top edge of exterior doors. Provide weep holes in exterior door bottom channel.

.8 Make provisions for glass, provide glazing stops. Weld stops to door on security side.

.9 Touch-up doors by priming areas where zinc coating is damaged.

.10 Provide astragals for pairs of doors in accordance with Underwriters requirements.

.11 Profile edge of doors as follows: Single acting swing doors - Bevel 3 mm in 50 mm Double acting swing doors - Radius of 54 mm.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verification of existing conditions before starting work.

.2 Verify that opening sizes and tolerances are acceptable.

3.2 INSTALLATION

.1 Install doors and hardware in accordance with templates and manufacturer's instructions. Maximum permissible warp of 3 mm measured diagonally across door.

.2 Adjust operable parts for correct function.

.3 Apply hardware to Class 'A' fire rated doors prior to delivery.

3.3 ADJUSTING

.1 Section 01700: Adjusting installed work.

.2 Adjust door for smooth and balanced door movement.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Extruded aluminum windows with fixed sash.

.2 Factory glazed.

.3 Perimeter sealant.

1.2 RELATED SECTIONS

.1 Section 05500 - Metal Fabrications: Steel lintels.

.2 Section 07900 - Joint Sealers: Perimeter sealant and back-up materials.

1.3 REFERENCES

.1 AA (Aluminum Association) - Designation System for Aluminum Finishes.

.2 AAMA (American Architectural Manufacturers' Association) - Curtain Wall Manual #10 - Care and Handling of Architectural Aluminum From Shop to Site.

.3 AAMA Series No. 11 - Design Wind Loads for Buildings and Boundary Layer Wind Tunnel Testing.

.4 AAMA 101 - Aluminum and Vinyl (PVC) and Wood Windows and Glass Doors.

.5 AAMA 611 - Specifications for Anodized Architectural Aluminum.

.6 AAMA 1503a - Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections.

.7 AAMA 2603 - Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.

.8 AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

.9 ASTM B209/B209M - Aluminum and Aluminum-Alloy Sheet and Plate.

.10 ASTM B221/B221M - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.11 FS L-S-125 - Screening, Insect, Nonmetallic.

.12 FS RR-W-365 - Wire Fabric (Insect Screening).

.13 SSPC (The Society for Protective Coatings) (formerly SSPC - Steel Structures Painting Council):

- .1 Steel Structures Painting Manual.
- .2 Paint 20, Zinc Rich Primers.

.3 Paint 25 Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer (Without Lead and Chromate Pigments).

.14 Canadian General Standards Board (CGSB).
.1 CAN/CGSB-12.8 - [97], Insulating Glass Units.
.2 CAN/CGSB-12.20 - [M89], Structural Design of Glass for Buildings.
.3 CAN/CGSB-19.13 - [M87], Sealing Compound, One-Component, Elastomeric, Chemical Curing.

.15 .6 CSA International (CSA)
.1 CAN/CSA-A440 - [00], Windows.
.2 CAN/CSA-S157-[2005], Strength Design in Aluminum.
.3 CAN/CSA W59.2-[M1991(R2003)], Welded Aluminum Construction.
.4 CAN/CSA-Z91 - [M90(R2000)], Safety Code for Window Cleaning Operations.

1.4 SYSTEM DESCRIPTION

.1 Windows: Tubular and Single thickness aluminum sections, factory fabricated, factory finished, vision glass, related flashings, anchorage and attachment devices.

.2 Configuration: see drawings.

.3 Glazing: Exterior.

.4 Interior Windows: Mywall H5T Relocatable wall system

1.5 PERFORMANCE REQUIREMENTS

.1 System Design: Design and size components to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall as calculated in accordance with relevant codes.

.2 Deflection: Limit member deflection to flexure limit of glass and max 1/200 of the longer dimension with full recovery of glazing materials.

.3 Assembly: To accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.

.4 Window Classification: To CAN/CSA A440.
.1 Air tightness: [A2].
.2 Water tightness: [B3].
.3 Wind load resistance: [C3].
.4 Condensation resistance: Temperature Index, I60.
.5 Forced Entry: F10.

.5 Windows to meet SB-10 Ontario Building Code Requirements

.6 System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

.7 Air and Vapour Seal: Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

1.6 SUBMITTALS FOR REVIEW

.1 Section 01300: Submission procedures.

.2 Product Data: Provide component dimensions, anchorage and fasteners, glass, and internal drainage details.

.3 Shop Drawings: Submit drawings stamped and signed by Professional Engineer registered or licensed in Province of Ontario, Canada.

.1 Indicate materials and details in full size scale for head, jamb and sill, profiles of components, interior and exterior trim, junction between combination units, elevations of unit, anchorage details, description of related components and exposed finishes, fasteners, and caulking.

.2 Indicate location of hardware.

.3 Indicate location of manufacturer's nameplates.

.4 Submit samples illustrating window frame section corner, factory finished aluminum surfaces, glass, and glazing materials.

.5 Testing: Provide test results for each type and size of window unit from an approved testing laboratory showing compliance with the requirements of CAN/CSA-A440 and CAN/CGSB 12.8, include air leakage, water leakage, wind load resistance, coating, screen, materials, and condensation resistance.

1.7 SUBMITTALS FOR INFORMATION

.1 Section 01300: Submission procedures.

.2 Manufacturer's Certificate: Certify that meet or exceed specified requirements and performance criteria tests.

1.8 QUALITY ASSURANCE

.1 Perform Work in accordance with CAN/CSA-A440. Maintain one copy of each document on site.

.2 Manufacturer and Installer: Company specializing in manufacturing aluminum windows with minimum 5 years documented experience.

1.9 PRE-INSTALLATION MEETING

.1 Section 01300: Pre-installation meeting.

.2 Convene one week before starting work of this section.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01600: Transport, handle, store, and protect products.

.2 Handle work of this section in accordance with AAMA - Curtain Wall Manual #10.

.3 Protect factory finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Section 01600: Environmental conditions affecting products on site.

.2 Do not install sealants when ambient temperature is less than5 degrees C.

.3 Maintain this minimum temperature during and after installation of sealants.

1.12 WARRANTY

.1 Section 01700: Warranties.

.2 Correct defective Work within a five year period after Date of Substantial Completion.

.3 Provide ten year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same.

.4 Warranty: Include coverage for degradation of colour finish.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Extruded Aluminum: ASTM B221/B221M; 6063 alloy, T5 temper with 1.6mm minimum thickness. Fixed glazing stops shall have a grooved surface to retain the glazing tape.

.2 Sheet Aluminum: ASTM B209/B209M; AA1100-H14 alloy, minimum 1.5 mm thick.

.3 Fasteners: use only concealed tamperproof fasteners.

2.2 GLASS AND GLAZING MATERIALS

.1 Insulating glass units: To CAN/CGSB-12.8, double or triple glazed, hermetically sealed, argon filled insulating glass units with low conductance black stainless steel warm edge spacer and arissed edge minimum quality.
- .1 Outer lite: 6 mm clear float grey with low-E coating on surface two.
- .2 Inner lite: 6 mm clear float glass.
- .3 Secondary seal: Silicone

.2 To meet thermal resistance requirements on drawings.

2.3 SEALANT MATERIALS

.1 Sealant and Backing Materials: As specified in Section 07900.

2.4 FABRICATION

.1 Fabricate windows to CAN/CSA A440/A440.1.

.2 Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

.3 Construct units square, plumb and free from distortion, waves, twists, buckles or other defects detrimental to performance or appearance.

.1 Brace frames to maintain squareness and rigidity during installation.

.4 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.

.5 Prepare components to receive anchor devices. Fabricate anchors.

.6 Arrange fasteners and attachments to ensure concealment from view.

.7 Provide internal reinforcement in mullions with galvanized steel members to maintain rigidity.

.8 Permit internal drainage weep holes and channels to migrate moisture to exterior. Provide internal drainage of glazing spaces to exterior through weep holes.

.9 Factory glaze window units.

2.5 FINISHES

.1 Finish Coatings: Conform to AAMA 2603 or AAMA 2604.

.2 Acceptable material; PPG Industries Inc., Duranar, colour selected by owner.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Section 01700: Verification of existing conditions before starting work.

.2 Verify wall openings and adjoining air and vapour seal materials are ready to receive work of this Section.

3.2 INSTALLATION

.1 Install window assembly in accordance with AAMA 101 and manufacturers instructions.

.2 Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.

.3 Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

.4 Install sill

.5 Provide thermal isolation where components penetrate or disrupt building insulation. Provide closed cell foam insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

.6 Coordinate attachment and seal of perimeter air barrier and vapour retarder materials.

.7 Install perimeter sealant to method required to achieve performance criteria, backing materials, and installation criteria in accordance with Section 07900.

3.3 ERECTION TOLERANCES

.1 Section 01400: Tolerances.

.2 Maximum Variation from Level or Plumb: 1.5 mm/m.

3.4 CLEANING

.1 Section 01700: Cleaning installed work.

.2 Remove protective material from factory finished aluminum surfaces.

.3 Wash surfaces by method recommended and acceptable to sealant and window manufacturer; rinse and wipe surfaces clean.

.4 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant and window manufacturer.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Hardware for hollow steel doors.

.2 Thresholds.

.3 Weatherstripping, seals, and door gaskets.

1.2 RELATED SECTIONS

.1 Section 08111 - Standard Steel Frames.

.2 Section 08112 - Standard Steel Doors.

1.3 ALLOWANCES

.1 Section 01200: Cash allowances affecting this section.

1.4 REFERENCES

.1 AWMAC (Architectural Woodwork Manufacturers Association of Canada) - Quality Standards.

.2 BHMA (Builders Hardware Manufacturers Association) - A156 series.

.3 CSDFMA (Canadian Steel Door and Frame Manufacturers Association).

.4 DHI (Door Hardware Institute) - A115 series.

.5 DHI (Door Hardware Institute) - WDHS.3 - Hardware Locations for Wood Flush Doors.

.6 NFPA 80 - Fire Doors, Fire Windows.

.7 NFPA 101 - Life Safety Code.

.8 NFPA 252 - Fire Tests of Door Assemblies.

.9 UL 10B - Fire Tests of Door Assemblies.

.10 UL 305 - Panic Hardware.

1.5 SUBMITTALS FOR REVIEW

.1 Section 01300: Submission procedures.

.2 Shop Drawings:

- .1 Indicate locations and mounting heights of each type of hardware, schedules and catalogue cuts.
- .2 Submit manufacturer's parts lists and templates.

.3 Samples:

.1 Submit 1 sample of hinge, latchset, lockset and closer illustrating style, colour, and finish.

.2 Samples will be returned to supplier.

1.6 SUBMITTALS FOR INFORMATION

.1 Section 01300: Submission procedures.

.2 Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

1.7 SUBMITTALS AT PROJECT CLOSEOUT

.1 Section 01700: Submission procedures.

.2 Project Record Documents: Record actual locations of installed cylinders and their key code.

.3 Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

.4 Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.

.5 Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.8 QUALITY ASSURANCE

.1 Perform Work in accordance with the following requirements:

.1 AWI.

.2 BHMA A156 series.

.3 CSDFMA. DHI - A115 series.

.4 NFPA 80.

.5 NFPA 101.

.6 NFPA 252.

.7 UL 10B.

.8 UL 305.

.2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section.

1.9 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01600: Transport, handle, store, and protect products.

.2 Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.10 PROJECT CONDITIONS

.1 Section 01300: Coordination and meetings.

.2 Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware and recessed items.

.3 Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

.4 Coordinate Owner's keying requirements during the course of the Work.

1.11 WARRANTY

.1 Section 01700: Warranties.

.2 Provide five year manufacturer warranty for door closers.

1.12 MAINTENANCE PRODUCTS

.1 Section 01700: Operation and maintenance data.

.2 Provide special wrenches and tools applicable to each different or special hardware component.

.3 Provide maintenance tools and accessories supplied by hardware component manufacturer.

1.13 EXTRA MATERIALS

.1 Section 01700: Extra materials.

.2 Provide ten extra key lock cylinders for each master keyed group.

PART 2 Products

2.1 SUPPLIERS

.1 General contractor to provide hinges, latchsets, locksets, pivots, push/pulls, cylinder locks, exit devices, gasketing, protection plates and closers and all other hardware on all doors in conjunction with owner’s requirements and the drawings.

2.2 MANUFACTURERS

.1 In accordance with allowance for hardware and owner’s requirements.

2.3 KEYING

.1 Door Locks: Key according to owner’s requirements and the city of Woodstock master keying scheme.

.2 Two copies of keys to be turned over to owner at completion of project.

2.4 FINISHES

.1 Finishes: Identified in Schedule at end of section.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verification of existing conditions before starting work.

.2 Verify that doors and frames are ready to receive work and dimensions are as instructed by the manufacturer.

.3 Verify that electric power is available to power operated devices and is of the correct characteristics.

3.2 INSTALLATION

.1 Install hardware in accordance with manufacturer's instructions.

.2 Use templates provided by hardware item manufacturer.

.3 Mounting heights for hardware from finished floor to centre line of hardware item, refer to:

.1 Section 08112.

.2 Section 08115.

.3 CSDFMA; DHI WDMS.3.

3.3 FIELD QUALITY CONTROL

.1 Section 01400: Field inspection, testing, and adjusting.

3.4 ADJUSTING

.1 Section 01700: Adjusting installed work.

.2 Adjust hardware for smooth operation.

3.5 PROTECTION OF FINISHED WORK

.1 Section 01700: Protecting installed work.

.2 Do not permit adjacent work to damage hardware or finish.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Glass and glazing for hollow metal work, windows and doors.

1.2 RELATED SECTIONS

.1 Section 07260 - Vapour Retarders.

.2 Section 07900 - Joint Sealers: Sealant and back-up material.

.3 Section 08112 - Standard Steel Doors: Glazed doors.

.4 Section 08411 – Aluminum Entrances and Storefronts

.5 Section 08520 – Aluminum Windows

1.3 REFERENCES

.1 CAN/CSA A440 - Windows

.2 ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Glazing Materials Used in Buildings.

.3 ASTM C542 - Specification for Lock-Strip Gaskets.

.4 ASTM C864 - Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.

.5 ASTM C920 - Elastomeric Joint Sealants.

.6 ASTM C1036 - Flat Glass.

.7 ASTM C1048 - Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.

.8 ASTM C1172 - Laminated Architectural Flat Glass.

.9 ASTM C1193 - Use of Joint Sealants.

.10 ASTM D412 -Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers - Tension.

.11 ASTM D1149 - Test Method for Rubber Deterioration - Surface Ozone Cracking in a Chamber.

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

.13 ASTM E283 - Test Method For Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.

.14 ASTM E330 - Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

.15 ASTM E546 - Test Method For Frost Point of Sealed Insulating Glass Units.

.16 ASTM E576 - Method For Frost Point of Sealed Insulating Glass Units in the Vertical Position.

.17 ASTM E773 - Test Method for Accelerated Weathering of Sealed Insulating Glass Units.

.18 ASTM E774 - Classification of the Durability of Sealed Insulating Glass Units.

.19 GANA (Glass Association of North America) - Glazing Manual.

.20 GANA (Glass Association of North America) - Sealant Manual.

.21 GANA (Glass Association of North America) - Laminated Glass Design Guide.

.22 IGMAC (Insulating Glass Manufacturers Association of Canada) - Sealed Insulating Glass: Glass to Elastomer Edge, Glass to Mastic Edge, Special Glasses.

.23 SIGMA - Sealed Insulated Glass Manufacturers Association.

.24 Laminators Safety Glass Association - Standards Manual.

1.4 PERFORMANCE REQUIREMENTS

.1 Size of Glass: Design and size components to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall as calculated in accordance with Ontario Building Code and other applicable standards. Design and shop drawings are required to the same degree and detail for the components in which the glazing is to be installed.

.2 Limit glass deflection to 1/200 or flexure limit of glass with full recovery of glazing materials, whichever is less.

1.5 SUBMITTALS FOR INFORMATION

.1 Section 01300: Submission procedures.

.2 Certificates: Certify that Products meet or exceed specified requirements.

.3 Manufacturer's Certificate: Certify that glass meets or exceeds specified requirements.

1.6 QUALITY ASSURANCE

.1 Perform Work in accordance with CAN/CSA 440 and any other applicable standards.

PART 2 Products

.1 Safety Glass (Type FG-B):

.1 Clear,

.2 fully tempered with horizontal tempering

.3 conform to ANSI Z97.1

.4 6 mm minimum thick for interior doors.

.2 Sealed Insulating Glass:

.1 Insulating Glass Units (Standard):

.1 Conform to CAN/CGSB-12.8, double unit,

.1 Glass to CAN/CGSB-12.1; safety glass

.2 Glass thickness: 6mm each light

.3 Inter-cavity space: 12.5mm between lights with low conductivity spacers

.4 Glass coating: surface number 3; Low “E”

.5 Cavity: argon filled

.6 Colour:

.1 Exterior Pane: Selected by owner

.2 Interior Pane: CLEAR

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verification of existing conditions before starting work.

.2 Verify that openings for glazing are correctly sized and within tolerance.

.3 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.

3.2 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

.4 Install sealant in accordance with manufacturer's instructions.

3.3 INSTALLATION - INTERIOR WET METHOD (COMPOUND AND COMPOUND)

.1 Install glazing resting on setting blocks. Install applied stop and centre pane by use of spacer shims at minimum of 24 inch centres, kept 1/4 inch below sight line.

.2 Locate and secure glazing pane using glazers' clips.

.3 Fill gaps between glazing and stops with glazing compound until flush with sight line. Tool surface to straight line.

3.4 FIELD QUALITY CONTROL

.1 Section 01400: Field inspection, testing.

.2 Inspection will monitor quality of glazing.

3.5 CLEANING

.1 Section 01700: Cleaning installed work.

.2 Remove glazing materials from finish surfaces.

.3 Remove labels after Work is complete.

.4 Clean glass and adjacent surfaces.

3.6 PROTECTION OF FINISHED WORK

.1 Section 01700: Protecting installed work.

.2 After installation, mark pane with an 'X' by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Gypsum board and joint treatment.

.2 Gypsum sheathing.

.3 Cementitious backer board.

.4 Acoustic insulation.

1.2 REFERENCES

.1 ASTM C36/C36M - Gypsum Wallboard.

.2 ASTM C79/C79M - Treated Core and Non-Treated Core for Gypsum Sheathing Board.

.3 ASTM C442/C442M - Gypsum Backing Board, Gypsum, Coreboard, and Gypsum Shaftliner Board.

.4 ASTM C475 - Joint Compound and Joint Tape for Finishing Gypsum Board.

.5 ASTM C514 - Nails for the Application of Gypsum Board.

.6 ASTM C557 - Adhesives for Fastening Gypsum Wallboard to Wood Framing.

.7 ASTM C630/C630M - Water-Resistant Gypsum Backing Board.

.8 ASTM C645 - Specifications for Non-Structural Steel Framing Members.

.9 ASTM C665 - Mineral-Fibre Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.10 ASTM C754 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board.

.11 ASTM C840 - Application and Finishing of Gypsum Board.

.12 ASTM C931 - Exterior Gypsum Soffit Board.

.13 ASTM C1002 - Steel Self-Piercing, Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.14 ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions and Elements.

.15 ASTM E119 - Method for Fire Tests of Building Construction and Materials.

.16 GA 201 (Gypsum Association) - Gypsum Board for Walls and Ceilings.

.17 GA 214 (Gypsum Association) - Recommended Specification: Levels of Gypsum Board Finish.

.18 GA 216 (Gypsum Association) - Application of Gypsum Board.

.19 GA 600 (Gypsum Association) - Fire Resistance Design Manual.

.20 UL - Fire Resistance Directory.

.21 ITS (Intertek Testing Services) - Certification Listings.

1.3 QUALITY ASSURANCE

.1 Perform Work in accordance with ASTM C840, GA-201, GA-214, GA-216 and GA-600.

1.4 REGULATORY REQUIREMENTS

.1 Conform to applicable code for fire rated assemblies.

PART 2 Products

2.1 GYPSUM BOARD MATERIALS

.1 Gypsum Board: to ASTM C36-95b, of types indicated on drawings.

.2 Type "X" Gypsum Board: board with Type X core, to ASTM C36-95b labeled in accordance with ULC, Warnock-Hersey, or other certification program accredited by the Standards Council of Canada.

.3 Gypsum board whose joints are specified to be taped and finished shall have tapered edges.

2.2 MATERIALS

.1 Acoustic Insulation: ASTM C665; preformed glass fibre, friction fit type, unfaced.

.2 Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.

.3 Corner Beads: Metal.

.4 Edge Trim: GA-201 and GA-216; Type U exposed reveal bead.

.5 Joint Materials: ASTM C475; GA-201 and GA-216; reinforcing tape, joint compound, adhesive, and water.

.6 Fasteners: ASTM C1002, Type S12 and GA-216.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verification of existing conditions before starting work.

.2 Verify that site conditions are ready to receive work and opening dimensions are as indicated on shop drawings.

3.2 METAL STUD INSTALLATION

.1 Install studs in accordance with the drawings and shop drawings.

3.3 FURRING FOR FIRE RATINGS

.1 Install furring as required for fire resistance ratings indicated and to GA-600 requirements.

3.4 CEILING FRAMING INSTALLATION

.1 Install in accordance with the drawings and shop drawings.

.2 Coordinate location of hangers with other work.

.3 Install ceiling framing independent of walls, columns, and above ceiling work.

.4 Reinforce openings in ceiling suspension system which interrupt main carrying channels or furring channels, with lateral channel bracing. Extend bracing minimum 24 inches past each end of openings.

.5 Laterally brace entire suspension system.

3.5 ACOUSTIC ACCESSORIES INSTALLATION

.1 Install resilient channels at maximum 24 inches on centre.

.2 Place acoustic insulation in partitions tight within spaces, around cut openings, behind and around electrical and mechanical items within or behind partitions, and tight to items passing through partitions.

.3 Install acoustic sealant within partitions in accordance with manufacturer's instructions.

3.6 GYPSUM BOARD INSTALLATION

.1 Install gypsum board in accordance with GA-201, GA-216 and GA-600.

.2 Erect single layer standard gypsum board in most economical direction with ends and edges occurring over firm bearing.

.3 Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.

.4 Use screws when fastening gypsum board to metal furring or framing.

.5 Double Layer Applications: Secure second layer to first with adhesive and sufficient support to hold in place. Apply adhesive in accordance with manufacturer's instructions.

.6 Place second layer parallel to first layer. Offset joints of second layer from joints of first layer.

.7 Erect exterior gypsum soffit board perpendicular to supports, with staggered end joints over supports.

.8 Place control joints consistent with lines of building spaces as directed.

.9 Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

3.7 JOINT TREATMENT

.1 Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

.2 Feather coats on to adjoining surfaces so that camber is maximum 1/32 inch .

3.8 TOLERANCES

.1 Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Surface preparation and field application of paints and coatings.

1.2 RELATED SECTIONS

.1 Section 05500 Metal Fabrications: Shop primed items.

.2 Section 09260 Gypsum Board Assemblies: Field Application

1.3 REFERENCES

.1 ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials and Applications.

.2 AWWA (American Water Works Association) - C218 - Standard for Coating the Exterior of Aboveground Steel Water Pipelines & Fittings.

.3 AWWA (American Water Works Association) - D102 - Painting Steel Water Storage Tanks.

.4 NACE (National Association of Corrosion Engineers) - Industrial Maintenance Painting.

.5 MPI (Master Painters Institute) - Specifications Manual.

.6 SSPC (The Society for Protective Coatings) (formerly SSPC - Steel Structures Painting Council) - Steel Structures Painting Manual.

1.4 DEFINITIONS

.1 Conform to ASTM D16 for interpretation of terms used in this Section.

1.5 SUBMITTALS

.1 Section 01300: Submission procedures.

.2 Product Data: Provide data on all finishing products and special coatings.

.3 Samples: Submit two samples, 100 x 100 mm in size illustrating range of colours available for each surface finishing product scheduled.

.4 Samples: Submit two samples, 100 x 100 mm in size illustrating selected colours for each colour selected.

.5 Manufacturer's Instructions: Indicate special surface preparation procedures, substrate conditions requiring special attention.

1.6 QUALITY ASSURANCE

.1 Conform to MPI - Specification Manual.

1.7 QUALIFICATIONS

.1 Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

.2 Applicator: Company specializing in performing the work of this section approved by manufacturer.

1.8 REGULATORY REQUIREMENTS

.1 Conform to applicable code for flame and smoke rating requirements for finishes.

1.9 FIELD SAMPLES

.1 Section 01400: Provide field sample of paint.

.2 Provide field sample panel, .5 m long by .5 m wide, illustrating special coating colour, texture, and finish.

.3 Locate where directed.

.4 Accepted sample may not remain as part of the Work.

1.10 DELIVERY, STORAGE, AND HANDLING

.1 Section 01600: Deliver, store, protect and handle products to site.

.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 instructions for mixing and reducing.

.4 Store paint materials at minimum ambient temperature of 7 degrees C and a maximum of 32 degrees C, in ventilated area, and as required by manufacturer's 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: 10 degrees C for exterior and interior; unless required otherwise by manufacturer's instructions.

.4 Minimum Application Temperature for Varnish: 18 degrees C for interior or exterior, unless required otherwise by manufacturer's instructions.

.5 Provide lighting level of 860 lx measured mid-height at substrate surface.

1.12 EXTRA MATERIALS

.1 Section 01700: Submission procedures.

.2 Provide 4 L of each colour to Owner.

.3 Label each container with colour, type, texture and room locations, in addition to the manufacturer's label.

PART 2 Products

2.1 MANUFACTURERS

.1 Manufacturers – Primer (Walls, Ceilings, Metal Doors and Door Frames)
- .1 Benjamin Moore Primer
- .2 Sherwin-Williams

.2 Manufacturers – Stair and Platform Railings
- .1 Sherwin-Williams Safety Yellow

.3 Manufacturers - Block Filler
- .1 Glidden Ultra Hide Acrylic Latex Block Filler Model 5317.

.4 Substitutions: Permitted on Approval

2.2 MATERIALS

.1 Coatings: 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 Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

.3 Patching Materials: As per manufacturers instructions.

.4 Fastener Head Cover Materials: As per manufacturers Instructions.

2.3 FINISHES

.1 Refer to schedule at end of section and drawings for surface finish and colour schedule.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verify site conditions.

.2 Verify that surfaces are ready to receive work as instructed by the product manufacturer.

.3 Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

.4 Test shop applied primer for compatibility with subsequent cover materials.

.5 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 percent.

.2 Masonry, Concrete, and Concrete Unit Masonry: 12 percent.

.3 Interior Wood: 15 percent, measured in accordance with ASTM D2016.

.4 Exterior Wood: 15 percent, measured in accordance with ASTM D2016.

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 Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.

.7 Concrete Floors: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

.8 Copper Surfaces Scheduled for a Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.

.9 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.

.10 Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

.11 Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

.12 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.

.13 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.

.14 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.

.15 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.

.16 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.

.17 Wood and Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

3.3 APPLICATION

.1 Apply products in accordance with manufacturer's instructions.

.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 wood and metal 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 and exterior woodwork with primer paint.

.10 Prime concealed surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

3.4 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

.1 Paint shop primed equipment.

.2 Painting of equipment to existing and be confirmed by the owner.

.3 Remove unfinished louvres, grilles, covers, and access panels on mechanical and electrical components and paint separately.

.4 Prime and paint insulated and exposed pipes, conduit, boxes, hangers, brackets, collars and supports except where items are prefinished.

.5 Paint interior surfaces of air ducts, and convector and baseboard heating cabinets that are visible through grilles and louvres with one coat of flat black paint, to visible surfaces. Paint dampers exposed behind louvres, grilles, and convector and baseboard cabinets to match face panels.

.6 Paint exposed conduit and electrical equipment occurring in finished areas.

.7 Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.5 FIELD QUALITY CONTROL

.1 Section 01400: Field inspection and testing.

3.6 CLEANING

.1 Section 01700: Submission procedures.

.2 Collect waste material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.7 SCHEDULE - SHOP PRIMED ITEMS FOR SITE FINISHING

.1 Metal Fabrications (Section 05500): Lintels.

.2 Metal Stairs (Section 05510): Exposed surfaces of stringers, exposed vertical risers.

3.8 SCHEDULE - INTERIOR SURFACES

.1 Concrete, Interior Concrete Block,:
- .1 One coat of block filler.
- .2 Two topcoats

.2 Steel - Unprimed:
- .1 One coat of primer.
- .2 Two topcoats dryfall.

.3 Steel - Primed:
- .1 Touch-up with primer.
- .2 Two topcoats dryfall.

.4 Plaster, Gypsum Board, Doors, Door Frames, Window Frames:
- .1 One coat of primer sealer.
- .2 Two topcoats.

3.9 SCHEDULE – COLOURS AND SHEEN

.1 See drawings for color schedule. Paint color to match existing and be coordinated with the owner

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Metal toilet compartments, floor mounted.

1.2 RELATED SECTIONS

.1 Not applicable

1.3 REFERENCES

.1 ANSI A117.1 - Accessible and Usable Buildings and Facilities.

.2 ASTM A167 - Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.3 ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.4 SUBMITTALS

.1 Submit shop drawings, clearly indicating fabrication details, plans, elevations, edge details, hardware, and installation details.

.2 Submit large scale details of all anchorages, clearly indicating components, materials, and finishes, and related work.

.3 Submit product data indicating compliance with requirements of this Section.

.4 Submit descriptive literature for hardware items, including, but not limited to, hinges, latch sets, coat hooks, brackets, fastenings and trim.

.5 Provide data describing maintenance of finishes recommended by finish manufacturers for incorporation into Maintenance and Operation Manual.

PART 2 Products

2.1 SUPPLIER

.1 Floor-Mounted standard powder coated metal toilet partitions as supplied by Hadrian Manufacturing Inc.

2.2 MATERIALS

.1 Sheet steel: commercial grade, stretcher leveled, sheet steel to ASTM A653M-96, with Z275 zinc coating.

.2 Minimum steel thickness:

.1 Panels and doors: 0.80 mm.

.2	Pilasters:	1.20 mm.
.3	Reinforcement:	3.00 mm.
.4	Headrails:	1.20 mm.

2.3 HARDWARE

.1 Hardware not specifically designed for partitions by a metal partition manufacturer shall be subject to approval by Owner.

.2 Material: one of the following:

- .1 Chrome-plated non-ferrous, die-cast zinc alloy.
- .2 Clear anodized aluminum castings and extrusions.
- .3 Stainless steel, polished or brushed finish.

.3 Hardware shall operate smoothly, quietly and consistently.

.4 Latch Set, Door Bumper, Brackets: manufacturer's standard for type of partitions.

.5 Hinges shall be adjustable to automatically return inswinging doors from any position to nominal 30 degrees from closed position, and shall return outswinging doors to closed position.

.6 Hardware for compartments designed for barrier-free access shall be suitable for pilaster orientation indicated on drawings and shall conform to barrier-free design requirements of Ontario Building Code.

.7 Each type of hardware item shall be consistent as to type and finish.

2.4 BRACING, ANCHORAGE AND FASTENERS

.1 Overhead Bracing: extruded aluminum with clear anodized finish, of grip-deterring design.

.2 Floor Anchorage, Including Fasteners:

.3 Concealed: steel, hot dip galvanized.

.4 Ceiling Anchorage: steel, hot dip galvanized.

.5 Anchorage Concealment: stainless steel sheet, type 302, polished or brushed finish, formed to manufacturer's standard profile.

.6 Exposed Fasteners: cadmium plated steel, tamper-resistant type.

.7 Concealed Fasteners: steel, hot-dip galvanized.

2.5 FABRICATION

.1 Fabricate doors, panels and pilasters of sheet steel faces pressure bonded to sound deadening core, to manufacturer's standard heights and to plan dimensions as indicated on drawings.

.2 Door, Panel and Pilaster Thickness:

.1 Doors and Panels: 25 mm.
.2 Pilasters: 32 mm.

.3 Provide formed and closed edges for doors, panels, headrails, and pilasters. Miter and weld corners and grind smooth.

.4 Provide internal reinforcement at areas of attached hardware and fittings. Temporarily mark locations of reinforcement for tissue holders, grab bars, receptacles, coat hooks and other accessories.

2.6 SHOP FINISHING

.1 Clean, degrease and neutralize steel components with a phosphate or chromate treatment.

.2 Finish: High performance, baked-on powder coating.

.3 Doors and pilaster/panels same colour. Owner will select colour from manufacturer's standard range.

PART 3 Execution

3.1 EXAMINATION

.1 Examine site conditions where the work is to be installed and ensure acceptability of existing room finishes for a complete and satisfactory installation.

3.2 INSTALLATION

.1 Install partitions secure, plumb and square.

.2 Leave 12 mm space between walls and panels, and walls and pilasters.

.3 Fasten anchoring brackets as follows:

.1 To masonry and concrete surfaces using screws and expansion anchors.
.2 To hollow walls using bolts and toggle type anchors.
.3 To steel supports with threaded rods in threaded holes.

.4 Attach panels and pilasters to brackets with through-type sleeved bolt and nut.

.5 Provide for concealed adjustment of floor variations with screw jack through steel saddles made integral with pilaster. Conceal floor anchorage with stainless steel covers secured in position.

.6 Equip each door with hinges, latch set, and coat hook. Adjust and align hardware for easy, proper function.

.7 Set inswinging doors to open position at 30° from closed. Set outswinging doors to return to closed position.

.8 Install door pulls on out-swinging doors in conformance with barrier-free design requirements of Ontario Building Code.

3.3 FLOOR ANCHORED COMPARTMENTS

.1 Secure pilasters to floor with pilaster supports anchored with minimum 50 mm penetration in structural concrete floor.

.2 Level, plumb and tighten installation with leveling devices.

.3 Set tops of doors level with tops of pilasters when doors are in closed position.

3.4 SCREENS

.1 Provide screens at urinal stalls as indicated on drawings.

.2 Provide screens at washroom entrances, consisting of panels as indicated on drawings.

.3 Anchor screens to wall and to pilasters, with minimum 3 panel brackets or continuous channel bracket per post or pilaster. Anchor posts and pilasters to floor.

.4 Provide supplementary anchorage above ceiling finish to receive posts or pilasters.

3.5 CLEAN-UP

.1 Remove protective maskings and clean surfaces, leaving them free of oil and imperfections.

.2 Field touch-up of scratches or defaced enamel finish will be permitted only if approved by the Owner. Otherwise defective materials shall be rejected and replaced with new materials.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

.1 Toilet and Washrooms accessories.

.2 Grab bars and mirrors.

.3 Attachment hardware.

1.2 RELATED SECTIONS

.1 Section 08800 - Glazing: Wall mirrors.

.2 Section 10160 - Metal Toilet Compartments.

1.3 REFERENCES

.1 ANSI A117.1 - Accessible and Usable Buildings and Facilities.

.2 ASTM A123/A123M - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.3 ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.4 ASTM A269 - Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

.5 ASTM A1008/A1008M - Steel, Sheet, Cold-Rolled Carbon, Structural, High-Strength Low Alloy and High Strength Low Alloy with Improved Formability.

.6 ASTM B456 - Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.

.7 NEMA LD-3 - High Pressure Decorative Laminates.

1.4 SUBMITTALS

.1 Section 01300: Submission procedures.

.2 Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.

.3 Samples: Submit one sample of each component, illustrating colour and finish.

.4 Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

1.5 REGULATORY REQUIREMENTS

.1 Conform to Ontario Building Code for access for the handicapped.

1.6 FIELD MEASUREMENTS

.1 Verify that field measurements are as instructed by the manufacturer.

1.7 COORDINATION

.1 Coordinate work.

.2 Coordinate the work with the placement of internal wall reinforcement and reinforcement of toilet partitions to receive anchor attachments.

PART 2 Products

2.1 MANUFACTURERS

.1 See schedule below.

.2 Substitutions: approved equal.

2.2 MATERIALS

.1 Sheet Steel: ASTM A366.

.2 Stainless Steel Sheet: ASTM A167, Type 304.

.3 Tubing: ASTM A269, stainless steel.

.4 Adhesive: Two component epoxy type Contact type, waterproof.

.5 Fasteners, Screws, and Bolts: Hot dip galvanized, tamper-proof, and security type.

.6 Expansion Shields: Fibre, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.3 FABRICATION

.1 Weld and grind joints of fabricated components, smooth.

.2 Form exposed surfaces from single sheet of stock, free of joints. Form surfaces flat without distortion. Maintain surfaces without scratches or dents.

.3 Fabricate grab bars of tubing, free of visible joints, return to wall with end attachment flanges. Knurl grip surfaces.

.4 Shop assemble components and package complete with anchors and fittings.

.5 Provide steel anchor plates, adapters, and anchor components for installation.

2.4 KEYING

.1 Supply two keys for each accessory to Owner.

.2 Key all accessories.

2.5 FINISHES

.1 Galvanizing: ASTM A123 to 380g/sq m. Galvanize ferrous metal and fastening devices.

.2 Shop Primed Ferrous Metals: Pre-treat and clean, spray apply one coat primer and bake.

.3 Enamel: Pre-treat to clean condition, apply one coat primer and minimum two coats epoxy baked enamel.

.4 Chrome/Nickel Plating: ASTM B456, Type SC 2 satin finish.

.5 Stainless Steel: No. 4 satin luster polished finish.

.6 Back paint components where contact is made with building finishes to prevent electrolysis.

PART 3 Execution

3.1 EXAMINATION

.1 Section 01700: Verify site conditions.

.2 Verify that site conditions are ready to receive work and dimensions are as instructed by the manufacturer.

.3 Verify exact location of accessories for installation.

3.2 PREPARATION

.1 Deliver inserts and rough-in frames to site for timely installation.

.2 Provide templates and rough-in measurements as required.

3.3 INSTALLATION

.1 Install accessories in accordance with manufacturers' instructions and ANSI A117.1.

.2 Install plumb and level, securely and rigidly anchored to substrate.

3.4 SCHEDULE

.1 Mirror: 24X36 – 941SS-2436 By Frost

.2 Soap Dispenser: 708A By Frost

.3 Grab bars: 1001SP 24” & 1003SP 30”x30” SS Finish by Frost

.4 Napkin Disposal: 622 SS Type 304 No4 Brushed Finish by Frost

.5 Toilet Paper Dispenser: 171P by Frost

.6 Paper towel dispenser: 103 By Frost

.7 Waste Receptacle: 326 By Frost

END OF SECTION

THE CORPORATION OF THE CITY OF WOODSTOCK

POLICY ON CONTRACTOR SAFETY AND CERTIFICATE OF COMPLIANCE

POLICY STATEMENT

All contractors or land developers working on municipal projects are required to work in compliance with The Ontario Occupational Health and Safety Act and Regulations. In this respect, the Occupation Health and Safety Policies used in the works by the Contractor, must equal or exceed the policies contained in the City of Woodstock Occupation health and Safety Policy Manual. All contractors working on city streets and roads are also required to work in compliance with the Ministry of Transportation - Traffic Control Manual for Roadway Work Operations.

Failure to comply will be considered a breach of contract and may result in work stoppage, Ministry of Labour involvement and termination of the contract.

CONTRACTOR SAFETY DEFICIENCIES WILL BE ADDRESSED BY THE CITY IN THE FOLLOWING PROGRESSIVE STEPS:

1. The Contractor will be informed of the problem verbally by the site inspector, the intent being that the Contractor will act upon the problem immediately.

2. If the problem is not resolved within a reasonable length of time, as determined by the site inspector, the Contractor will be informed of the problem verbally and in writing, with a copy sent to the Contractor's head office.

3. If the problem remains unresolved the Ministry of Labour will be notified of the violation and, if necessary, after written notification has been sent by the Engineer, the work may be stopped until the problem is corrected.

4. The contract may be terminated by the City.

CERTIFICATE OF COMPLIANCE

The undersigned agrees to comply with the Ontario Occupational Health and Safety Act and Regulations, the City of Woodstock Occupational Health and Safety Policies as a minimum and the Ministry of Transportation - Traffic Control Manual for Roadway Work Operations and acknowledges understanding the actions the City of Woodstock will take to ensure compliance.

Name of Firm: _____

Signature of Firm Official: _____

Date Signed: _____

SPH ENGINEERING INC
Real World Engineering Solutions

485037 Sweaburg Rd.
Woodstock, Ontario N4S 7V6

CITY OF WOODSTOCK

Automatic Bus Wash

Contract # 13453

Notes to Tenderers

Before submitting a tender, the following should be noted:

1. Has your tender been signed, sealed, and witnessed?

2. A bid bond in the amount of not less than 10% of the bid price must accompany the tender.

3. Have you enclosed letters affirming the availability of

    a) 50% performance bond

    b) 50% labour and material bond

4. Have you completed all schedules and prices in the bid Form?

5. Have you indicated the number of addenda included in the tender form?

6. Have you reviewed the schedule for completion of work?

7. Are the documents complete?

8. Submitting general contractors must attend at least one mandatory site visit on August 17, 2023 at 10 am.

9. Tenders will be received until 2:00 pm local time, August 31, 2023.

10. AGREEMENT Following the award of the tender by the Owner and before an agreement can be signed, the tenderer must provide:

- Proof of insurance (certificate of insurance)
- Evidence of good standing with the Workplace Safety & Insurance Board
- Furnish the performance bond and labour and material bond.

BLDG2024-11191 - Public Works Addition & Renovation

Opening Date: July 26, 2024 4:00 PM

Closing Date: August 27, 2024 2:00 PM

Documents

Ensure your bid submission document(s) conforms to the following:

1. Documents should be in PDF format and be compatible with Adobe version 5 or higher. Documents may also be submitted in Microsoft Word or Microsoft Excel format (version 2010 or 2013). Vendors should only submit these file types unless specifically requested to submit other file types that may be required for a specific proposal. If the City requires video or audio files do NOT upload video or audio files here. You may state a web address link in your bid submission or upload a document stating the web link for the City of Woodstock staff to view and/or listen to.

2. Documents should NOT have a security password, as the City of Woodstock staff may not be able to open the file.

3. The maximum file upload size is 500MB. To reduce the document size, Proponents may zip/compress files for upload. Also, if a vendor requires to upload more than one (1) document, the vendor may combine the documents into one zipped/compressed file, as per the instructions below. Zipped files must be named accordingly for the submission and must not be password protected.

4. When uploading a file please ensure each document is named, in relation to the submission format item responding to, for example, if responding to the Previous Experience category save the document as “Previous Experience”.

5. It is the vendor’s sole responsibility to ensure that their uploaded document(s) are not either defective, corrupted or blank and that the documents can be opened and viewed by the City of Woodstock staff. The City of Woodstock may reject any Bid where any document(s) cannot be opened and viewed by City staff.

- Public Works Addition & Renovation - Tender Upload * (mandatory)
- Additional Documentation Upload (if applicable) (optional)

BONDING AND BID DEPOSIT UPLOAD SECTION

Refer to the bid document for the bonding and bid deposit requirements.

A digital bid bond/deposit provided shall be uploaded in the appropriate field. A paper-based scanned document will not be accepted and your bid will be forfieted.

- Bid Bond * (mandatory)

Addenda, Terms and Conditions

The Bidder hereby acknowledges and agrees:

1. To provide all goods, services and construction, as more specifically set out and in accordance with the Owner's Bid Call Document, including but not limited to the scope of work, specifications, drawings, Addenda (if issued by the Owner), the terms and conditions, etc. stated therein, which are expressly acknowledged and made part of this Contract.

2. This Bid is made without any connections, knowledge, comparison of figures or arrangements with any other company, firm or person making a Bid for the same Work and is in all respects fair and without collusion or fraud.

3. I/WE do hereby Bid and offer to enter into a Contract to do all the Work as specified in the Bid Call Document(s) which shall include all costs but not limited to; freight, duty, currency, etc. in accordance with the prices and terms as submitted by the Bidder herein.

4. If I/WE withdraw this Bid before the formal Contract is executed by the Awarded Bidder for the said Work or Ninety (90) Calendar Days, whichever event first occurs, the amount of the Bid Deposit accompanying this Bid (if applicable to this bid) shall be forfeited to the Owner.

5. If the Bid is accepted, I/WE agree to furnish all required documentation, as required by the Bid Call Document(s) within Ten (10) Calendar Days after notification of Award.

6. I/We acknowledge and agree that any issued Addendum/Addenda forms part of the Bid Call Document.

7. I/We, certify that we are in full compliance with Section 6 of Ontario Regulation 429/07, Accessibility Standards for Customer Service, made under the Accessibility for Ontarian's with Disabilities Act, 2005. If requested, we are able to provide written proof that all employees have been trained as required under the act. I/We shall be aware and sensitive to accessibility and disability issues.

8. I/WE (including any related or affiliated entities and any principal thereof) have no unresolved litigation with the Owner.

9. All tender and quotation documents shall be available to the public unless the party submitting the tender or quotation indicates that the tender or quotation is submitted in confidence, that the documents submitted contain a trade secret or scientific, technical, commercial, financial or labour relations information, and that disclosure of the documents could reasonably be expected to result in harm as specified in subsection 10 (1) of the Municipal Freedom of Information and Protection of Privacy Act.

If you do not want your documents to be made available **please indicate that they are submitted in confidence**, what the nature of the documents is and what harm will result from their release.

Be aware that name and price shall always be made public.

All tender, quotations and proposals are subject to the Municipal Freedom of Information and Protection of Privacy Act and may be subject to release pursuant to that Act notwithstanding the request of those submitting tenders, quotations or proposals to keep them confidential.

☐ I/WE agree to be bound by the terms and conditions contained in the Bid Document and any applicable Addenda, and the person named below has the authority to submit this bid on behalf of the Bidder.
The bidder shall declare any potential conflict of interest that could arise from bidding on this bid.

○ **Yes** ○ **No**

Electronic Bid Submission

The Bidder acknowledges and agrees that the addendum/addenda below form part of the Bid Document.
Please check the box in the column "**I have reviewed this addendum**" below to acknowledge each of the addenda.

File Name	I have reviewed the below addendum and attachments (if applicable)	Pages
There have not been any addenda issued for this bid.		