Sherwood Place Renovation

1900 Albert Street
Regina, Saskatchewan

TECHNICAL SPECIFICATIONS

October 2018

P3ARCHITECTURE PARTNERSHIP
2292 DEWDNEY AVENUE
REGINA, SK S4R 1H3
FILE: 2018-37

END OF SECTION

Drawings

Dwg #	Drawing Title
	ARCHITECTURAL
A0.1	TITLE SHEET
	KEY PLANS
	SCHEDULES
A1.1	TYPICAL DEMOLITION PLAN: FLOORS 3, 4, 6, 7, 8, 9
	TYPICAL DEMOLITION CEILING PLAN: FLOORS 3, 4, 6, 7, 8, 9
	TYPICAL FLOOR PLAN: FLOORS 3, 4, 6, 7, 8, 9
	TYPICAL REFLECTED CEILING PLAN: FLOORS 3, 4, 6, 7, 8, 9
	TYPICAL FINISH PLAN
	INTERIOR ELEVATIONS
	MILLWORK DETAILS
	MECHANICAL
M1.1	FLOOR PLANS – DEMOLITION – MECHANICAL
M2.1	MECHANICAL FIRE PROTECTION
	PLUMBING
	VENTILATION
M3.1	MECHANICAL SPECIFICATIONS
	EQUIPMENT SCHEDULE
	ELECTRICAL
E1.1	LIGHTING AND POWER SYSTEMS PLANS: LEVELS 3, 4, 6, 7, 8, 9
E2.1	MECHANICAL SCHEDULE AND PANEL SCHEDULE
E1.3	ELECTRICAL SPECIFICATIONS

END OF SECTION

1. SCOPE OF WORK

The Tender shall be based upon the attached Instructions to Bidders, Bid Forms & General Requirements, Drawings, Specifications, Supplementary Conditions to the CCDC2-2008 (Appendix A), and site visit.

2. TENDER

2.1. Sealed tenders, fully executed, dated and endorsed, will be received by ***Dundeal Canada (West) LP*** by its authorized agent ***Dream Office Management (Sask) Corp.***, herein referred to as the "Owner".

2.2. Emailed tenders will be accepted up to **2:00 PM CST** on **Tuesday, October 30, 2018** to the following:

Nathan Brenner	Nicole George
Dream Office Management (Sask) Corp.	P3Architecture Partnership
Suite 200, 1900 Albert Street	2292 Dewdney Avenue
Regina, SK S4P 4K8	Regina, SK S4R 1H3
Email: nbrenner@dream.ca	**Email: ngeorge@p3arch.com**
Email (cc): tskiffington@dream.ca	

3. ACCEPTANCE OF TENDER

3.1. The Owner reserves the right to accept the Tender that is deemed most advantageous. The lowest or any Tender will not necessarily be accepted.

4. DURATION OF OFFER

4.1. Tenders shall remain open to acceptance and shall be irrevocable for a period of sixty (60) days after the Tender closing date, irrespective of the acceptance of any tender.

5. TENDER INELIGIBILITY

5.1. Tenders that are unsigned, improperly executed, incomplete, conditional, illegible, obscure, contain arithmetical errors, or additions not requested, reservations, erasures, alterations or irregularities of any kind may be rejected.

6. TAXES

6.1. Bidders shall include all applicable taxes (other than PST and GST), permits and fees in their tender. The Bidder shall not include the Goods and Services Tax (GST) in their tender.

7. OMISSIONS/DISCREPANCIES/INTERPRETATIONS

7.1. Bidders finding discrepancies or omissions in the Tender Documents, or having doubt as to the meaning or intent thereof shall at once notify the Consultant who will, if necessary, send written instructions or explanations to all Bidders.

Nicole George of **P3Architecture Partnership** may be contacted by telephone at (306) 757-1669 ext. 121 or by email to ngeorge@p3arch.com.

7.2. Oral interpretations made to any Bidder shall not modify any provision of the Tender Documents.

7.3. Questions arising during the bidding period shall be directed to the Consultant as noted above in 7.1 or to the Project Manager, Nathan Brenner.

7.4. Bidders may, during the tendering period, be advised by addendum of any alterations to the Tender Documents. All such changes will become part of the Contract and the effects shall be included in the Tender Price. Bidders shall acknowledge receipt of addenda on the Tender Form.

8. INVITATION

8.1. A mandatory pre-tender site review has been scheduled for **Wednesday, October 17, 2018** at **10:00 AM**. Please meet Nathan Brenner, Aggie Potapinski and the Consultants in the main floor lobby area of Sherwood Place, located at 1900 Albert Street, Regina SK.

8.2. Bids may be submitted by invited General Contractors only.

8.3. Bids are invited for the construction of/renovation to the above noted project for Stipulated Price remuneration, in accordance with the Plans and Specifications.

9. BID DOCUMENTS

9.1. Bid documents will be emailed to the Contractor's office.

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

9.3. Prospective Bidders who do not intend to submit a Bid shall return the Bid Documents promptly and well in advance of Bid closing.

10. FORM OF CONTRACT

10.1. The form of contract for this project shall be a CCDC-2008, including Supplementary Conditions, which are attached as Appendix "A".

11. BONDING

11.1. CONTRACT PERFORMANCE SECURITY

Contractor shall provide security for performance of the Contract in the form of the following:

i. Performance Bond for 50% of the Contract Price.

11.2 SECURITY FOR PAYMENT OF CLAIMS

Contractor shall provide security for payment to claimants for labour and material used or reasonably required for use in the performance of the Contract. Such security shall be in the form of the following:

i. Labour and Material Payment Bond for 50% of the Contract Price.

11.3 FORMS OF ACCEPTABLE SECURITY

Surety Bonds:

i. Performance Bond shall be in accordance with the Canadian Construction Documents Committee (CCDC) Standard Form of Performance Bond, CCDC Document No. 221.
ii. Labour and Material Payment Bond shall be in accordance with the Canadian Construction Documents Committee (CCDC) Standard Form of Labour and Material Payment Bond, CCDC Document No. 222.
iii. Consign bonds to Owner.

11.4 SUBMISSION OF SECURITY

i. Submit security to the Owner with fifteen (15) days after bid is accepted. Acceptance of bid is conditional upon submission of properly executed bonds as specified.

END OF SECTION

1. GENERAL

1.1. Related Work specified elsewhere:

1.1.1	Instructions to Bidders	Section 00100
1.1.2	General Requirements	Section 01000
1.1.3	Supplementary Conditions to the CCDC2-2008	Appendix "A"

2. TENDER FORMS

2.1. Submit the Tender form and Appendices, which are hereby made part of this Specification. The Bidder shall complete these forms in their entirety. Failure to do so may result in disqualification of the Bid.

Tender submitted by: _____

(Insert Company name)

Tender: **Base Building Upgrades - Floors 3, 4, 6, 7, 8 & 9**
Sherwood Place: 1900 Albert Street, Regina SK

Closing Time & Date: 2:00 PM on Tuesday, October 30, 2018

To:

Nathan Brenner
Dream Office Management (Sask) Corp.
Suite 200, 1900 Albert Street
Regina, SK S4P 4K8

Email: nbrenner@dream.ca

Email (cc): tskiffington@dream.ca

Nicole George
P3Architecture Partnership
2292 Dewdney Avenue
Regina, SK S4R 1H3

Email: ngeorge@p3arch.com

1. Having examined the documents provided by Dream Office Management (Sask) Corp. and P3Architecture Partnership for the above mentioned project, I/We hereby propose and offer to furnish all material, labour and equipment necessary for the same in accordance with the aforementioned documents for the sum in lawful money of Canada of:

   _____

   _____($_____) plus PST plus GST.

   This sum shall be referred to as the base bid

2. **FORMAL CONTRACT**

   If this tender is accepted within 60 days, I/We will execute a formal agreement in accordance with the General Requirements and agree that the conditions of this tender with appendices will form part of that contract.

3. **TAXES AND FEES**

   I/We have included in our tender price for all applicable taxes (other than PST and GST), permits and fees, as laid out in Clause 7 of Instructions to Bidders. The Goods and Services Sales Tax is not included in our tender price.

4. **DELIVERY DATE**

   I/We agree to complete the project on or before _____.

   (Insert Date)

5. DOCUMENTS

In submitting this tender, I/We have taken into account the complete Form of Tender an all included documents. I/We acknowledge receipt of, and have taken into consideration, the following addenda and other instructions issued subsequent to the initial listing in the Index of Documents.

_____

_____

_____

_____

_____

_____

_____

6. NAME AND ADDRESS OF TENDERER (please print legibly)

Company Name: _____

Address: _____

_____

Name of Signing Officer: _____

Signature of Signing Officer: _____

Title: _____

Witness: _____

Date: _____

Telephone Number: _____

Fax Number: _____

Email Address: _____

Subcontractors and Tender Breakdown

The following is the list of subcontractors and suppliers we propose to use of the portions of work listed hereunder. Work which is not included we do not intend to subcontract. No changes to the list will be allowed without the express written consent of the Consultant.

TRADE	AMOUNT	SUBCONTRACTOR NAME
Demolition	$ _____	_____
Drywall	$ _____	_____
Doors & Hardware	$ _____	_____
Glazing	_____	_____
Ceilings	$ _____	_____
Painting	$ _____	_____
Millwork	$ _____	_____
Floor Prep	_____	_____
Flooring	$ _____	_____
Mechanical	$ _____	_____
Electrical	$ _____	_____
Fire Protection	$ _____	_____
Construction Clean	$ _____	_____
General Conditions	$ _____	_____
Other (*please specify*)	$ _____	_____
* **TOTAL Base Bid** (excluding GST)	$ _____	_____

* Total Base Bid must equal sum of pricing listed above.

Print Contractor Name: _____

Authorized Signature: _____ _____
Signature *Print Title*

_____ _____
Print Name *Date*

Separate Price #1

Provide an itemized quotation for the items noted below:

1. Supply and install ACT2 grid as specified (refer to Drawings and Specifications for locations)

2. Electrical Work:

   a) Contractor shall provide a separate price to provide new LED luminaires for levels 3, 4, 6, 7, 8, and 9. 347 volt in slab conduit lighting grid is existing and shall be reused. Contractor shall provide new AC-90 whips, per luminaire daisy chaining shall not be acceptable, from nearest junction box.

   b) Revise lighting control to provide on/off switch at elevator lobby, per circuit.

   c) Provide quantity of 160 luminaires, per floor to be installed on a 2440mm (8') x 3000mm (10') OC pattern.

   d) Separate price shall provide breakout price indicating Saskpower commercial lighting incentive credit for new type CC and DD luminaires.

   e) Provide breakout price for labour and materials for typical floor for each luminaire type.

   f) Type cc shall be recessed led flat panel. 347 volt, 300mm x 1220mm, 40 watt, 4000 lumen, 4000k colour temperature. Fixture shall be equipped with integral 0-10 volt dimming and shall have fully diffused acrylic lens, white trim.

      - MAGIC LITE LED PANEL SERIES
      - CFI FLUXPANEL SERIES
      - LITHONIA EPANL SERIES

   g) Type DD shall be luminaire shall be recessed led troffer. 347 volt, 40 watt, 4000 lumens, 4000k colour temperature, center diffused opal acrylic lens 0-10 volt dimming capable.

      - LITHONIA BLT 1X4 SERIES
      - CFI FLUXGRID 1X4 SERIES
      - METALUX 14RTC SERIES

Separate Price #1 - Itemized Pricing

3rd Floor

Supply ACT2 grid as specified	$ _____
Install ACT2 grid as specified	$ _____
Supply LED Luminaires as specified	$ _____
Install LED Luminaires as specified	$ _____

4th Floor

Supply ACT2 grid as specified	$ _____
Install ACT2 grid as specified	$ _____
Supply LED Luminaires as specified	$ _____
Install LED Luminaires as specified	$ _____

6th Floor

Supply ACT2 grid as specified	$ _____
Install ACT2 grid as specified	$ _____
Supply LED Luminaires as specified	$ _____
Install LED Luminaires as specified	$ _____

7th Floor

Supply ACT2 grid as specified	$ _____
Install ACT2 grid as specified	$ _____
Supply LED Luminaires as specified	$ _____
Install LED Luminaires as specified	$ _____

8th Floor

Supply ACT2 grid as specified	$ _____
Install ACT2 grid as specified	$ _____
Supply LED Luminaires as specified	$ _____
Install LED Luminaires as specified	$ _____

9th Floor

Supply ACT2 grid as specified	$ _____
Install ACT2 grid as specified	$ _____
Supply LED Luminaires as specified	$ _____
Install LED Luminaires as specified	$ _____

Unit Price #1: Refer to Roller Shade Schedule: Section 12 21 16

Provide a value to supply and install one (1) of each of the following roller shades:

W1 Roller Shade	$ _____
W2 Roller Shade	$ _____
W3 Roller Shade	$ _____
W4 Roller Shade	$ _____
W5 Roller Shade	$ _____
W6 Roller Shade	$ _____
W7 Roller Shade	$ _____

1.0 GENERAL

1.1 Dream Office Management (Sask) Corp. is the Project Manager for this project. Contact Nathan Brenner, Project Manager, via telephone at (306) 779-1904, via cellular at (306) 501-3129 or via email to nbrenner@dream.ca.

1.2 The form of contract for this project shall be a CCDC2-2008 contract, including Supplementary Conditions, which are attached as Appendix "A". The Supplementary Conditions will form part of the Contract upon award. Any revisions required to this document are to be brought forward during the tender period, prior to the project being awarded.

1.3 All work shall be completed in accordance with the Provincial Building Code currently in effect and the local Authority Having Jurisdiction.

1.4 Visit the site to accurately assess the site conditions. Failure to examine the site shall not relieve The Contractor from foreseeable site conditions that may affect the completion of the work.

1.5 Provide and maintain temporary requirements, as needed, to safely and properly execute the work.

1.6 The Contractor shall assume the role of Prime Contractor for this project and be responsible for all activities within their area of work. Ensure that "Public Safety" is maintained at all times and comply with all WSSC regulations.

1.7 The Contractor shall be fully responsible for the behaviour and conduct of workers under their control and shall ensure that all workers conduct themselves in a professional manner at all times. Any worker found to be under the influence of alcohol or illegal drugs shall be removed from site immediately.

1.8 Any noisy or disruptive work, odours, smells, or emissions that may affect the Tenant or adjacent tenancies must be performed during non-business hours.

1.9 The Contractor shall provide supervision, as necessary, to control the daily activities and overall project schedule. The Contractor's Superintendent must be equipped with a cellular telephone to allow for direct communication if the need arises.

1.10 The Consultant will convene a start-up meeting and convene meetings at the site every two weeks or as necessary to expedite the work. The Contractor shall have present a representative that has the authority to take direction and make decisions in matters that pertain to the work. The Project Manager shall record and distribute minutes of the meetings.

1.11 The Contractor shall provide a schedule for the work showing the anticipated timeframes for each segment of the work in a weekly format.

1.12 The Contractor shall obtain and pay for all permits and fees, as required, by the Local Authorities.

1.13 The Contractor shall submit evidence of WCB coverage and copies of Insurance Certificates prior to commencement of the work.

Insurance Certificate is to list the following entities as additional insured, with coverage of $5 million:

- ***Dundeal Canada West (GP) Inc.***
- ***Dundeal Canada (West) LP***
- ***Dream Office (GP) Inc.***
- ***Dream Office LP***
- ***Dream Office Management (Sask) Corp.***

1.14 All work shall be completed in a professional manner and conform to the base building standards for workmanship, or better.

1.15 Maintain the site in a neat and orderly fashion with daily clean-up of debris and excess materials in accordance with WHIMIS legislation. Dispose all waste in accordance with the local ordinances and anti-pollution laws.

1.16 The Contractor shall be responsible for removing and replacing the ceiling tiles and grid, as required, to perform the work. Replace any components damaged as a result of the work.

1.17 Provide As-Built drawings within 14 days of project substantial completion.

1.18 Provide Operations Manuals within 14 days of project substantial completion.

1.19 A holdback of $5,000.00 will be retained by the Owner until receipt of items 1.17 & 1.18, as noted above.

SUPPLEMENTARY CONDITIONS

The following Supplementary Conditions modify the Agreement between the Owner and Contractor and the General Conditions of the CCDC 2 – 2008.

SC 1. AGREEMENT

1.1 In paragraph 5.3.1 in Article A-5 of the Agreement between Owner and Contractor, delete "for the first 60 days" from paragraph 5.3.1(1) and delete paragraph 5.3.1(2) in its entirety.

SC 2. DEFINITIONS

2.1 Amend definition "18. Specifications" by adding "and approved, in writing, by the Owner" after "issued,".

2.2 Add the following definition:

Standard of Care means the degree of care, skill and diligence of a prudent, knowledgeable and experienced general contractor for a project which is similar in size, magnitude and complexity to the Project.

SC 3. PART 1 – GENERAL PROVISIONS AND PART 2 – ADMINISTRATION OF THE CONTRACT

3.1 Replace the first sentence of paragraph 1.1.1 with: "The intent of the Contract Documents is to include the construction, labour, Products, Construction Equipment and other services necessary, complementary or ancillary, for the performance and completion of the Work by the Contractor in accordance with the Contract Documents or properly inferable from them."

3.2 Amend paragraph 1.1.8 by: (i) replacing "sufficient copies" with "six copies"; and (ii) adding at the end "Additional copies of the Contract Documents or parts thereof required by the Contractor shall be provided at the Contractor's sole cost and expense."

3.3 Replace paragraph 1.4.1 with: "Contractor shall not assign the Contract or a portion thereof without the written consent of Owner, which consent shall not be unreasonably withheld. The Owner shall be entitled to assign the Contract, in whole or in part, without the consent of the Contractor."

3.4 Add new GC 1.5 EXAMINATION OF PLACE OF THE WORK: "1.5.1 The Contractor represents and warrants that, using the Standard of Care, it has examined the Place of the Work and surrounding area and the Contract Documents and other documents provided by the Owner and it has satisfied itself as to the scope and character of the Work, all conditions and information affecting the Work, or that, not having used the Standard of Care, the Contractor has assumed and does hereby assume all risk of conditions now existing or arising in the course of the Work and which a contractor using the Standard of Care would have discovered. The costs, expenses and time of all conditions referred to in this paragraph 1.5.1 form part of the Contract Price and the Contract Time."

3.5 In paragraph 2.1.3 delete "against whom the Contractor makes no reasonable objection and".

3.6 In paragraph 2.2.6, insert "to the Contractor" after "the Consultant will not be responsible" in each of the first two sentences.

3.7 In paragraph 2.2.7, delete "Except with respect to GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER".

3.8 Insert "to the Contractor" after "the Consultant does not guarantee" in paragraph 2.2.17.

3.9 In paragraph 2.3.1 replace "the Consultant" with "Consultant and Owner" in the second sentence only.

3.10 Add "and the Owner" after "the Consultant" in paragraph 2.3.3.

3.11 Amend paragraph 2.3.4 by adding "and without any adjustment in the Contract Price." at the end.

3.12 Amend paragraph 2.3.5 by inserting "Subject to paragraph 2.3.4" at the beginning of the third sentence.

3.13 Amend paragraph 2.3.6 by adding at the end: "Where standards of performances are specified and the Work does not comply with the performance specified, such deficiency shall be corrected as directed by the Consultant and/or the Owner. Any subsequent testing (including re-testing by Owner) to verify performance shall be done at the Contractor's sole cost and expense and without any adjustment in the Contract Price."

3.14 Amend paragraph 2.4.1 by replacing "Consultant" in the first instance with "Consultant and/or Owner" and by adding "at the Contractor's sole cost and expense and without any extension of Contract Time," after "Contract Documents,".

3.15 At paragraph 2.4.2 add "(and without any adjustment in the Contract Price) and without any extension of Contract Time" after "expense".

3.16 In paragraph 2.4.3 delete "the difference in value between the Work as performed and that called for by the Contract Documents", and insert "the value of such Work as is necessary to correct any non-compliance with the Contract Documents".

SC 4. PART 3 – EXECUTION OF THE WORK

4.1 At paragraph 3.1.2 add "The Contractor shall not employ any means, methods, techniques, sequences and procedures that will or are likely to: (i) endanger persons, property or the Work; (ii) cause or contribute to a delay in the progress of the Work; or (iii) result in a failure to perform the Work in accordance with the Contract Documents."

4.2 Delete paragraph 3.2.2.2 and re-insert as new subparagraph 3.2.3.5.

4.3 In paragraph 3.2.2.4, add "as the Owner considers appropriate" after "GC 11.1 – INSURANCE" in the second line.

4.4 Amend paragraph 3.2.3.3 by adding: "Failure by the Contractor to so report shall invalidate any claims against the Owner by reason of deficiencies in the work of other contractors or Owner's own forces except those deficiencies not then reasonably discoverable;"

4.5 Add new paragraph 3.2.3.4: "co-ordinate and perform the Work with care and diligence so as to ensure that the Owner and the other contractors will be in a position to proceed according to schedule with their work and properly fit in with the work of the Owner's own forces and other contractors; and".

4.6 Replace paragraph 3.2.6 with: "The placement, installation, application and connection of work by the Owner's own forces or by other Owner's contractors, on and to the Work will not relieve the Contractor's responsibility under the Contract unless a defect has been created in so doing."

4.7 In paragraph 3.3.3 add "but subject to GC 3.4" before "where such Contract Documents".

4.8 Add paragraph 3.3.4: "GC 2.3 REVIEW AND INSPECTION OF THE WORK and GC 3.10 SHOP DRAWINGS also apply to the Temporary Work."

4.9 Amend paragraph 3.4.1: (1) delete the second sentence; (2) add "provided that the Contractor has acted in accordance with the Standard of Care" at the end of the third sentence; and (3) add "and the Contractor shall cooperate to resolve such and proceed in a manner that will not result in an increase in the Contract Price or a delay in the Work." at the end.

4.10 Add new paragraph 3.4.2 "The Contractor shall be liable and responsible for damage or costs (and without extension of Contract Time) resulting from errors, inconsistencies or omissions in the Contract Documents if it recognizes, or should have recognized using the Standard of Care, such items yet fails to bring such items to the Consultant's attention."

4.11 In paragraph 3.5.1.1, delete "prior to the first application for payment", and replace with "within 7 days of execution of the Agreement".

4.12 Amend paragraph 3.6.2 by adding "who shall be subject to the Owner's prior written approval," after "The appointed representative" and deleting "except with respect to Article A-6 of the Agreement – RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING".

4.13 Amend paragraph 3.7.1.3, by deleting "as fully" and replacing it with "fully", by deleting "as for" and replacing it with "and for" and, at the end, add "even if such Subcontractor or Supplier was approved or selected by the Owner".

4.14 Amend paragraph 3.7.2 by adding to the end of the paragraph: "The Contractor shall not enter into or let any subcontracts for the performance of the Work or change any Subcontractors or Suppliers accepted by the Owner without Owner's prior written consent."

4.15 Add new paragraph 3.7.7: "Nothing in this Contract places any responsibility upon the Owner or Consultant to settle disputes between Subcontractors and Suppliers of the Contractor."

4.16 Add new paragraphs:

"3.8.4 The cost for overtime work (including overtime rates) that the Contractor elects to perform without the Owner requesting it and shall be at the sole cost and expense of the Contractor and without adjustment in the Contract Price.

3.8.5 Title to the Products (and each portion thereof) shall pass to the Owner (or others identified by the Owner) immediately upon payment therefore (subject to applicable holdback that is not then due) or upon incorporation thereof as part of the Work, whichever first occurs, free and clear of all liens, charges and encumbrances (subject to any rights or remedies provided by any lien legislation applicable to the Place of the Work). Notwithstanding the foregoing, the Contractor shall continue to bear the risk of loss or damage with respect to the Work until the completion (as defined in the lien legislation applicable to the Place of the Work) of the Work.

3.8.6 The Contractor covenants and agrees that the Work, including all Products and components thereof, shall conform to the Contract Documents in all respects and shall be of merchantable quality and fit for their intended purpose as described in the Contract Documents and free of defects in materials and workmanship.

3.8.7 Subject to paragraph 3.4.1, the Contractor shall be responsible for the proper performance of the Work to the extent that the design in the Contract Documents permit such performance.

3.8.8 The covenant, agreement and responsibility of the Contractor contained in paragraph 3.8.6 and paragraph 3.8.7 shall be in addition to and not in limitation of any other right or remedy granted by the Contract or otherwise available to the Owner.

3.8.9 The Contractor shall maintain at the Place of the Work at all times a sufficient, competent, skilled, reliable and honest workforce to carry out its obligations in an efficient and timely manner and shall take all reasonable and necessary actions to maintain stable and harmonious labour relations with respect to the work at the Place of the Work. The Contractor shall not employ any person on the Project whose labour affiliation (or lack thereof) is incompatible with other labour employed in connection with this Project."

4.17 At paragraph 3.10.1 add "The Shop Drawings shall meet the requirements of the Contract Documents and the Contractor shall carry out the Work in accordance with such Shop Drawings (as approved by the Consultant)." at the end of the paragraph.

4.18 Amend paragraph 3.10.7 by adding ", at its sole cost and expense," after "by the Contractor".

4.19 In paragraph 3.10.12, delete "in accordance with any schedule agreed upon, or otherwise with reasonable promptness as to cause no delay" and insert "to Contractor within ten (10) Working Days of receipt."

4.20 Amend paragraph 3.11.2 by replacing "part of the Work with a weight...safety of the Work." with "part of the Work or any part of existing buildings, structures and/or other property that will or could be considered to endanger the safety or integrity of the Work or any part of existing buildings, structures and/or other property."

4.21 At paragraph 3.12.4 add at the end "or the work or property of others (without limiting the generality of the foregoing, no cutting through any existing structure shall be done by the Contractor without first performing such testing as may be required by the Owner and the Consultant). In the event that damage occurs, the Contractor shall immediately notify the Consultant and the Owner and the Contractor shall take such corrective actions (at Contractor's sole cost and expense) as may be recommended by the Consultant and approved by the Owner."

4.22 Add new paragraph 3.12.5: "The Contractor shall perform all cutting and remedial work in a manner and at times that ensure there is no disruption to the convenience and comfort of occupants in the building and adjacent buildings and that there is no disruption in the use and enjoyment of, and to the operations, infrastructure and services and business continuity in, the building and adjacent buildings. Where, in the opinion of the Owner or the Consultant cutting and remedial work may cause such disruption, the schedule, manner and means of such cutting and remedial work shall be performed by the Contractor in a manner and time acceptable to the Owner and Consultant with no change to the Contract Price or Contract Time."

SC 5. PART 5 – PAYMENT

5.1 Delete GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER.

5.2 Add to the end of paragraph 5.2.2: "and the format of the application for payment shall be subject to the review and acceptance by the Owner and shall include supporting documentation as the Owner shall reasonably require".

5.3 In paragraph 5.2.3, insert "large/special/significant" prior to "Products delivered to the Place of the Work" and insert the following sentence at the end: "Payment will not be made for common/local Products delivered to the Place of the Work but not yet incorporated into the Work."

5.4 Add new paragraph 5.2.8:

"The Contractor must provide with each application for payment after the first, a statutory declaration and such other supporting data and documentation as the Consultant may require certifying that all accounts for labour, subcontracts, Products, construction machinery and equipment and other indebtedness which may have been incurred by the Contractor in connection with the Work and for which the Contractor has received payment from the Owner has been paid in full, except for amounts properly retained as holdback. With every application the Contractor must provide evidence of compliance with worker's compensation legislation as required by GC 10.4. The Consultant's issuance of a certificate for payment shall be conditional upon the Contractor's submission of such statutory declaration (along with supporting data and documentation) and evidence of compliance with worker's compensation legislation. The statutory declaration shall include the following information: names of the contracting parties; project name; and a dated declaration attesting that all accounts affiliated with the contract have been paid and that all assessments and deductions required by all applicable laws have been deducted and/or paid.

5.5 In paragraph 5.3.1, add the following at the end: "Certificates for payment may provide for retention of amounts as determined by the Consultant to ensure correction of unacceptable Work done or unacceptable Product provided, and may also provide for retainers in addition to the statutory holdback provided for in the Contract sufficient to protect the Owner against all liens of which the Owner has notice."

5.6 In paragraph 5.3.1.3 replace "20 calendar days" with "30 calendar days".

5.7 Add new paragraph 5.3.2: "If the Contractor fails to provide the statutory declarations and evidence of compliance with worker's compensation legislation as required by GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT or GC 10.4 – WORKERS' COMPENSATION, the Owner shall not be required to make payments to the Contractor."

5.8 In paragraph 5.4.1 delete "or if permitted by the lien legislation applicable to the Place of the Work a designated portion thereof which the Owner agrees to accept separately is substantially performed," and delete "or substantial performance of the designated portion of the Work".

5.9 In paragraph 5.4.2 delete "or the designated portion of the Work" and "or a designated portion of the Work".

5.10 Add new paragraph 5.5.1.3: "submit evidence of compliance with worker's compensation legislation as required by GC 10.4".

5.11 Delete GC 5.6 – PROGRESSIVE RELEASE OF HOLDBACK.

5.12 In paragraph 5.7.2: (i) add "including all documents required by the Contract to be submitted with an application for payment (including a statutory declaration as required by GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT and the documents required to demonstrate compliance under GC 10.4)" after "final payment"; and (ii) add the following new sentence at the end: "The Consultant will not consider the application valid until the Products installed are deemed by the Consultant as conforming to the requirements specified.".

5.13 In paragraph 5.7.4 replace "5" with "30" and add "and provided that the Contractor has submitted the documents required to be provided pursuant to paragraph 5.7.2" after "Place of the Work".

5.14 Add new paragraph 5.9.2 "Notwithstanding any other provision in the Contract, if the Contractor is in default, or the Contractor has not paid all undisputed amounts due to labourers, Suppliers and Subcontractors, then without prejudice to any other right or remedy, the Owner may: (a) withhold payment from the Contractor of the amount necessary to protect the Owner from loss or damage arising from such event; and (b) apply such amount towards any costs or damages incurred or suffered by the Owner."

5.15 Add new GC 5.10 - LIENS:

"5.10.1 If a lien arising from the performance of the Work, is registered against the Place of the Work or provided to the Owner, the Contractor shall, within 5 days after becoming aware of such lien, at its sole cost and expense, vacate or discharge the lien. If the Contractor fails to vacate or discharge the lien within such time period, the Owner shall, at its sole option, be entitled to vacate and/or discharge the lien, and all amounts, costs and expenses incurred by the Owner in so doing (including all legal fees and disbursements) shall be for the Contractor's account, and the Contractor shall immediately reimburse the Owner for all such amounts, costs and expenses.

5.10.2 Without limiting any of the foregoing, the Contractor shall indemnify the Owner for all liability, losses, damages and costs (including all legal fees and disbursements on a full indemnity basis) it may suffer or incur in connection with the lien or subsequent lawsuit brought in connection with the lien.

5.10.3 This GC 5.10 does not apply to construction liens validly claimed by the Contractor."

SC 6. PART 6 - CHANGES IN THE WORK

6.1 Amend paragraph 6.1.1.2 by adding "or a Change Directive" after "Change Order"

6.2 Amend paragraph 6.1.2 by adding to the end of that paragraph: "No course of conduct or dealing between the parties or no express or implied acceptance of alterations or additions to the Work, shall be the basis of a claim for additional payment or a claim for extension of Contract Time.".

6.3 Add new paragraphs as follows:

"6.1.3 The value of a change shall be determined in one or more of the following methods to the extent applicable: (a) on the basis of an agreed lump sum; (b) on the basis of actual cost and a percentage fee; and (c) where applicable, by unit prices set out in the Contract without any percentage fee.

6.1.4 Where changes in the Work are to be paid under method (b) of paragraph 6.1.3, the following shall apply:

.1 The cost shall be calculated using the provisions of paragraph 6.3.7, subject to all applicable credits being deducted; and

.2 The percentage fee shall be calculated in accordance with paragraph 6.1.5.

6.1.5 The percentage fee, for overhead and profit, applicable to additions to the Work to be paid under method (b) of paragraph 6.1.3 shall be calculated as follows and shall not be adjusted during the term of the Contract:

.1 for Subcontractors - 5% for overhead and 5% for profit on the cost of their Work;

.2 for Contractor - 5% for overhead and profit on the valuation of Subcontractor's Work; and

.3 for Contractor - 5% for overhead and 5% for profit on the cost of Contractor's Work.

Notwithstanding any other provision in the Contract, the cumulative total percentage fee for overhead and profit charged by the Contractor, the Subcontractors and Suppliers and all other entities which have supplied the Products or performed the Work in connection with the change in the Work, as applicable, shall not exceed the applicable percentage amount set out in paragraphs 6.1.5.1, 6.1.5.2 or 6.1.5.3, as the case may be, depending on who performed the change in the Work. For greater certainty, the percentage fee for overhead and profit shall not apply to Value Added Taxes."

6.4 Add new paragraph 6.2.3: "A Change Order shall be a final determination or adjustment in the Contract Time and Contract Price."

6.5 Delete GC 6.3.3.

6.6 Amend paragraph 6.3.6.1 by adding "as set out in paragraphs 6.1.5.1, 6.1.5.2 or 6.1.5.3, as the case may be, depending on who performed the change in the Work, except to the extent that the unit prices set out in the Contract apply to such Work, in which case, there is no percentage fee." at the end.

6.7 Amend paragraph 6.3.7.1 by adding "while directly engaged in the work attributable to the change" after "in the direct employ of the Contractor".

6.8 Amend paragraph 6.3.7.1(2) by adding "required as a result of the change" after "materials or equipment".

6.9 Amend paragraph 6.3.7.3 by adding "reasonable" before "travel".

6.10 In paragraph 6.3.7.5, replace "and hand tools not owned by the workers" with "exclusive of hand tools".

6.11 In subparagraph 6.3.7.9 insert "provided however that the costs included in such amounts shall be limited to the actual costs of the items described in this paragraph 6.3.7 changing "Contractor" to "Subcontractor" as necessary" at the end.

6.12 At the end of paragraph 6.3.7, add: "All other costs attributable to the change in the Work including the costs of all administrative or supervisory personnel are included in overhead and profit calculated in accordance with the provisions of paragraph 6.1.5 of GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES".

6.13 In paragraph 6.4.2, insert "subject to GC 1.5 - EXAMINATION OF PLACE OF THE WORK," after "differ materially and" on the second line.

6.14 Add at the end of each of paragraphs 6.5.1 and 6.5.2 ", provided that the Owner shall not be liable for any other costs or damages whatsoever including any indirect, consequential, or special damages, or for any loss of profits, loss of opportunity or loss of productivity resulting from such delay."

6.15 Add to the end of paragraph 6.5.3: "provided that the Owner shall, in such instance, only be liable for reasonable costs incurred by the Contractor and shall not be liable for any other costs or damages whatsoever including any indirect, consequential, or special damages or any loss of profits, loss of opportunity or loss of productivity resulting from such delay. Notwithstanding the foregoing, the Contractor shall use its best efforts to minimize the impact of such event upon the performance of the Work, Contract Time and the Contract Price."

6.16 In paragraph 6.5.3.4, insert, "or the Owner's control" after "beyond Contractor's control' and insert "but not including delays resulting from Contractor's lack of funds or breakdown of Contractor's Construction Equipment" after "control".

6.17 Replace GC 6.6 with: "Any claim by the Contractor for a change in the Contract Price and/or Contract Time or otherwise against the Owner shall be barred unless the Contractor has provided Notice in Writing to the Owner and the Consultant of such claim, within the earlier of: (i) 10 Working Days after the Contractor knows, or should know applying the Standard of Care, of the event or circumstance giving rise to such claim or (ii) such other period of time expressly allowed for by the Contract. The Contractor shall (i) take all reasonable measures to mitigate any loss or expense which may be incurred as a result of such claim; (ii) keep such records as may be necessary to support such claim; and (iii) provide the Owner and the Consultant with a detailed account of the amount claimed and the grounds upon which the claim is based and update such information as necessary."

SC 7. PART 7 – DEFAULT NOTICE AND PART 8 – DISPUTE RESOLUTION

7.1 In paragraph 7.1.1, add "or terminate the Contract" after "terminate the Contractor's right to continue with the Work.".

7.2 Amend paragraph 7.1.5: (a) replace the first paragraph with: "If the Owner terminates the Contractor's right to continue with the Work or terminates the Contract as provided in paragraphs 7.1.1 or 7.1.4, without prejudice to any other right or remedy which the Owner may have, the Owner may, at its sole option"; and (b) in paragraph 7.1.5.3 delete "however, if such costs of finishing the Work is less than the unpaid balance of the Contract Price, the Owner shall pay the Contractor the difference".

7.3 In paragraph 7.2.2 change "20" to "40".

7.4 Delete paragraph 7.2.3.1.

7.5 In paragraph 7.2.3.4 delete "except for GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER".

7.6 In paragraph 7.2.4, add ", or such longer period of time agreed to by the Owner to correct the default," after "if the default is not corrected within 5 Working Days,".

7.7 Add new paragraph 7.2.6: "This GC 7.2 shall not apply to the withholding of certificates and/or payments because of the Contractor's failure to pay all just claims promptly nor because of the registration or notice of liens against the Owner's property, until such claims and liens are discharged."

7.8 Delete GC 8.2.6., GC 8.2.7 and GC 8.2.8 and replace GC 8.2.6 with the following: "8.2.6 If the mediated negotiations are terminated, either party may refer the unresolved dispute to the courts or, if they both agree, to some other form of dispute resolution, including arbitration. The Contractor shall continue with the performance of the Work in accordance with the Contract, notwithstanding any outstanding dispute."

SC 8. PART 9 – PROTECTION OF PERSONS AND PROPERTY AND PART 10 – GOVERNING REGULATIONS

8.1 In paragraph 9.1.1.1 add "Subject to paragraph 3.4," at the beginning.

8.2 Amend paragraph 9.4.1 by (1) replacing "Subject to paragraph 3.2.2.2 of GC 3.2 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS, the" with "The" and (2) adding "including the work of the Subcontractors" after "the performance of the Work".

8.3 Insert new paragraph 9.4.2: "9.4.2 Without limiting the generality of the foregoing, the Contractor acknowledges that it is the "constructor", "prime contractor" or equivalent term within the meaning of the occupational health and safety legislation applicable to the Place of the Work and the Contractor undertakes to carry out the duties and responsibilities of the "constructor", "prime contractor" or equivalent term with respect to the Work. The Contractor shall indemnify and hold harmless the Owner from any liability for claims, damages or penalties, including reasonable legal fees to defend any offences, arising from the Contractor's failure to comply with the duties, responsibilities and obligations of the "constructor", "prime contractor" or equivalent term under the occupational health and safety legislation applicable to the Place of the Work."

8.4 Add to paragraph 10.1.2 "The Contractor shall provide a detailed breakdown of additional taxes and duties if requested by the Owner in a form satisfactory to the Owner. Profit and overhead shall not be included in the increase or decrease in costs incurred by the Contractor due to changes in the aforementioned taxes and duties.".

8.5 Add new paragraph 10.1.3: "10.1.3 Each payment application shall include the Contractor's registration number for Value Added Taxes and the total amount of applicable Value Added Taxes as a separate line item."

8.6 Amend paragraph 10.2.2 by deleting "building permit".

8.7 In paragraph 10.2.3, delete "after the issuance" following "Place of the Work" and insert "including the procurement" prior to "of the building permit".

8.8 Amend paragraph 10.2.4 by adding "all standards, manufacturer's instructions or other reference documents, which govern the Work and" after "comply with" and by adding "whether or not specified, and with all of the Owner's policies and procedures which are or come into force and are applicable to the Work." at the end of the paragraph.

8.9 Amend paragraph 10.2.5 by adding "Subject to GC 3.4" at the beginning of the first sentence.

8.10 Amend paragraph 10.2.6, (1) by replacing "and performs" with "and/or performs"; and (2) by adding ", or, using the Standard of Care, should have known it to be", after "knowing it to be".

8.11 In paragraph 10.2.7 delete "in accordance with the requirements of GC 6.6 - CLAIMS FOR A CHANGE IN CONTRACT PRICE".

8.12 Add new paragraph 10.2.8: "The Contractor shall furnish all certificates that are required or given by the appropriate governmental authorities as evidence that the Work as installed conforms with the laws and regulations of authorities having jurisdiction, including certificates of compliance for the Owner's occupancy or partial occupancy. The certificates are to be final certificates giving complete clearance of the Work, in the event that such governmental authorities furnish such certificates."

8.13 Amend paragraph 10.3.1 by adding "indemnify and" before "hold the" in the second line.

8.14 In paragraph 10.3.2, add "by the Owner" after "supplied to the Contractor."

8.15 In paragraph 10.4.2, insert "Prior to commencing the Work and" at the beginning.

SC 9. PART 12 - INDEMNIFICATION – WAIVER – WARRANTY - MISCELLANEOUS

9.1 Replace paragraph 12.1.1 with: "The Contractor shall indemnify and hold harmless the Owner, the Consultant and their respective subsidiaries, affiliates, officers, directors, agents and employees from and against any and all liabilities, expenses, costs, claims, demands, losses, damages, actions, suits, or proceedings (including legal fees and disbursements on a full indemnity basis) that arise out of, or are attributable to, the negligent acts or omissions of the Contractor, its employees, Subcontractors or Suppliers or any other person for whom it is in law responsible or for the breach of the Contractor's obligations in connection with the Contract. This indemnification shall survive the completion or termination, for any reason, of this Contract."

9.2 Delete paragraph 12.1.2 and 12.1.6.

9.3 In paragraph 12.1.4 add "and in GC 9.5 MOULD" at the end.

9.4 Delete GC 12.2 WAIVER OF CLAIMS and replace with: "Subject to any rights or remedies provided by the lien legislation applicable to the Place of the Work, as of the date of the final certificate for payment, the Contractor expressly waives and releases the Owner from all claims against the Owner including those that might arise from the negligence or breach of contract by the Owner except: .1 those made in writing in compliance with the Contract Documents prior to the Contractor's application for final payment and still unsettled; and .2 those arising from the provisions of GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES AND MATERIALS or GC 10.3 PATENT FEES.".

9.5 In paragraph 12.3.1, add "including all Products and components thereof" after "under the Contract." and add at the end "The Contractor warrants that all Work shall be free of defects in materials and workmanship and conforms to the requirements of the Contract during such warranty period.".

9.6 Delete paragraph 12.3.2.

9.7 In paragraph 12.3.3, delete ", through the Consultant,".

9.8 In paragraph 12.3.4, (1) add "The obligation of the Contractor to perform the corrective work in accordance with this GC 12.3 shall include the provision of all necessary labour and materials and the removal and replacement of covering materials. The carrying out of corrective work shall be executed at such times as are convenient for the Owner which may entail overtime work on the part of the Contractor (which shall be at the Contractor's sole cost and expense). If the Contractor fails to carry out such work, the Owner may repair the work or property and hold the Contractor responsible for all costs thereof. For greater certainty, if the Contractor is notified of defects or non conformance prior to the end of the warranty period, then the Contractor shall make good the defect or non conformance, notwithstanding that the warranty work may commence or extend beyond the end of the warranty period." at the end.

9.9 In the second sentence of paragraph 12.3.6, add at the beginning "Without limiting the Contractor's warranty under GC 12.3 – WARRANTY," and add at the end of the third sentence "and the Contractor shall assist the Owner in the administration of such extended warranties to the extent reasonably required by the Owner."

9.10 Add the following new paragraphs:

"12.3.7 Within 30 days after Substantial Performance of the Work, and without limiting the Contractor's warranty under this GC 12.3, the Contractor shall assign to the Owner the benefit of all warranties and guarantees relating to the Work.

12.3.8 The warranty provisions in the Contract Documents are in addition to, and without prejudice to, any right or remedy otherwise available to the Owner for the Contractor's failure to fulfill its responsibilities and obligations under the Contract and shall not be construed as a waiver of claims in favour of the Contractor. The warranties and other rights and remedies set forth in this Contract are supplemental to and do not limit or preclude the application of any of the conditions and warranties, express or implied, by law, trade usage or otherwise.

12.3.9 The decision of the Owner shall be final as to the necessity for repairs or replacements or for work to be done under this GC 12.3."

9.11 Add PART 13 – MISCELLANEOUS as follows:

"GC 13.1 GENERAL

13.1.1 Neither the Owner's or Consultant's receipt, review or approval of any documents submitted by the Contractor or the Work nor the failure of the Owner or the Consultant to provide comment nor the presence of the Owner or the Consultant at the Place of the Work nor issuance of certificates by the Consultant shall limit or diminish the Contractor's responsibilities or liabilities under the Contract nor shall constitute acceptance of the Work.

13.1.2 The Contractor shall, at all times and as a part of the Work, fully assist, co-operate with, consult with and co-ordinate with any project manager, construction manager, supplier,

contractor, consultant or other entity retained or identified by the Owner (collectively, the "Other Entities") which is related to or associated with the Project. The objective of such is to make certain the Work is properly co-ordinated with the Other Entities.

13.1.3 The Owner has the right to set-off against the balance due or to become due to the Contractor under the Contract, any amounts due or to become due from the Contractor to the Owner under the Contract or otherwise.

13.1.4 The phrase "includes" ", include" or "including" means "includes, without limitation" or "including, without limitation," or "include, without limitation,". No communication purporting to be that of the Owner is valid unless it is in writing. Consultant is not permitted to act on Owner's behalf unless expressly permitted in the Contract Documents. The Contractor covenants and agrees that the Work shall be performed in accordance with the Contract Documents and the Standard of Care and shall conform to the requirements of the Contract Documents. If any provision of this Contract or its application to any party or circumstance is unenforceable, the provision shall be ineffective only to the extent of the unenforceability without: (a) invalidating the remaining provisions of the Contract; (b) affecting its application to other parties or circumstances. The division of the Contract into sections and the section headings in the Contract Documents are inserted for convenience of reference only and do not affect the construction or interpretation of the Contract. The terms of the Contract, which expressly or by their nature are intended to survive the termination or discharge of the Contract (including all indemnities and warranties of the Contractor) shall survive such termination or discharge.

13.1.5 The Contractor shall comply with the provisions of any "Building Construction Guidelines, "Rules and Regulations" and "Tenant Handbook & Fire and Emergency Procedures" as provided by the Owner for the Place of the Work."

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 The project is located at 1900 Albert Street, Regina, Saskatchewan, Canada; and further identified as Sherwood Place Renovation. Work of this Contract comprises of:

1. Standpipe System in existing building stairwell (Entire Building)
2. Renovation of existing washrooms on Floors 3, 4, 6, 7, 8 and 9.
3. Note: Other mechanical construction work related to the replacement of existing heat pumps will be ongoing throughout the building at the same time as this project. The electrical disconnect of the old heat pumps and reconnection of the new heat pumps will be part of this project. Coordinate and communicate with the General Contractor and Owner on a regular ongoing basis.

1.2 CONTRACT METHOD

.1 Construct Work under stipulated price contract.

1.3 WORK BY OTHERS

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

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

1.4 WORK SEQUENCE

.1 Construct Work in stages to accommodate Owner's continued use of premises during construction.

.2 Co-ordinate Progress Schedule and co-ordinate with Owner Occupancy during construction.

.3 Construct Work in stages to provide for continuous public usage. Do not close off public usage of facilities until use of one stage of Work will provide alternate usage.

.4 Maintain fire access/control.

1.5 CONTRACTOR USE OF PREMISES

.1 Restricted to use of area where renovations occur as indicated on drawings.

.2 Limit use of premises for Work, storage, and access, to allow:

.1 Owner occupancy.

.2 Public usage.

.3 Co-ordinate use of premises under direction of Consultant.

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

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

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

.7 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.6 OWNER OCCUPANCY

.1 Owner will occupy premises during entire construction period for execution of normal operations.

.2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.7 OWNER FURNISHED ITEMS

.1 Owner Responsibilities:

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

.2 Arrange and pay for delivery to site in accordance with Progress Schedule.

.3 Inspect deliveries jointly with Contractor.

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

.2 Contractor Responsibilities:

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

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

.3 Receive and unload products at site.

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

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

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

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

.8 Provide installation inspections required by public authorities.

.9 Repair or replace items damaged by Contractor or subcontractor on site (under his control).

1.8 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.9 EXISTING SERVICES

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

.2 Where Work involves breaking into or connecting to existing services, give Consultant and Owner 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian and tenant operations.

.3 Provide alternative routes for personnel pedestrian and vehicular traffic.

.4 Establish location and extent of service lines in area of work before starting Work. Notify Consultant of findings.

.5 Submit schedule to and obtain approval from Consultant for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.6 Provide temporary services when directed by Consultant and or Owner to maintain critical building and tenant systems.

.7 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.

.8 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

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

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

1.10 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 List of Outstanding Shop Drawings.
- .6 Change Orders.
- .7 Other Modifications to Contract.
- .8 Field Test Reports.
- .9 Copy of Approved Work Schedule.
- .10 Health and Safety Plan and Other Safety Related Documents.
- .11 Other documents as specified.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 ACCESS AND EGRESS

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

1.2 USE OF SITE AND FACILITIES

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

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

.3 Contractor's personnel are permitted to use the sanitary facilities as directed by Tenant provided this causes no additional work for Custodial Staff.

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

.5 Hours of building operations are Monday to Friday, hours 08:00 to 17:00. Building access outside of these hours is to be coordinated with Owner.

1.3 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.4 EXISTING SERVICES

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

.2 Where Work involves breaking into or connecting to existing services, give Consultant and Owner 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

.3 Provide for personnel, pedestrian and vehicular traffic.

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

1.5 SPECIAL REQUIREMENTS

.1 All work on occupied floors and all noise generating work to be scheduled Monday to Friday from 18:00 to 07:00 hours and on Saturdays, Sundays, and statutory holidays.

.2 Submit schedule – Construction Progress Schedule - Critical Path Method (CPM)

.3 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

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

.5 No contractor workers parking will be provided – use street parking.

.6 Initial site meeting will clarify ingress and egress to site and set up area.

.7 Deliver materials outside of peak traffic hours 07:00 to 08:00 and 12:00 to 13:00 and 16:00 to 17:00 unless otherwise approved by Owner and Consultant.

.8 Use of loud speakers is not permitted. Be courteous to staff on occupied floors.

.9 Cooperate fully with Owners in scheduling work to accommodate ongoing business.

1.6 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Use designated smoking area only.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

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

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

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

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

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

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

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

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

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 Refer to CCDC 2 GC 3.11.

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

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

.4 Allow 10 days for Consultant's review of each submission.

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

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

.7 Accompany submissions with transmittal letter, in containing:

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

.8 Submissions include:

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

.9 After Consultant's review, distribute copies.

.10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request.

.11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Consultant where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Consultant.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.2 Testing must have been within 3 years of date of contract award for project.

.13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Consultant.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.14 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Consultant.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit electronic copy and 2 hard copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Consultant.

.16 Delete information not applicable to project.

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

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

1.3 SAMPLES

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

.2 Deliver samples prepaid to Consultant's business address.

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

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

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

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

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

1.4 MOCK-UPS

.1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.5 CERTIFICATES AND TRANSCRIPTS

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

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

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

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 Province of Saskatchewan

.1 Occupational Health and Safety Act, 1993, S.S. [2005].

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

.3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Consultant.

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

.5 Submit copies of incident and accident reports.

.6 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 41 99 – Demolition for Minor Works.

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

1.3 FILING OF NOTICE

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

1.4 SAFETY ASSESSMENT

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

1.5 MEETINGS

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

1.6 REGULATORY REQUIREMENTS

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

1.7 RESPONSIBILITY

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

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

1.8 COMPLIANCE REQUIREMENTS

.1 Comply with Occupational Health and Safety Regulations, 1996.

.2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.9 UNFORSEEN HAZARDS

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

1.10 POSTING OF DOCUMENTS

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

1.11 CORRECTION OF NON-COMPLIANCE

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

.2 Provide Consultant with written report of action taken to correct non-compliance of health and safety issues identified.

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

1.12 WORK STOPPAGE

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

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Definitions:

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

.2 Reference Standards:

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008 Stipulated Price Contract.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 30 - Health and Safety Requirements & 01 35 43 - Environmental Procedures.

1.3 FIRES

.1 Fires and burning of rubbish on site is not permitted.

.2 Provide supervision, attendance and fire protection measures as directed.

1.4 DISPOSAL OF WASTES

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.5 NOTIFICATION

.1 Consultant will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

.2 Contractor: after receipt of such notice, inform Consultant of proposed corrective action and take such action for approval by Consultant.

.1 Take action only after receipt of written approval by Consultant.

.3 Consultant will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Bury rubbish and waste materials on site where directed after receipt of written approval from Consultant.

.3 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

.4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.5 Waste Management: separate waste materials for reuse or recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.2 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Consultant.

.2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Consultant.

.3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Consultant.

1.3 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions and municipal by-laws.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSPECTION

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

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

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

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

1.2 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by Owner for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Owner.

.2 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.3 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost.

1.3 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.4 PROCEDURES

.1 Notify appropriate agency and Consultant in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.5 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by

Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in opinion of Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Consultant.

1.6 REPORTS

.1 Submit 4 copies of inspection and test reports to Consultant.

1.7 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

.2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Consultant and may be authorized as recoverable.

1.8 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.

.2 Construct in locations acceptable to Consultant.

.3 Prepare mock-ups for Consultant's review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Consultant will assist in preparing schedule fixing dates for preparation.

.6 Remove mock-up at conclusion of Work or when acceptable to Consultant.

.7 Mock-ups may remain as part of Work.

.8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.9 MILL TESTS

.1 Submit mill test certificates as required of specification Sections.

1.10 EQUIPMENT AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical, electrical [and building equipment] systems.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

1.2 WATER SUPPLY

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

.2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

.3 Owner will pay for utility charges at prevailing rates.

1.3 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

- .1 Facilitate progress of Work.
- .2 Protect Work and products against dampness and cold.
- .3 Prevent moisture condensation on surfaces.
- .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .5 Provide adequate ventilation to meet health regulations for safe working environment.

.4 Maintain temperatures of minimum 15 degrees C in areas where construction is in progress.

.5 Ventilating:

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

.6 Permanent heating system of building, to be used when available. Be responsible for damage to heating system if use is permitted.

.7 On completion of Work for which permanent heating system is used, replace filters

.8 Ensure Date of Substantial Performance and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Consultant.

.9 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform with applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.10 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.4 TEMPORARY POWER AND LIGHT

.1 Owner will pay for temporary power during construction for temporary lighting and operating of power tools, to a maximum supply of 230 volts 30 amps.

.2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.

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

.4 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.

.5 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Consultant provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

1.5 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data hook up, lines and equipment necessary for own use and use of Contractor.

1.6 FIRE PROTECTION

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

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

1.1 REFERENCES

.1 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
- .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.

.2 Canadian Standards Association (CSA International)

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

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

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

.2 Indicate use of supplemental or other staging area.

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

.4 Remove from site all such work after use.

1.4 SCAFFOLDING

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

1.5 HOISTING

.1 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

1.6 SITE STORAGE/LOADING

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

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

1.7 CONSTRUCTION PARKING

.1 Parking will not be permitted on site – street parking only.

.2 Provide and maintain adequate access to project site.

.3 Clean runways and taxi areas where used by Contractor's equipment.

1.8 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition.

1.9 SANITARY FACILITIES

.1 Contractor may use existing sanitary facilities as directed by Owner.

.2 Keep area and premises in sanitary condition.

1.10 CONSTRUCTION SIGNAGE

.1 No other signs or advertisements, other than warning signs, are permitted on site unless approved by Owner.

1.11 CLEAN-UP

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

.2 Clean dirt or mud tracked into building.

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

.4 Stack stored new or salvaged material in location as directed by Owner.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

1.2 DUST TIGHT SCREENS

.1 Provide dust tight screens partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public including all work in occupied areas.

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

1.3 ACCESS TO SITE

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

1.4 FIRE ROUTES

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

1.5 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

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

.2 Be responsible for damage incurred.

1.6 PROTECTION OF BUILDING FINISHES

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

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with Consultant locations and installation schedule days prior to installation.

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

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 QUALITY

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

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

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

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

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

1.2 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

1.3 STORAGE, HANDLING AND PROTECTION

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

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

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

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

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

.6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

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

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

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

1.4 TRANSPORTATION

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

.2 Transportation cost of products supplied by Owner will be paid for by Owner. Unload, handle and store such products.

1.5 MANUFACTURER'S INSTRUCTIONS

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

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

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

1.6 QUALITY OF WORK

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

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

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

1.7 CO-ORDINATION

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

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

1.8 CONCEALMENT

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

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

1.9 REMEDIAL WORK

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

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

1.10 LOCATION OF FIXTURES

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

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

1.11 FASTENINGS

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

.2 Prevent electrolytic action between dissimilar metals and materials.

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

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

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

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

1.12 FASTENINGS - EQUIPMENT

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

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

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

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

1.13 PROTECTION OF WORK IN PROGRESS

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

1.14 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants and pedestrian and vehicular traffic.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

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

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

.3 Include in request:

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

1.2 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.3 PREPARATION

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

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

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

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

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

.1 Execute cutting, fitting, and patching, to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

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

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

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

.8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.9 Restore work with new products in accordance with requirements of Contract Documents.

.10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 Firestopping.

.12 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

.13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site.

.3 Clear snow and ice from access to building.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site containers for collection of waste materials and debris.

.6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

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

.11 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.2 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others and leave Work clean and suitable for occupancy.

.3 Prior to final review remove surplus products, tools, construction machinery and equipment.

.4 Remove waste products and debris including that caused by other Contractors.

.5 Remove waste materials from site at regularly scheduled times. Do not burn waste materials on site.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.8 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.

.9 Clean lighting reflectors, lenses, and other lighting surfaces.

.10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

.11 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.

.12 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.13 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.14 Remove dirt and other disfiguration from exterior surfaces.

.15 Clean and sweep roofs, gutters, areaways, and sunken wells.

.16 Sweep and wash clean paved areas.

.17 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.

.18 Clean roofs, downspouts, and drainage systems.

.19 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.20 Remove snow and ice from access to building.

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT GOALS

.1 Accomplish maximum control of solid construction waste.

.2 Preserve environment and prevent pollution and environment damage.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

1.3 STORAGE, HANDLING AND PROTECTION

.1 Store, materials to be reused, recycled and salvaged in locations as directed by Consultant.

.2 Unless specified otherwise, materials for removal become Contractor's property.

.3 Protect, stockpile, store and catalogue salvaged items.

.4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.5 Protect structural components not removed for demolition from movement or damage.

.6 Protect surface drainage, mechanical and electrical from damage and blockage.

.7 Separate and store materials produced during dismantling of structures in designated areas.

1.4 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers.

.3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.4 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.5 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Maintain security measures established by existing facility.

1.6 SCHEDULING

.1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 APPLICATION

.1 Do Work in compliance with WRW.

.2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

.1 Remove tools and waste materials on completion of work and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

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

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

.2 Request Consultant's inspection.

.2 Consultant's Inspection:

.1 Consultant and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.3 Equipment and systems: tested, adjusted, balanced and fully operational.

.4 Certificates required by authorities having jurisdiction submitted.

.5 Operation of systems: demonstrated to Owner's personnel.

.6 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Consultant, and Contractor.

.2 When Work incomplete according to Consultant, complete outstanding items and request re-inspection.

.5 Declaration of Substantial Performance: when Consultant considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.

.6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

.7 Final Payment:

.1 When Consultant considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

.2 Refer to CCDC: when Work deemed incomplete by Consultant, complete outstanding items and request re-inspection.

.8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.2 FINAL CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, two final copies and digital copy of operating and maintenance manuals in English.

.3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.

.4 Provide evidence, if requested, for type, source and quality of products supplied.

1.2 FORMAT

.1 Organize data as instructional manual.

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

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

.1 Identify contents of each binder on spine.

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

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

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

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

.8 Drawings: provide with reinforced punched binder tab.

.1 Bind in with text; fold larger drawings to size of text pages.

.9 CD or USB Flash Drive: Provide CD or USB Flash Drive with all information in binders and drawings.

1.3 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume: provide title of project;

.1 Date of submission; names.

.2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

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

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

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

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

.5 Typewritten Text: as required to supplement product data.

.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

.6 Training: refer to Section 01 79 00 - Demonstration and Training.

1.4 AS -BUILT DOCUMENTS AND SAMPLES

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

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to Contract.

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

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction.

.1 Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.

.1 Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition.

.1 Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Consultant.

1.5 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of opaque drawings, and in copy of Project Manual.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

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

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

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

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

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

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

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

.2 Changes made by Addenda and change orders.

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

.7 Provide digital photos, if requested, for site records.

1.6 EQUIPMENT AND SYSTEMS

.1 For each item of equipment and each system include description of unit or system, and component parts.

.1 Give function, normal operation characteristics and limiting conditions.

.2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.

.1 Include regulation, control, stopping, shut-down, and emergency instructions.

.2 Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

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

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

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

.14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.

.15 Additional requirements: as specified in individual specification sections.

1.7 MATERIALS AND FINISHES

.1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

.1 Provide information for re-ordering custom manufactured products.

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

.3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

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

1.8 MAINTENANCE MATERIALS

.1 Spare Parts:

.1 Provide spare parts, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Consultant.

.2 Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

.2 Extra Stock Materials:

.1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Consultant.

.2 Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

.3 Special Tools:

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to location as directed; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing Consultant.

.2 Include approved listings in Maintenance Manual.

1.9 DELIVERY, STORAGE AND HANDLING

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

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

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and for review by Consultant.

1.10 WARRANTIES AND BONDS

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit warranty management plan, for Consultant approval.

.3 Warranty management plan to include required actions and documents to assure that Consultant receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Submit, warranty information made available during construction phase, to Consultant for approval prior to each monthly pay estimate.

.6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:

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

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

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

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

.5 Co-execute submittals when required.

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

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

.8 Conduct 11 month warranty inspection, measured from time of acceptance, by Consultant.

.9 Include information contained in warranty management plan as follows:

.1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.

.2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include HVAC balancing, pumps, motors, transformers, commissioned systems, fire protection, sprinkler systems, lightning protection systems.

.3 Provide list for each warranted equipment, item, feature of construction or system indicating:

.1 Name of item.

.2 Model and serial numbers.

.3 Location where installed.

.4 Name and phone numbers of manufacturers or suppliers.

.5 Names, addresses and telephone numbers of sources of spare parts.

.6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.

.7 Cross-reference to warranty certificates as applicable.

.8 Starting point and duration of warranty period.

.9 Summary of maintenance procedures required to continue warranty in force.

.10 Cross-Reference to specific pertinent Operation and Maintenance manuals.

.11 Organization, names and phone numbers of persons to call for warranty service.

.12 Typical response time and repair time expected for various warranted equipment.

.4 Contractor's plans for attendance at 11 month post-construction warranty inspections.

.5 Procedure and status of tagging of equipment covered by extended warranties.

.6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

.10 Respond in timely manner to oral or written notification of required construction warranty repair work.

.11 Written verification to follow oral instructions.

.1 Failure to respond will be cause for the Consultant to proceed with action against Contractor.

1.11 WARRANTY TAGS

.1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Consultant.

.2 Attach tags with copper wire and spray with waterproof silicone coating.

.3 Leave date of acceptance until project is accepted for occupancy.

.4 Indicate following information on tag:

.1 Type of product/material.
.2 Model number.
.3 Serial number.
.4 Contract number.
.5 Warranty period.
.6 Inspector's signature.
.7 Construction Contractor.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 CSA International

.1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures 01 74 21 - Construction/Demolition Waste Management Disposal.

.2 Submit demolition drawings:

.1 Submit for review and approval by Consultant shoring and underpinning drawings stamped and signed by professional engineer registered or licensed in the Province of Saskatchewan, Canada, showing proposed method.

1.3 SITE CONDITIONS

.1 If material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Consultant immediately.

.1 Proceed only after receipt of written instructions have been received from Consultant.

.2 Notify Consultant and Owner before disrupting building access or services.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 EXAMINATION

.1 Inspect building with Consultant and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

.4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or

plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Immediately notify Consultant and utility company concerned in case of damage to any utility or service, designated to remain in place.

.2 Immediately notify the Consultant should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

.5 Coring of Concrete Slab

.1 Before coring through existing slab confirm rebar locations by X-raying slab. Hole locations may change depending on rebar locations.

.2 Refer to Mechanical drawings for size of cored holes. Confirm exact location on site.

3.2 PREPARATION

.1 Protection of In-Place Conditions:

.1 Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features and parts of building to remain in place. Provide bracing and shoring required.

.2 Keep noise, dust, and inconvenience to occupants to minimum.

.3 Protect building systems, services and equipment.

.4 Provide temporary dust screens, covers, railings, supports and other protection as required.

.5 Do Work in accordance with Section 01 35 30 - Health and Safety Requirements.

.2 Demolition/Removal:

.1 Remove items as indicated.

.2 Remove parts of existing building to permit new construction.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Refer to demolition drawings and specifications for items to be salvaged for reuse.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 ASTM International

.1 ASTM A53/A53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

.2 ASTM A269-08, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

.3 ASTM A307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 CSA International

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

.2 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CSA S16-09, Design of Steel Structures.

.4 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).

.5 CSA W59-M03(R2008), Welded Steel Construction (Metal Arc Welding) Metric.

.3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.4 The Master Painters Institute (MPI)

.1 Architectural Painting Specification Manual - current edition.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 30 - Health and Safety Requirements.

.1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.

.3 Shop Drawings:

.1 Submit drawings in accordance with Section 01 33 00 – Submittal Procedures.

.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

.1 Steel sections and plates: to CSA G40.20/G40.21.

.2 Steel pipe: to ASTM A53/A53M standard weight finish.

.3 Welding materials: to CSA W59.

.4 Welding electrodes: to CSA W48 Series.

.5 Bolts and anchor bolts: to ASTM A307.

.6 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

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

.2 Use self-tapping shake-proof round headed screws on items requiring assembly by screws or as indicated.

.3 Where possible, fit and shop assemble work, ready for erection.

.4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.

.2 Shop coat primer: in accordance with chemical component limits and restrictions requirements and VOC limits of CAN / CGSB – 1.181.

.3 Zinc primer: zinc rich, ready mix to MPI-INT 5.2C in accordance with chemical component limits and restrictions requirements and VOC limits of CAN / CGSB – 1.181.

2.4 ISOLATION COATING

.1 Isolate aluminum from following components, by means of bituminous paint:

.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.

.2 Concrete, mortar and masonry.

.3 Wood.

2.5 SHOP PAINTING

.1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.

.2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.

.3 Clean surfaces to be field welded; do not paint.

2.6 CORNER GUARDS

.1 Polished Stainless Steel angle: 50 x 50 x 3 mm thick x 1220 mm high.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Consultant.

.2 Inform Consultant of unacceptable conditions immediately upon discovery.

3.2 ERECTION

.1 Do welding work in accordance with CSA W59 unless specified otherwise.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

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

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Supply components for work by other trades in accordance with shop drawings and schedule.

.6 Make field connections with bolts to CSA S16.

.7 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location and construction personnel.

.8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion of:

.1 Primer: maximum VOC limit 250 g/L.

.9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

.1 Primer: maximum VOC limit 250 g/L

3.3 CORNER GUARDS

.1 Install corner guards in locations as indicated.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American National Standards Institute (ANSI)

- .1 ANSI A135.4-2012, Basic Hardboard.
- .2 ANSI/NPA A208.1-2009, Particleboard.
- .3 ANSI A208.2-2009, Medium Density Fibreboard (MDF) for Interior Applications.

.2 ASTM International (ASTM)

- .1 ASTM A307-12, Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
- .2 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealled) by the Hot-Dip Process.
- .3 ASTM C954-11, Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness
- .4 ASTM D1761-12, Standard Test Methods for Mechanical Fasteners in Wood.
- .5 ASTM D5055-12, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.
- .6 ASTM D5456-11a, Standard Specification for Evaluation of Structural Composite Lumber Products.
- .7 ASTM E1333-10, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.
- .8 ASTM F1667-11ae1, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

.3 American Wood Preservers Association (AWPA):

- .1 AWPA Book of Standards, 2012

.4 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-11.3-M87, Hardboard.
- .2 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- .3 CAN/CGSB-51.34-M86 Amend., Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .4 CAN/CGSB-71.26-M88, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.

.5 Canadian Standards Association (CSA International)

- .1 CSA A123.2-03 (R2008), Asphalt Coated Roofing Sheets.
- .2 CAN/CSA-A247-M86 (R1996), Insulating Fiberboard.
- .3 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 CAN/CSA O80 Series-08, Wood Preservation
- .5 CSA O112 Series-M1977 (R2006), CSA Standards for Wood Adhesives.
- .6 CSA O121-08, Douglas Fir Plywood.

.7 CSA O122-06 (R2011), Structural Glued-Laminated Timber.

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

.9 CSA O151-09, Canadian Softwood Plywood.

.10 CSA O153-M1980(R2008), Poplar Plywood.

.11 CAN/CSA-O325-07, Construction Sheathing.

.12 CSA O437 Series-93(R2011), Standards on OSB and Waferboard

.6 National Lumber Grading Association (NLGA):

.1 NLGA SPS2-2010, Special Products Standards on Machine Stress-Rated Lumber.

.2 Standard Grading Rules for Canadian Lumber 2010.

.7 NLGA Canadian Lumber Grading Rules Forest Stewardship Council (FSC)

.1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

.2 FSC-STD-20-002-2004, Structure and Content of Forest Stewardship Standards V2-1

.3 FSC Accredited Certified Bodies.

.8 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S770-09, Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams.

.2 CAN/ULC-S701-11, Standard for Thermal Insulation, Polystyrene Boards and Pipe Covering.

.3 CAN/ULC S102-10, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.2 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures:

.1 Submit manufacturer's printed product literature, specifications and data sheets.

.2 Submit MSDS sheets or official manufacturer literature stating no urea-formaldehyde was used in the manufacturing of composite wood.

1.3 QUALITY ASSURANCE

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

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

.3 Each board of fire retardant treated material to shall bear the ULC label indicating 'Flame Spread Classification' (FSC), and smoke developed.

1.4 DELIVERY, STORAGE, AND HANDLING

.1 Deliver wood products bundled or crated to provide adequate protection during transit. Inspect wood products for damage upon delivery and remove and replace damaged materials.

.2 Store materials a minimum of 150 mm off the ground on blocking. Keep materials under cover and dry. Provide for air circulation within and around stacks and under temporary coverings.

.3 Protect sheet materials to prevent breaking of corners and damage to surfaces.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 – Waste Management and Disposal.

Part 2 Products

2.1 LUMBER

.1 Lumber: to CAN/CSA O141, Douglas fir lumber, S4S, kiln-dried (KD) and heat treated (HT), moisture content less than 19%, graded and stamped in accordance with National Lumber Grading Association (NLGA) Standard Grading Rules for Canadian Lumber, and as follows:

.1 Grade: No. 2 grade or better.

.2 Finger jointed lumber not acceptable.

.3 Meeting requirements of the National Building Code.

2.2 PANEL MATERIALS

.1 Sheathing for structural shear wall and diaphragms:

.1 Plywood: Douglas Fir (DFP) Sheathing Grade to CSA O121, thickness as indicated on drawings.

.2 Other sheathing:

.1 Plywood or Oriented Strand Board panels to CSA O325, thickness as indicated on drawings.

.2 Fire Rated Plywood Panels to CSA O325, FSC Certified, Class A fire retardant produced under Performance Standard PS-1, certified by the American Plywood Association.

.1 Acceptable Materials:

.1 Purekor Fire Retardant Plywood.

.3 Interior sheathing shall be ULC-labelled fire resistant, provide grade stamp or certification as noted for fire retardant pressure treated lumber.

.3 Panels shall have no added urea formaldehyde.

2.3 MISCELLANEOUS LUMBER

.1 Provide lumber for support or attachment of other construction, including furring, blocking, nailing strips, ground, rough bucks, cants, curbs, fascia, backing sleepers, and similar members.

.2 Fabricate miscellaneous lumber from dimension lumber of sizes indicated, and into shapes shown on drawings, or otherwise required for a complete installation.

.3 Material: Douglas fir, to CSA O141 and NLGA Standard Grading Rules for Canadian Lumber.

.4 Moisture Content: 19% maximum.

.5 Grade: No. 2 or better lumber, per NLGA grading rules, G2S.

2.4 WOOD PRESSURE TREATMENTS

.1 Where lumber or plywood is indicated as preservative treated or is specified to be treated, treat in accordance with CAN/CSA O80.9M and AWPA.

.2 Wood preservatives containing arsenic or chromium are not permitted.

.3 Pressure treat above ground items with Copper Azole (CA-B) preservative to a minimum AWPA retention of 1.6 kg/m^3. After treatment, kiln-dry lumber and plywood to maximum moisture content of 19% and 15% respectively. Treat indicated items and the following:

- .1 Wood cants, nailing strips, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapour barriers, and waterproofing.
- .2 Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry and concrete.
- .3 Wood framing members less than 460 mm above grade.
- .4 Wood floor plates installed over concrete slabs directly in contact with earth.

.4 Pressure treat wood members in contact with ground or freshwater with Copper Azole (CA-B) preservative to a minimum AWPA retention of 3.4 kg/m^3

.5 Fire-Retardant Treatment: to CAN/SCA O80.9M, CAN/CSA O80.20M and CAN/CSA O80.27M, pressure impregnated, and as follows:

- .1 Flame Spread Classification: FSC 25 maximum.
- .2 Smoke developed of not more than: 75.
- .3 Acceptable materials:
  - .1 Dricon FRT, by Lonza.
  - .2 D-Blaze Fire Retardant Treated Wood, by Viance.
  - .3 Pyro-Guard, by Hoover Treated Wood Products, Inc.

.6 Complete fabrication of treated items before treatment where possible. If cut after treatment apply field treatment to cut surfaces.

2.5 ACCESSORIES

.1 Sealants: in accordance with Section 07 92 00 – Joint Sealants.

.2 General purpose adhesive: to CSA O112 Series.

.3 Nails, spikes, and staples: to ASTM F1667, double hot dipped galvanized for exterior work and pressure preservative and fire retardant treated materials; hot dipped galvanized for all other purposes.

.4 Rough Hardware (bolts, nuts, washers, etc.): hot dip galvanized in conformity to CSA G164 or Grade A low carbon steel, conforming to ASTM A307.

.5 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, recommended for purpose by manufacturer.

.6 Bolts, lag screws, split rings and shear plates: No. 304 (18-8) stainless steel.

Part 3 Execution

3.1 COMPLIANCE

.1 Comply with requirements of National Building Code of Canada (NBC) 2010, Part 9, and the requirements of this Section.

3.2 INSTALLATION

.1 Install members true to line, levels and elevations, square and plumb. Include all necessary nails or other connectors, fasteners and anchors as required for a complete installation.

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

.3 Install spanning members with "crown-edge" up.

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

.5 Install blocking at locations indicated to support washroom accessories.

.6 Install wall sheathing in accordance with manufacturer's printed instructions.

.7 Install roof sheathing in accordance with requirements of NBC.

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

.9 Install furring and strapping to support siding where there is no blocking and where sheathing is not suitable for direct nailing.

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

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

.11 Install wood cants, fascia backing, nailers, curbs and other wood supports as required.

.12 Use dust collectors and high quality respirator masks when cutting or sanding wood panels or pressure treated materials.

3.3 ERECTION

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

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

.3 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American National Standards Institute (ANSI)

- .1 ANSI A208.1-09, Particleboard.
- .2 ANSI A208.2-09, Medium Density Fibreboard (MDF) for Interior Applications.

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)

- .1 Architectural Woodwork Quality Standards, 1st edition, 2009.

.3 ASTM International

- .1 ASTM A123/A123M-09, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.4 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-11.3-M87, Hardboard.

.5 CSA International

- .1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.
- .2 CSA O121-08, Douglas Fir Plywood.
- .3 CSA O141-05(R2009), Softwood Lumber.
- .4 CSA O151-09, Canadian Softwood Plywood.
- .5 CSA O153-M1980(R2008), Poplar Plywood.

.6 National Lumber Grades Authority (NLGA)

- .1 Standard Grading Rules for Canadian Lumber 2010.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Shop Drawings:

- .1 Submit shop drawings.
- .2 Indicate details of construction, profiles, jointing, fastening and other related details.
- .3 Indicate materials, thicknesses, finishes and hardware.

1.3 QUALITY ASSURANCE

.1 Lumber by grade stamp of agency certified by Canadian Lumber Standards Accreditation Board (CLSAB).

.2 Plywood, particleboard, OSB and wood based composite panels to CSA and ANSI standards.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

.1 Softwood lumber: S4S, moisture content 15% or less in accordance with following standards:

.1 CSA O141.

.2 NLGA Standard Grading Rules for Canadian Lumber.

.3 AWMAC custom grade, moisture content as specified.

.4 Machine stress-rated lumber is acceptable.

.5 Hardwood lumber: moisture content 12% or less in accordance:

.1 National Hardwood Lumber Association (NHLA).

.2 AWMAC premium grade, moisture content as specified.

.2 Panel Material: urea-formaldehyde free

.1 Douglas fir plywood (DFP): to CSA O121, standard construction.

.2 Canadian softwood plywood (CSP): to CSA O151, standard construction.

.3 Hardwood plywood: to ANSI/HPVA HP-1.

.4 Poplar plywood (PP): to CSA O153, standard construction.

.5 Particleboard: to ANSI A208.1.

.6 Hardboard: to CAN/CGSB-11.3].

.7 Medium density fibreboard (MDF): to ANSI A208.2, density 640-800 kg/m^3.

.8 Low density fibreboard: to CSA-A247M.

2.2 ACCESSORIES

.1 Nails and staples: to CSA B111; galvanized to ASTM A123/A123M for exterior work, interior humid areas and for treated lumber; [plain] [copper] [stainless steel] finish elsewhere.

.2 Wood screws: electroplated steel, type and size to suit application.

.3 Splines: wood.

.4 Adhesive and Sealants: in accordance with Section 07 92 00 - Joint Sealants.

.1 VOC limit 250 g/L maximum.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for wood products installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Consultant.

.2 Inform Consultant of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

3.2 INSTALLATION

.1 Do finish carpentry to Quality Standards of (AWMAC).

.2 Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate piping, columns, fixtures, outlets, or other projecting, intersecting or penetrating objects.

.3 Form joints to conceal shrinkage.

3.3 CONSTRUCTION

.1 Fastening:

.1 Position items of finished carpentry work accurately, level, plumb, true and fasten or anchor securely.

.2 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.

.3 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round smooth cut hole and plug with wood plug to match material being secured.

.4 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by finish carpentry installation.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American National Standards Institute (ANSI)

- .1 ANSI A208.1-09, Particleboard.
- .2 ANSI A208.2-09, Medium Density Fiberboard (MDF) for Interior Applications.

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)

- .1 Architectural Woodwork Quality Standards Illustrated, 8th edition, Version 1.0 (2009).

.3 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.

.4 CSA International

- .1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.
- .2 CSA O121-08, Douglas Fir Plywood.
- .3 CSA O141-05(R2009), Softwood Lumber.
- .4 CSA O151-09, Canadian Softwood Plywood.
- .5 CSA O153-M1980(R2008), Poplar Plywood.

.5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

- .1 Material Safety Data Sheets (MSDS).

.6 National Electrical Manufacturers Association (NEMA)

- .1 ANSI/NEMA LD-3-05, High-Pressure Decorative Laminates (HPDL).

.7 National Lumber Grades Authority (NLGA)

- .1 Standard Grading Rules for Canadian Lumber 2010.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Shop Drawings:

- .1 Submit shop drawings, indicate details of construction, profiles, jointing, fastening and other related details.
- .2 Indicate materials, thicknesses, finishes and hardware.
- .3 Indicate locations of service outlets in casework, and connections, attachments, anchorage and location of exposed fastenings.

.3 Samples:

- .1 Submit samples of all materials.

1.3 QUALITY ASSURANCE

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

.2 Plywood, particleboard, OSB and wood based composite panels to CSA and ANSI standards.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.1 Protect millwork against dampness and damage during and after delivery.

.2 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.

.3 Storage and Handling Requirements:

.1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect architectural woodwork from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

.1 Softwood lumber: unless specified otherwise, S4S, moisture content 15 % or less in accordance with following standards:

.1 CSA O141.

.2 NLGA Standard Grading Rules for Canadian Lumber.

.3 AWMAC custom grade, moisture content as specified.

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

.3 Hardwood lumber: moisture content 12% or less in accordance with following standards:

.1 National Hardwood Lumber Association (NHLA).

.2 CAN/CSA-Z809 or FSC or SFI certified.

.3 AWMAC custom grade, moisture content as specified.

.4 Douglas fir plywood (DFP): to CSA O121, standard construction.

.5 Canadian softwood plywood (CSP): to CSA O151, standard construction.

.6 Hardwood plywood: to ANSI/HPVA HP-1.

.7 Poplar plywood (PP): to CSA O153, standard construction.

.8 Interior mat-formed wood particleboard: to ANSI/NPA A208.1.

.9 Fibreboard must contain less than 10% roundwood by weight, using weighted average over three month period at manufacturing locations.

.10 Water-Resistant Medium Density Fibreboard (MDF): Medex®, or approved similar meeting or exceeding following requirements:

.1 No-added formaldehyde, moisture resistant MDF panel engineered for interior high moisture areas.

.2 Test results to ASTM D1037, Part A, 20.6 mm - 31.8 mm thick material:

.1 Minimum density: 700 kg/m^3

.2 Internal bond: 0.69 N/mm^2

.3 Minimum Modulus of Rupture: 32 N/mm^2

.4 Modulus of Elasticity: 3447 N/mm^2

.5 Hardness: 454 Kg Janka ball

.6 Screw holding, face: 136 Kg required to pull 25 mm #10 sheet metal screw.

.7 Screw holding, edge: 102 Kg required to pull 25 mm #10 sheet metal screw.

.8 Water absorption: Average 6% - 5 %, 24-hour soak

.9 Thickness Swell: Average 3% - 2 %, 24-hour soak

.10 Linear Expansion: 0.26% - 0.20%, dimensional change in length and width due to a humidity change from 50% - 80% RH

.11 Moisture content: 4% - 6% average, oven-dry basis

.12 Thickness tolerance: ± 0.127 mm average from nominal, and deviation from average

.13 Meets ASTM D1037 six-cycle accelerated aging test.

.11 Particleboard: interior mat-formed wood particle board: to CAN3-0188.1

.1 Industrial Grade (IND) particleboard, as follows:

.1 Grade M2 industrial grade: use for general purpose and cabinetry work.

.2 Grade M3 industrial grade; use for bookshelves, desktops and countertops.

.3 Thickness: 19mm thick, or as otherwise indicated on Drawings.

.12 Laminated plastic backing sheet: Grade BK, Type HD minimum of 0.5 mm thick or same thickness and colour as face laminate.

.13 Quartz Solid Surfacing:

.1 Manufacturer: per drawings or approved equal.

.2 Provide manufacturer's maintenance requirements in O&M Manual

.3 Ten year warranty.

.4 Thickness, colour, finish and edges as indicated.

.5 Substrate: moisture resistant plywood

.14 Thermofused Melamine: to NEMA LD3 Grade VGL.

.1 High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).

.2 Thickness per drawings.

.3 Edging: solid 3mm PVC colour matched to panel material.

.15 Edging, as indicated:

.1 Quartz Solid Surface edging per drawings.

.16 Nails and staples: to CSA B111.

.17 Wood screws: steel, type and size to suit application.

.18 Splines: wood.

.19 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

.1 Sealants: VOC limit 250 g/L maximum.

2.2 MANUFACTURED UNITS

.1 Casework:

.1 Fabricate caseworks to AWMAC custom quality grade.

.2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.

.1 Board sizes: "standard" or better grade.

.2 Dimension sizes: "standard" light framing or better grade.

.3 Urea-formaldehyde free.

.3 Framing NLGA or NHLA grade.

.4 Manufactured units and other millwork shall be fabricated from materials indicated on notes provided on drawings.

.5 Hardware: Provide all required hardware for proper operation and function of casework including but not limited to the hardware product listing on the drawings.

2.3 FABRICATION

.1 Set nails and countersink screws apply stained wood filler to indentations, sand smooth and leave ready to receive finish.

.2 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.

.3 Shelving to cabinetwork to be adjustable unless otherwise noted.

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

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

.6 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.

.7 Ensure adjacent parts of continuous laminate work match in colour and pattern.

.8 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 2400mm. Keep joints 600 mm from sink cutouts.

.9 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.

.10 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.

.11 Apply laminate backing sheet to reverse side of core of plastic laminate work.

Part 3 Execution

3.1 INSTALLATION

.1 Do architectural woodwork to Quality Standards of AWMAC.

.2 Install prefinished millwork at locations shown on drawings.

.1 Position accurately, level, plumb straight.

.3 Fasten and anchor millwork securely.

.1 Supply and install heavy duty fixture attachments for wall mounted cabinets.

.4 Use draw bolts in countertop joints.

.5 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.

.6 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant in accordance with Section 07 92 00 - Joint Sealants.

.7 Apply water resistant building paper bituminous coating over wood framing members in contact with masonry or cementitious construction.

.8 Fit hardware accurately and securely in accordance with manufacturer's written instructions.

.9 For site application, offset joints in plastic laminate facing from joints in core.

3.2 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.1 Clean millwork, cabinet work, outside surfaces, inside cupboards and drawers.

.2 Remove excess glue from surfaces.

3.3 PROTECTION

.1 Protect millwork and cabinet work from damage until final inspection.

.2 Protect installed products and components from damage during construction.

.3 Repair damage to adjacent materials caused by architectural woodwork installation.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM C553-02, Specification for Mineral Fibre Blanket Thermal Insulation for Commercial and Industrial Applications.

.2 ASTM C665-01e1, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.3 ASTM C1320-05, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.

.4 ASTM C177-04, Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus

.5 ASTM C518-04, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

.2 Canadian Gas Association (CGA)

.1 CAN/CGA-B149.1-05, Natural Gas and Propane Installation Code Handbook.

.2 CAN/CGA-B149.2-05, Propane Storage and Handling Code.

.3 Canadian Standards Association (CSA International)

.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.4 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S604-M1991, Type A Chimneys.

.2 CAN/ULC-S702-1997, Standard for Mineral Fibre Insulation.

.3 CAN/ULC-S702-97, Standard for Mineral Fibre Insulation.

.4 CAN/ULC S102-03, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

.5 CAN4 S114-05, Standard Method of Test for Noncombustibility of Building Materials.

.6 CAN4 S115-05, Standard Method of Fire Test Of Firestop Systems.

Part 2 Products

2.1 INSULATION

.1 Batt and blanket mineral fibre: to ASTM C665.

.1 Type: 1.

.2 Thickness: as indicated

.3 Minimum 40% recycled content.

.2 Fire stop batt insulation: for installation at perimeter around conduit pipe and duct openings through walls and floors, between firewalls and ceilings, and other mineral wool firestop applications. RoxulSafe, by Roxul, or approved similar meeting or exceeding the following minimum characteristics and properties:

.3 Non-combustible, semi-rigid, mineral wool fibre insulation made from basalt rock and slag.

.4 Meets cUL Design No's: JF4, JF5, JF6, JF18, JF19, JF20, JF21, SP143, SP146, SP147, SP172, SP173, SP178, SP180.

.5 CAN4 S115: non-combustible.

.6 CAN/ULC S102: flame spread = 0; smoke developed = 0.

.7 Match or exceed typical physical properties published for RoxulSafe

.8 Thickness: as required to fully fill cavities, under compression recommended by manufacturer to meet

.3 Sound Attenuation Batts (SABs), by Owens Corning, or approved similar meeting or exceeding the following minimum characteristics and properties:

.3 Unfaced glass fibre insulation.

.4 CAN/ULC S102/UL 723: flame spread = 25; smoke developed = 50.

.5 CAN/ULC S702: Type 1.

.6 Friction-fit installation.

.7 Specifically designed as a sound attenuation batt insulation.

.8 Match or exceed typical physical properties published for Sound Attenuation Batt insulation, Owens Corning.

.9 Thickness: as required to fully fill stud cavity, per manufacturer's specifications.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSULATION INSTALLATION

.1 Install insulation to maintain continuity of thermal protection to building elements and spaces and to ASTM C1320.

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

.3 Do not compress insulation to fit into spaces.

.4 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC-S604 Type A chimneys and CAN/CGA-B149.1 and CAN/CGA-B149.2 Type B and L vents.

.5 Completely fill spaces without gaps, openings, or excessive joints. Fit tightly at edges, joints, and penetrations. Install to meet sound, firestop and/or insulation requirements.

.6 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use largest possible dimensions to reduce number of joints.

.7 Offset both vertical and horizontal joints in multiple layer applications.

.8 Leave insulation joints unbonded over line of expansion and control joints. Bond a continuous 152.4 mm (6") wide 0.15 mm (5.9 mil) polyethylene strip over expansion and control joints using compatible adhesive before application of insulation.

.9 Do not enclose insulation until it has been inspected and approved by Consultant.

3.3 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 45 00 – Quality Control

.3 Section 01 74 11 - Cleaning

.4 Section 01 77 00 – Closeout Procedures

.5 Section 01 78 00 – Closeout Submittals

1.2 REFERENCES

.1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.2 Underwriter's Laboratories of Canada (ULC)

.1 ULC-S115-11(R2016), Fire Tests of Fire stop Systems.

1.3 DEFINITIONS

.1 Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.

.2 Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.

.3 Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.

.4 Tightly Fitted; (ref: NBC Part 3.1.9.1.1 and 9.10.9.6.1): penetrating items that are cast in place in buildings of non-combustible construction or have "0" annular space in buildings of combustible construction.

.1 Words "tightly fitted" should ensure that integrity of fire separation is such that it prevents passage of smoke and hot gases to unexposed side of fire separation.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.

.3 Shop Drawings:

.1 Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation.

.2 Construction details should accurately reflect actual job conditions.

.4 Samples:

.1 Submit duplicate 300 x 300 mm samples showing actual fire stop material proposed for project.

.5 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.

.1 Test reports: in accordance with CAN-ULC-S101 for fire endurance and CAN-ULC-S102 for surface burning characteristics.

.1 Submit certified test reports from approved independent testing laboratories, indicating compliance of applied fire stopping with specifications for specified performance characteristics and physical properties.

.2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.3 Manufacturer's Instructions: submit manufacturer's installation instructions.

.4 Manufacturer's Field Reports: submit to manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.5 QUALITY ASSURANCE

.1 Qualifications:

.1 Installer: Company specializing in fire stopping installations approved by manufacturer with 5 documented years of experience.

.2 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section, with contractor's representative and Consultant in accordance with Section 01 32 18 - Construction Schedule.

.1 Verify project requirements.

.2 Review installation and substrate conditions.

.3 Co-ordination with other building subtrades.

.4 Review manufacturer's installation instructions and warranty requirements.

.3 Site Meetings: as part of Manufacturer's Services described in PART 3 - FIELD QUALITY CONTROL, schedule site visits, to review Work, at stages listed.

.1 After delivery and storage of products, and when preparatory Work is complete, but before installation begins.

.2 Twice during progress of Work at 25% and 75% complete.

.3 Upon completion of Work, after cleaning is carried out.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Deliver materials to the site in undamaged condition and in original unopened containers, marked to indicate brand name, manufacturer, ULC markings.

.2 Storage and Protection:

- .1 Store materials indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Replace defective or damaged materials with new.

.3 Waste Management and Disposal:

- .1 Separate waste materials for reuse recycling in accordance with Section 01 74 21 - Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

.1 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.

- .1 Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN-ULC-S115 and not to exceed opening sizes for which they are intended and conforming to specified special requirements described in PART 3.
- .2 Fire stop system rating: as indicated by assembly.

.2 Service penetration assemblies: systems tested to CAN-ULC-S115.

.3 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.

.4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.

.5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.

.6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.

.7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

.8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

.9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

.10 Sealants for vertical joints: non-sagging.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 PREPARATION

.1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials.

.1 Ensure that substrates and surfaces are clean, dry and frost free.

.2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

.3 Maintain insulation around pipes and ducts penetrating fire separation.

.4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.3 INSTALLATION

.1 Install fire stopping and smoke seal material and components in accordance with manufacturer's certified tested system listing.

.2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.

.3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.

.4 Tool or trowel exposed surfaces to neat finish.

.5 Remove excess compound promptly as work progresses and upon completion.

3.4 SEQUENCES OF OPERATION

.1 Proceed with installation only when submittals have been reviewed by Consultant.

.2 Install floor fire stopping before interior partition erections.

.3 Metal deck bonding: fire stopping to precede spray applied fireproofing to ensure required bonding.

.4 Mechanical pipe insulation: certified fire stop system component.

.1 Ensure pipe insulation installation precedes fire stopping.

3.5 FIELD QUALITY CONTROL

.1 Inspections: notify Consultant when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.

.2 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.

.2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.6 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

.3 Remove temporary dams after initial set of fire stopping and smoke seal materials.

3.7 SCHEDULE

.1 Fire stop and smoke seal at:

.1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.

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

.3 Top of fire-resistance rated masonry and gypsum board partitions.

.4 Intersection of fire-resistance rated masonry and gypsum board partitions.

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

.6 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.

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

.8 Around mechanical and electrical assemblies penetrating fire separations.

.9 Rigid ducts: greater than [129 cm^2]: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Materials, preparation and application for caulking and sealants.

1.2 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)

- .1 ASTM C919-02, Standard Practice for Use of Sealants in Acoustical Applications.

.2 Canadian General Standards Board (CGSB)

- .1 CGSB 19-GP-5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
- .2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .3 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
- .4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- .5 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

.3 Department of Justice Canada (Jus)

- .1 Canadian Environmental Protection Act, 1999 (CEPA).

.4 General Services Administration (GSA) - Federal Specifications (FS)

- .1 FS-SS-S-200-E(2)1993, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.

.5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

- .1 Material Safety Data Sheets (MSDS).

.6 Transport Canada (TC)

- .1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.3 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 - Submittal Requirements

.2 Manufacturer's product to describe.

- .1 Caulking compound.
- .2 Primers.
- .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

.3 Submit samples in accordance with Section 01 33 00 - Submittal Requirements

.4 Submit duplicate samples of each type of material and colour.

.5 Cured samples of exposed sealants for each color where required to match adjacent material.

.6 Submit manufacturer's instructions in accordance with Section 01 33 00 - Submittal Requirements.

.1 Instructions to include installation instructions for each product used.

1.4 QUALITY ASSURANCE

.1 Perform Work in accordance with Sealant and Waterproofer's Institute – Sealant and Caulking Guide Specification requirements for materials and installation.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, handle, store and protect materials in accordance with Section 01 60 00 - Product Requirements.

.2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.6 PROJECT CONDITIONS

.1 Environmental Limitations:

.1 Do not proceed with installation of joint sealants under following conditions:

.1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.

.2 When joint substrates are wet.

.2 Joint-Width Conditions:

.1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:

.1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.7 ENVIRONMENTAL REQUIREMENTS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Labour Canada.

.2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

Part 2 Products

2.1 SEALANT MATERIALS

.1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.

.2 When low toxicity caulks are not possible, confine usage to areas which off-gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.

.3 Where sealants are qualified with primers use only these primers.

.4 Where sealants are specified by the proprietary method in other Sections, these product requirements take precedence over this section.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Type 1: Multi-component, polyepoxide urethane sealant. To meet specified requirements of CGSB specification CAN/CGSB-19.24-M90, Type 2, Class B. Dymeric by Tremco Ltd. Use at all locations, except where another type is specified

.2 Type 3: One part moisture curing polyurethane sealant. Meeting the specified requirements of specification CAN/CGSB-19.13-M87, Classification MC-2-25-B-N Dymonic or Dymonic FC by Tremco Ltd

.3 Type 6: Mildew resistant, one component neutral cure silicone sealant. Meeting the specified requirements of specification CGSB-19GP22M. Tremsil 200 White by Tremco Ltd. Use on fixtures, bathtubs and vanity tops.

.4 Type 7: One component, non-skinning, non-hardening acoustical sealant. Meeting the specified requirements of specification CAN/CGSB-19.21-M87. Acoustical Sealant by Tremco Ltd. Use at all vapour barrier joints and openings in drywall systems as shown on the drawings or specified

.5 Type 8: One component, paintable acrylic latex sealant. Meeting the specified requirements of specification CGSB-19-GP-17M. Tremflex 834 by Tremco Ltd. Use in interior non-moving joints that may be painted.

.6 Preformed Compressible and Non-Compressible back-up materials.

.1 Polyethylene, Urethane, Neoprene or Vinyl Foam.

.1 Extruded open closed cell foam backer rod.

.2 Size: oversize 30 to 50 %.

.2 Neoprene or Butyl Rubber.

.1 Round solid rod, Shore A hardness 70.

.3 High Density Foam.

.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m^3 density, or neoprene foam backer, size as recommended by manufacturer.

.4 Bond Breaker Tape.

.1 Polyethylene bond breaker tape which will not bond to sealant.

2.3 SEALANT SELECTION

.1 Perimeters of exterior openings where frames meet exterior facade of building (i.e. brick, block, precast masonry): Sealant type: 1.

.2 Joints in exterior surfaces of unit masonry walls: Sealant type: 1.

.3 Coping joints and coping-to facade joints: Sealant type: 1.

.4 Seal interior perimeters of exterior openings as detailed on drawings: Sealant type: 3.

.5 Control and expansion joints on the interior of exterior surfaces of unit masonry walls: Sealant type: 3.

.6 Perimeters of interior frames: Sealant type: 8.

.7 Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls): Sealant type: 3.

.8 Perimeter of bath fixtures (e.g. sinks, tubs, urinals, stools, waterclosets, basins, vanities): Sealant type: 6.

.9 Exposed interior control joints in drywall: Sealant type: 8.

.10 Lap joints in polyethylene vapour barrier: Sealant Type 7.

2.4 JOINT CLEANER

.1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

.2 Primer: as recommended by manufacturer.

Part 3 Execution

3.1 PROTECTION

.1 Protect installed Work of other trades from staining or contamination.

3.2 SURFACE PREPARATION

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

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

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP MATERIAL

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

.2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 APPLICATION

.1 Sealant.

.1 Apply sealant in accordance with manufacturer's written instructions.

.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.

.3 Apply sealant in continuous beads.

.4 Apply sealant using gun with proper size nozzle.

.5 Use sufficient pressure to fill voids and joints solid.

.6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.

.7 Tool exposed surfaces before skinning begins to give slightly concave shape.

.8 Remove excess compound promptly as work progresses and upon completion.

.2 Exterior Perimeter Sealants (windows, doors, flashing).

.1 Maintain depth of sealant at middle of joint width as follows:

Joint Width (mm)	Sealant Depth (mm)
15	8 to 10
18	9 to 12
25	10 to 15

.2 In tight fillet joints, provide minimum 12 mm bite of sealant on both joint surfaces.

.3 Minimum bite of sealant on each component being sealed to be 1.5 times depth, minimum depth of joint to be 8 mm.

.3 Interior Window and Door Perimeter Sealants.

.1 Provide minimum 3 mm bite of sealant onto frame and adjacent surfaces.

.4 Glazing Sealants.

.1 For corner toe beads and sealing joints in glazing tape:

.1 Apply sealant to inside surface of exterior fixed glazing stop where not covered with glazing tape, filling to at least the thickness of glazing tape.

.2 Tow bead to extend minimum 25 mm in both directions from glazing tape joint. Ensure butt joints between sill and jamb, horizontal mullion and jamb, and head and jamb stops are covered by sealant.

.2 For filling in recesses in glazing tape:

.1 Apply sealant to fill recesses in glazing tape to level of adjacent tape, but not higher than exterior fixed glazing stop.

.3 For sealant heel bead around perimeter of insulated glass units (IGU) where single durometer stops are used.

.1 Insert joint filler into glazing pocket. Filler to protrude from glazing pocket beyond inside face (surface 4) of IGU to give "hourglass" shape to heel bead.

.2 Apply heel bead as fillet from inside surface of IGU (surface 4) to frame. Do not apply sealant into grooves in which stops are set. Provide minimum 3 mm thickness of sealant at centre of bead.

.3 Apply heel bead continuously over setting blocks. Maintain 3 mm thickness of material at centre of bead.

.4 For sealing butt joints of glazing stops (IGU) where dual durometer stops are used.

.1 Apply fillet bead of sealant at corner butt joints.

.2 Provide minimum 3 mm bite of sealant onto bonding surfaces.

.5 For sealing butt joints of interior glazing stops.

.1 Apply fillet bead of sealant to joints between sill and jamb stops, and horizontal mullion and jamb stops.

.2 Provide minimum 3 mm bite of sealant onto frame and adjacent surfaces.

.5 Curing.

.1 Cure sealants in accordance with sealant manufacturer's instructions.

.2 Do not cover up sealants until proper curing has taken place.

.6 Cleanup.

.1 Clean adjacent surfaces immediately and leave Work neat and clean.

.2 Remove excess and droppings, using recommended cleaners as work progresses.

.3 Remove masking tape after initial set of sealant.

3.7 SCHEDULE

.1 Unless otherwise specified, supply, install and apply sealants per this Section at all terminations, joints, transitions between dissimilar materials, window, door, and penetration perimeters (pipe, conduit, ductwork, etc.), and per requirements of Contract Documents.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).

.1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.

.2 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-69.17-M86(R1993), Bored and Preassembled Locks and Latches.

.2 CAN/CGSB-69.18-M90/ANSI/BHMA A156.1-1981, Butts and Hinges.

.3 CAN/CGSB-69.20-M90/ANSI/BHMA A156.4-1986, Door Controls (Closers).

.4 CAN/CGSB-69.22-M90/ANSI/BHMA A156.6-1986, Architectural Door Trim.

.5 CAN/CGSB-69.24-M90/ANSI/BHMA A156.8-1982, Door Controls - Overhead Holders.

.6 CAN/CGSB-69.26-96/ANSI/BHMA A156.10-1991, Power-operated Pedestrian Doors.

.7 CAN/CGSB-69.31-M89/ANSI/BHMA A156.15-1981, Closer/Holder Release Device.

.8 CAN/CGSB-69.32-M90/ANSI/BHMA A156.16-1981, Auxiliary Hardware.

.9 CAN/CGSB-69.33-M90/ANSI/BHMA A156.17-1987, Self-closing Hinges and Pivots.

.10 CAN/CGSB-69.34-93/ANSI/BHMA A156.18-1987, Materials and Finishes.

.11 CAN/CGSB-69.35-M89/ANSI/BHMA A156.19-1984, Power Assist and Low Energy Power Operated Doors.

.12 CAN/CGSB-69.36-M90/ANSI/BHMA A156.20-1984, Strap and Tee Hinges and Hasps.

1.2 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Requirements.

.2 Hardware List:

.1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Requirements.

.2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

.3 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.4 Closeout Submittals

.1 Provide operation and maintenance data for door closers, locksets, door holders electrified hardware and fire exit hardware for incorporation into manual specified in Section 01 77 00 - Contract Closeout Procedures.

1.3 DELIVERY, STORAGE, AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

.1 Deliver, store, handle and protect materials in accordance with Section 01 60 00 - Product Requirements.

.2 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

.2 Storage and Protection:

.1 Store finishing hardware in locked, clean and dry area.

1.4 MAINTENANCE

.1 Extra Materials:

.1 Provide maintenance materials in accordance with Section 01 77 00 - Contract Closeout Procedures.

.2 Supply two sets of wrenches for door closers locksets and fire exit hardware.

Part 2 Products

2.1 HARDWARE ITEMS

.1 Use one manufacturer's products only for similar items.

2.2 DOOR HARDWARE

.1 Refer to 08 71 15 Door Schedule.

SPEC NOTE: Ensure function number and keying requirements are in Schedule. Include latch bolt throw if difference than applicable CAN/CGSB standard.

2.3 FASTENINGS

.1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

.2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.3 Exposed fastening devices to match finish of hardware.

.4 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.

.5 Use fasteners compatible with material through which they pass.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

.3 Furnish manufacturers' instructions for proper installation of each hardware component.

3.2 INSTALLATION

.1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.

.2 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.3 Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

3.3 INSTALLATION: AUTOMATIC SWING DOOR OPERATORS

.1 Install components as indicated on drawings and as scheduled to manufacturer's recommendations.

.2 Install door holders to limit doors to opening swing specified.

.3 Install operators on interior side of rooms.

.4 Install rubber dampening-devices to sound isolate operators from doorframes.

.5 Conceal wiring between activating devices, electric locking system, and operators.

3.4 ADJUSTING

.1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.

.2 Lubricate hardware, operating equipment and other moving parts.

.3 Adjust door hardware to provide tight fit at contact points with frames.

3.5 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacture's instructions.

.3 Remove protective material from hardware items where present.

.4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.6 DEMONSTRATION

.1 Maintenance Staff Briefing:

.1 Brief maintenance staff regarding:

.1 Proper care, cleaning, and general maintenance of projects complete hardware.

.2 Description, use, handling, and storage of keys.

.3 Use, application and storage of wrenches for door closers locksets and fire exit hardware.

.2 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.7 HARDWARE SCHEDULE

SET #01

1	Ea	Push Plate	GSH 81A 125 x 500	C32D	CGA
1	Ea	Door Pull	GSH AF-7	C32D	CGA
1	Ea	Kick Plate	GSH 80A 250 x 860	C32D	CGA
1	Ea	Wall Stop	GSH250	C26D	CGA
1	Ea	Step Foot Pull	StepNpull - Silver Finish		

END OF SECTION

Door #	Frame			Door			Size			Fire Rating (Hours)	Hardware Group	Remarks
	Mat.	Elev.	Fin.	Mat.	Elev.	Fin.	Width	Ht.	Tk.			
E301a	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E301b	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E303	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E304	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E305	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E306	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E308	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E401a	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E401b	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E403	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E404	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E405	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E406	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E408	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E409a	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4

E409b	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E601a	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E601b	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E603	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E604	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E605	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E606	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E608	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E701a	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E701b	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E703	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E704	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E705	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E706	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E708	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E801a	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E801b	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E803	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E804	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2

E805	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E806	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E808	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E809a	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E809b	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E901a	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E901b	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	90min	EXISTING	Note 1, 2, 4
E903	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E904	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2
E905	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E906	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	01	Note 1, 3, 4
E908	EXPS	F1	PT	EXHM	D1	PT	900	2150	45	none	EXISTING	Note 1, 2

Notes:

1. Prepare existing door and frame to receive new paint
2. All existing door hardware to remain
3. Remove existing door pull, push plate and signage - salvage signage for reinstall
4. Existing hinges and door closer to remain

Abbreviations:

EXPS - Existing pressed steel
EXHM - Existing hollow metal
PT - Paint

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International, (ASTM).

- .1 ASTM C542-94(1999), Specification for Lock-Strip Gaskets.
- .2 ASTM D790-02, Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- .3 ASTM D2240-02b, Test Method for Rubber Property - Durometer Hardness.
- .4 ASTM E84-01, Test Method for Surface Burning Characteristics of Building Materials.
- .5 ASTM E330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- .6 ASTM F1233-98, Test Method for Security Glazing Materials and Systems.

.2 Canadian General Standards Board (CGSB).

- .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
- .2 CAN/CGSB-12.2-M91, Flat, Clear Sheet Glass.
- .3 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
- .4 CAN/CGSB-12.8-97, Insulating Glass Units.
- .5 CAN/CGSB-12.10-M76, Glass, Light and Heat Reflecting.
- .6 CAN/CGSB-12.11-M90, Wired Safety Glass.

.3 Canadian Standards Association (CSA International).

- .1 CSA A440.2-98, Energy Performance Evaluation of Windows and Sliding Glass Doors.
- .2 CSA Certification Program for Windows and Doors 2000.

.4 Environmental Choice Program (ECP).

- .1 CCD-045-95, Sealants and Caulking.

.5 Glass Association of North American (GANA)

- .1 GANA Glazing Manual - 2008.
- .2 GANA Laminated Glazing Reference Manual - 2009.

1.2 SYSTEM DESCRIPTION

.1 Performance Requirements:

- .1 Provide continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:

.1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.

.2 Size glass to withstand wind loads, dead loads and positive and negative live loads acting normal to plane of glass to a design pressure of 20 kPa as measured in accordance with ANSI/ASTM E330.

.3 Limit glass deflection to 1/200 flexural limit of glass with full recovery of glazing materials.

1.3 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Requirements.

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Requirements. Indicate VOC's:

.1 For glazing materials during application and curing.

.2 Shop Drawings:

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Requirements.

.3 Samples:

.1 Submit samples in accordance with Section 01 33 00 - Submittal Requirements.

.4 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.5 Closeout Submittals:

.1 Provide maintenance data including cleaning instructions for incorporation into manual specified in Section 01 77 00 - Contract Closeout Procedures.

1.4 SITE CONDITIONS

.1 Environmental Requirements:

.1 Install glazing when ambient temperature is 10 °C minimum. Maintain ventilated environment for 24 hours after application.

.2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

Part 2 Products

2.1 MATERIALS: FLAT GLASS

.1 Float glass: to CAN/CGSB-12.3, Glazing quality, 6 mm thick. Clear

.2 Safety glass: to CAN/CGSB-12.1, Transparent, 6 mm thick

.1 Type 1 – Tempered

.3 Silvered mirror glass: to CAN/CGSB-12.5, 5 mm thick.

.1 Type 1A – Float glass for normal use

.4 Wired glass: to CAN/CGSB-12.11, 6mm thick

.1 Type 1 – Polished both sides (transparent)

.2 Wire mesh styles: 1- diamond

.5 Low emissivity (LOW E) glass, 6 mm thick.

.1 Light transmittance: 73%

.2 Solar heat gain 0.48

.3 U-Value: winter .24 maximum

.4 Shading coefficient 0.56

2.2 MATERIALS: FLAT GLASS

.1 Float Glass: to CAN/CGSB-12.3, Glazing quality, 6mm thick.

.2 Safety glass to CAN/CGSB-12.1, transparent, 6mm thick.

.1 Type 2 – tempered

.2 Location: 114 Mail Room millwork

2.3 FABRICATED MIRRORS

.1 Type T: Silvered mirror glass, to CAN/CGSB 12.5-M86

2.4 ACCESSORIES

.1 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area.

.2 Spacer shims: Neoprene, 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

.3 Glazing tape:

.1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; black colour.

.4 Glazing splines: resilient polyvinyl chloride, extruded shape to suit glazing channel retaining slot.

.5 Glazing clips: manufacturer's standard type.

.6 Lock-strip gaskets: to ASTM C542.

.7 Mirror attachment accessories:

.1 Adhesive bed to substrate

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 EXAMINATION

.1 Verify that openings for glazing are correctly sized and within tolerance.

.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.3 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.

3.4 INSTALLATION: EXTERIOR - DRY METHOD (PREFORMED GLAZING)

.1 Perform work in accordance with FGMA Glazing Manual IGMAC for glazing installation methods.

.2 Cut glazing spline to length; install on glazing light. Seal corners by butting spline and sealing junctions with sealant.

.3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

.4 Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.

.5 Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.

.6 Trim protruding tape edge.

3.5 INSTALLATION: INTERIOR - DRY METHOD (TAPE AND TAPE)

.1 Perform work in accordance with FGMA Glazing Manual IGMAC for glazing installation methods.

.2 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.

.3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

.4 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.

.5 Place glazing tape on free perimeter of glazing in same manner described.

.6 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

.7 Knife trim protruding tape.

3.6 INSTALLATION: MIRRORS

.1 As detailed.

.2 Place plumb and level.

3.7 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Remove traces of primer, caulking.

.3 Remove glazing materials from finish surfaces.

.4 Remove labels after work is complete.

.5 Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacture's instructions.

.6 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.8 PROTECTION OF FINISHED WORK

.1 After installation, mark light with an "X" by using removable plastic tape or paste.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 06 40 00 - Architectural Woodwork

.2 Section 09 30 13 - Tiling

.3 Section 09 51 13 - Acoustical Panel Ceilings

1.2 DRAWING LEGENDS AND SCHEDULES

.1 Ceiling Type, Drawing A1.1.

.2 Floor Finish Legend, Drawing A1.1.

1.3 DESIGN AND PERFORMANCE CRITERIA

.1 The manufacturers, products, styles, colours, finishes, and other data listed in this Section are intended to convey the required Basis-of-Design colour-board intent, which is subject to Section 01 62 00 – Product Options and Substitutions.

.2 Basis-of-Design products are the minimum level of quality, physical properties, and performance criteria acceptable for this Contract.

.3 Proposed alternatives and substitutions shall match the general design intent as closely as possible in all respects.

1.4 FINISH KEYS

Floor and Wall Tile				
Type / Code	Manufacturer	Product	Colour	Finish
TILE1	Stone Tile	EC1 Size: 60cm x 60cm	City	Natural
TILE2	Stone Tile	EC1 Size: 10cm x 60cm	City	Semi-Polished
TILE3	Stone Tile	Smooth Size: 4"x23.5"	Ash	Matte

Quartz Surfacing				
Type / Code	Manufacturer	Product	Colour	Finish
QUARTZ	Cambria	Quartz	Weybourne	

Transitions				
Type / Code	Manufacturer	Product	Locations	Finish
ACC1	Schluter	Jolly trim		Brushed Stainless

Plastic Laminate				
Type / Code	Manufacturer	Product	Colour	Finish
PLAM	Wilsonart	Laminate	Wilsonart Phantom Ecru 8212K-28	Matte Finish

Paint				
Type / Code	Manufacturer	Product	Colour	Finish
PT1	TBD			
PT2	TBD			
PT3	TBD			

Acoustical Ceilings – refer to Section 09 51 13 and Section 09 84 36				
Code	Manufacturer	Product	Colour	Size
ACT1	Armstrong	Optima Lay In 3152	White	610 x 610 mm
ACT2	Armstrong	Optima Lay In 3153	White	610 x 1220 mm

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)

- .1 ASTM C36/C36M-01, Specification for Gypsum Wallboard.
- .2 ASTM C79/C79M-01, Standard Specification for Treated Core and Non-treated Core Gypsum Sheathing Board.
- .3 ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- .4 ASTM C514-01, Specification for Nails for the Application of Gypsum Board.
- .5 ASTM C557-99, Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
- .6 ASTM C840-01, Specification for Application and Finishing of Gypsum Board.
- .7 ASTM C954-00, Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
- .8 ASTM C1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- .9 ASTM C1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- .10 ASTM C1177 / C1177M - 08 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
- .11 ASTM C1280-99, Specification for Application of Gypsum Sheathing Board.

.2 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.

.3 Underwriters' Laboratories of Canada (ULC)

- .1 CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.

1.2 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.

.2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.

.3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

1.3 SITE ENVIRONMENTAL REQUIREMENTS

.1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.

.2 Apply board and joint treatment to dry, frost free surfaces.

.3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

Part 2 Products

2.1 MATERIALS

.1 Standard board: to ASTM C36/C36M regular, 12.7 mm thick, 15.9 mm thick; and Type X, 15.9 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges bevelled.

.2 Metal furring runners, hangers, tie wires, inserts, anchors: to suit application.

.3 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.

.4 Nails: to ASTM C514.

.5 Steel drill screws: to ASTM C1002.

.6 Stud adhesive: to CAN/CGSB-71.25 ASTM C557.

.7 Laminating compound: as recommended by manufacturer, asbestos-free.

.8 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, zinc-coated by electrolytic process, 0.5 mm base thickness, perforated flanges, one piece length per location.

.9 Sealants: in accordance with Section 07 92 10 - Joint Sealing.

.10 Acoustic sealant: per section 079200.

.11 Polyethylene: to CAN/CGSB-51.34, Type 2.

.12 Joint compound: to ASTM C475, asbestos-free.

Part 3 Execution

3.1 ERECTION

.1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.

.2 Do application of gypsum sheathing in accordance with ASTM C1280.

.3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.

.4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.5 Install work level to tolerance of 1:1200.

.6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.

.7 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.

.8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.

.9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

.10 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.

.11 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

.12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

.13 Erect drywall resilient furring transversely across studs joists between the layers of gypsum board, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with 38 mm common nail 25 mm drywall screw.

.14 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

3.2 APPLICATION

.1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.

.2 Apply single or layer gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.

.1 Single-Layer Application:

.1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.

.2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.

.3 Apply single layer gypsum board to concrete block surfaces, where indicated, using laminating adhesive.

.1 Comply with gypsum board manufacturer's recommendations.

.2 Brace or fasten gypsum board until fastening adhesive has set.

.3 Mechanically fasten gypsum board at top and bottom of each sheet.

.4 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.

.5 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.

.6 Install gypsum board on walls vertically to avoid end-butt joints.

.7 Install gypsum board with face side out.

.8 Do not install damaged or damp boards.

.9 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.3 INSTALLATION

.1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre using contact adhesive for full length.

.2 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

.3 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.

.4 Construct control joints of preformed units set in gypsum board facing and supported independently on both sides of joint.

.5 Provide continuous polyethylene dust barrier behind and across control joints.

.6 Locate control joints where indicated and at changes in substrate construction at approximate 10 m spacing on long corridor runs at approximate 15 m spacing on ceilings. Confirm all location with Consultant prior to construction.

.7 Install control joints straight and true.

.8 Install access doors to electrical and mechanical fixtures specified in respective sections.

.1 Rigidly secure frames to furring or framing systems.

.9 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

.10 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.

.11 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.

.12 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.13 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

.14 Mix joint compound slightly thinner than for joint taping.

.15 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.

.16 Allow skim coat to dry completely.

.17 Remove ridges by light sanding or wiping with damp cloth.

.18 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

.19 All walls (new and existing) that are to receive vinyl wall covering are to be prepared to a Level 5 finish. Skim coat existing walls that have existing foil wall covering and existing wall covering removed to prepare surface. Walls that have existing wall covering that are to be painted are to be prepared to a level 4 finish.

3.4 SCHEDULES

.1 Construct fire rated assemblies where indicated.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International, (ASTM).

.1 ASTM C645-00, Specification for Nonstructural Steel Framing Members.

.2 ASTM C754-00, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

.2 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-1.40-97, Primer, Structural Steel, Oil Alkyd Type.

Part 2 Products

2.1 MATERIALS

.1 Stud widths and heights as indicated, and to include factory pre-punched cutouts for services and channel bridging.

.2 Stud framing: non-loadbearing channel stud framing to CAN/CGSB 7.1M.

.3 Up to 3 m high partitions: stud framing for screw attachment of gypsum board, roll formed from 18 mils (0.46 mm / 25 gauge) thick cold formed steel, minimum Z180 hot dipped galvanized coating.

.4 Over 3 m high partitions: stud framing for screw attachment of gypsum board, roll formed from 33 mils (0.84 mm / 20 gauge) thick cold formed steel, minimum Z180 hot dipped galvanized coating.

.5 Floor and ceiling tracks: to ASTM C645, to be of same material as studs, with bent leg retainer notched to receive studs with provision for crimp locking to stud. Flange height for floors 32 mm; flange height for ceilings 50 mm.

.6 Metal channel stiffener: size as required, 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.

.7 Acoustical sealant: to section 07 92 00.

Part 3 Execution

3.1 ERECTION

.1 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.

.2 Install damp proof course under stud shoe tracks of partitions on slabs on grade.

.3 Place studs vertically at on centre spacing as indicated and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor

and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

.4 Erect metal studding to tolerance of 1:1000.

.5 Attach studs to bottom and ceiling track using screws.

.6 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.7 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.

.8 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together using column clips or other approved means of fastening placed alongside frame anchor clips.

.9 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.

.10 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

.11 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.

.12 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.13 Extend partitions to ceiling height except where noted otherwise on drawings.

.14 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use double track slip joint.

.15 Install continuous insulating strips to isolate studs from uninsulated surfaces.

.16 Install two continuous beads of acoustical sealant insulating strip under studs and tracks around perimeter of sound control partitions.

3.2 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 Metal suspension for the support of gypsum drywall in ceiling for interior finishes

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM International)

.1 ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

.2 ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

.3 ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability"

.4 ASTM D 610 Standard Test Method for Evaluating Degree of Rusting on Painted Steel Surfaces

.5 ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

.6 ASTM C 645 Standard Specification for Nonstructural Steel Framing Members

.7 ASTM C 754 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board

.8 ASTM C1002 Standard Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.

.2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.

.3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

1.4 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Requirements.

.2 Samples: Submit samples and data page of Drywall Suspension systems components, including main runner, cross tees and angle molding.

.3 Manufacturer's Data: Submit technical data and drawings illustrating the details of the system and the manufacturer's recommended installation instructions.

Part 2 Products

2.1 DRYWALL GRID SYTEMS

.1 Acceptable Manufacturers: Armstrong World Industries, Inc. or approved equal.

.2 Components:

.1 Main Beam: Shall be double-web construction (minimum 0.45mm prior to protective coating, ASTM C645), hot dipped galvanized (per ASTM A653).

.1 43mm web height with pre-cut facets (203mm from ends, then 406mm on center) for radius installations,

.2 38mm flange.

.3 3657mm Length

.2 Primary Cross Tees: Shall be double-web construction (minimum 0.45mm prior to protective coating, ASTM C645), hot dipped galvanized (per ASTM A653).

.1 38mm profile height with rectangular bulb and pre-finished 38mm knurled flange

.2 Length to be determined by manufacture

.3 Wall Molding and Transition Moldings and radius clips by manufacturer

.3 Accessories: wallboard screws, splices, clips, wire ties, retainers and wall moulding flush, to complement suspension system components, as recommended by system manufacturer.

.4 Screws for wallboard application shall be bugle head screws in accordance with thickness of material used.

Part 3 Execution

3.1 INSTALLATION - GENERAL

.1 Install suspension system in accordance with the manufacturer's technical guides, Hanging and Framing Flat Ceilings CS3539, and 6' DGS tees CS3776, and in compliance with ASTM installation standard, and with applicable codes as required by the authorities having jurisdiction.

.2 To secure to metal clips, concrete inserts, steel bar joist or steel deck, use power actuated fastener, or insert. Coordinate placement for hanger wire spaced as required for expected ceiling loads and layout.

.3 Install hanger wire as required with necessary on center spacing to support expected ceiling load requirements, following local practices, codes and regulations. Provide additional wires at light fixtures, grilles, and access doors where necessary. A pigtail knot shall be used with three tight wraps at top and bottom fastening locations.

.4 Add additional wire as needed when using compatible clips and accessories.

.5 Control Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction as shown on drawings.

.6 Expansion Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction as shown on drawings.

.7 Main beams shall be suspended from the overhead construction with hanger wire, spaced as required for expected ceiling loads, along the length of the main beams.

.8 Install cross tees at on center spacing as specified by the drywall manufacturer. Typical drywall cross tee spacing:

.1 400mm (16") on center with 12.7 mm gypsum board

.9 Other items such as wood, sheet metal, or plastic panels should be screwed to comply with deflection limit equivalent to that of the ceiling installation.

.10 Use channel molding or angle molding to interface with Drywall Grid System to provide perimeter attachment or to obtain drop soffits, verticals, slopes, etc.

.11 To suspend a second ceiling beneath a new or existing drywall ceiling, without breaching the integrity of the upper ceiling, use the Drywall Clip. To form a transition from a drywall ceiling to an acoustical ceiling, use the Drywall Transition Clips spaced as required for expected loads.

.12 For light fixtures use secondary framing cross tees as required to frame opening.

.13 Single cross tees in a route hole to be secured by 11mm framing screw or alternative methods.

.14 When point loading (vertical), and with additional hanger at midspan of cross tee, as needed.

3.2 INSTALLATION - INTERIOR APPLICATIONS

.1 Install main beams and cross tees at the on center spacing required for ceiling loading, and location of in-ceiling services

.2 Additional bracing as required by code.

3.3 STRUCTURAL CLASSIFICATION

.1 Main Beam shall be heavy duty per ASTM C 635.

.2 Classification can require wires to be closer together for additional loading when used to support double layer gypsum, verticals, slopes, domes, half barrels, circles, soffits, canopies, and step conditions which call for loading or unusual designs and shapes in drywall construction. Using cross tees in the construction of circles, barrels, etc. is common in order to hold the radius.

.3 Deflection of fastening suspension system supporting light fixtures, ceiling grilles, access doors, verticals and horizontal loads shall have a maximum deflection of 1/360 of the span.

3.4 CLEANING

.1 Touch up scratches, abrasions, voids and other defects in painted surfaces.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)

.1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).

.2 CTI A118.3-92, Specification for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive (included in ANSI A108.1).

.3 CTI A118.4-92, Specification for Latex Portland Cement Mortar (included in ANSI A108.1).

.4 CTI A118.5-92, Specification for Chemical Resistant Furan Resin Mortars and Grouts for Tile Installation (included in ANSI A108.1).

.5 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).

.2 American Society for Testing and Materials (ASTM International) International

.1 ASTM C144-99, Specification for Aggregate for Masonry Mortar.

.2 ASTM C 207-91(1997), Specification for Hydrated Lime for Masonry Purposes.

.3 ASTM C847-95(2000), Specification for Metal Lath.

.4 ASTM C979-99, Specification for Pigments for Integrally Coloured Concrete.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 CGSB 71-GP-22M-78, Adhesive, Organic, for Installation of Ceramic Wall Tile.

.3 CAN/CGSB-75.1-M88, Tile, Ceramic.

.4 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.4 Canadian Standards Association (CSA International)

.1 CAN/CSA-A3000-98, Cementitious Materials Compendium (Consists of A5-98, A8-98, A23.5-98, A362-98, A363-98, A456.1-98, A456.2-98, A456.3-98).

.2 CSA A123.3-98, Asphalt Saturated Organic Roofing Felt.

.5 Terrazzo Tile and Marble Association of Canada (TTMAC)

.1 Tile Specification Guide 09300 2000, Tile Installation Manual.

.2 Tile Maintenance Guide 2000.

1.2 PRODUCT DATA

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Include manufacturer's information on:

.1 Ceramic tile, marked to show each type, size, and shape required.

.2 Obtain caliber information to ensure Gloss and Matte finishes are compatible. Contractor to advise supplier of pattern to ensure calibration compatibility. Refer to Interior Elevations for tile pattern.

.3 Chemical resistant mortar and grout (Epoxy and Furan).

.4 Cementitious backer unit.

.5 Dry-set Portland cement mortar and grout.

.6 Divider strip.

.7 Elastomeric membrane and bond coat.

.8 Reinforcing tape.

.9 Leveling compound.

.10 Latex-Portland cement mortar and grout.

.11 Commercial Portland cement grout.

.12 Organic adhesive.

.13 Slip resistant tile.

.14 Waterproofing isolation membrane.

.15 Fasteners.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials in containers with labels legible and intact and grade-seals unbroken.

.2 Store material so as to prevent damage or contamination.

.3 Store materials in a dry area, protected from freezing, staining and damage.

.4 Store cementitious materials on a dry surface.

1.4 ENVIRONMENTAL CONDITIONS

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 °C for 48 h before, during, and 48 h after, installation.

.2 Do not install tiles at temperatures less than 12 °C or above 38 °C.

.3 Do not apply epoxy mortar and grouts at temperatures below 15 °C or above 25 °C.

1.5 EXTRA MATERIAL

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.

.3 Maintenance material to be of same production run as installed material.

Part 2 Products

2.1 FLOOR / WALL TILE

.1 Ceramic tile: to CAN/CGSB-75.1, and as listed on drawings.

2.2 MORTAR AND ADHESIVE MATERIALS

.1 Portland cement: to CSA-A5, type 10.

.2 Sand: to ASTM C144, passing 16 mesh.

.3 Latex additive: formulated for use in cement mortar and thin set bond coat.

.4 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.

2.3 BOND COAT

.1 Custom Building Products – Flexbond Fortified Thin set Mortar

2.4 GROUT

.1 Colouring Pigments:

- .1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C979.
- .2 Colouring pigments to be added to grout by manufacturer.
- .3 Job coloured grout are not acceptable.
- .4 Use in Commercial Portland Cement Grout, Dry-Set Grout, and Latex-Portland Cement Grout.

.2 Commercial Cement Grout: to CTI A118.6.

- .1 As listed on Drawings.

.3 Non-Sanded Latex-Portland Cement Grout: to ANSI A108.1, fast curing, high early strength, polymer-modified, stain resistant, sanded mix for floors, unsanded mix for walls and floors with polished tiles commercial tile grout.

- .1 As listed on Drawings.

2.5 ACCESSORIES

.1 Transition Strips: purpose made metal extrusion; anodized aluminum type as noted on Finish Key.

.2 Sealant: in accordance with Section 07 92 00 - Joint Sealing.

.3 Sealer and protective coating: to tile and grout manufacturer's recommendations.

2.6 MIXES

.1 Organic adhesive: pre-mixed.

.2 Mix bond and levelling coats, and grout to manufacturer's instructions.

.3 Adjust water volumes to suit water content of sand.

2.7 CLEANING COMPOUNDS

.1 Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.

.2 Materials containing acid or caustic material are not acceptable.

Part 3 Execution

3.1 WORKMANSHIP

.1 Do tile work in accordance with TTMAC Tile Installation Manual 2000, "Ceramic Tile", except where specified otherwise.

.2 Apply tile to clean and sound surfaces.

.3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.

.4 Maximum surface tolerance 1:800.

.5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.

.6 Lay out tiles so perimeter tiles are minimum 100mm wide. Refer to Interior Elevations.

.7 Sound tiles after setting and replace hollow-sounding units to obtain full bond.

.8 Install divider strips at junction of tile flooring and dissimilar materials.

.9 Allow minimum 24 h after installation of tiles, before grouting.

.10 Clean installed tile surfaces after installation and grouting cured.

3.2 FLOOR SEALER AND PROTECTIVE COATING

.1 Apply in accordance with manufacturer's instructions.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 Materials and application of acoustical units for direct application or for application and installation within a suspended ceiling.

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM C423-02a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

.2 ASTM E1264-98, Standard Classification for Acoustical Ceiling Products.

.3 ASTM E1477-98a(2003), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction and Amendment No. 1 1988.

.2 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.

.3 Canadian Standards Association (CSA International)

.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.4 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.

.2 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

.5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.6 Underwriter's Laboratories of Canada (ULC)

.1 CAN/ULC-S102-2003, Surface Burning Characteristics of Building Materials and Assemblies.

1.3 SUBMITTALS

.1 Submit samples in accordance with Section 01 33 00 - Submittal Requirements.

.2 Submit duplicate full size samples of each type acoustical units.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Protect on site stored or installed absorptive material from moisture damage.

.2 Store extra materials required for maintenance, where directed by Consultant.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Permit wet work to dry before beginning to install.

.2 Maintain uniform minimum temperature of 15 °C and humidity of 20 - 40% before and during installation.

.3 Store materials in work area 48 hours prior to installation.

1.6 EXTRA MATERIALS

.1 Provide extra materials of acoustic units in accordance with Section 01 77 00 Contract Closeout Procedures.

.2 Provide acoustical units amounting to 10 square metres for each pattern and type required for project.

.3 Ensure extra materials are from same production run as installed materials.

.4 Clearly identify each type of acoustic unit, including colour and texture.

.5 Deliver to Consultant, upon completion of the work of this section.

Part 2 Products

2.1 MATERIALS

.1 See Article 3.4 (schedule) this section 095113, for product selection, colour and pattern information.

.2 Acoustic units for suspended ceiling system: to CAN/CGSB-92.1 / ASTM E1264

.3 Adhesive: low VOC type recommended by acoustic unit manufacturer.

.4 Staples, nails and screws: to CSA B111 non-corrosive finish as recommended by acoustic unit manufacturer.

.5 Hold down clips: purpose made clips to secure tile to suspension system, approved for use in fire-rated systems.

Part 3 Execution

3.1 EXAMINATION

.1 Do not install acoustical panels and tiles until work above ceiling has been inspected by Consultant.

3.2 INSTALLATION

.1 Install acoustical panels and tiles in ceiling suspension system.

.2 Install hold-down clips on suspended ceilings in vestibules.

3.3 INTERFACE WITH OTHER WORK

.1 Co-ordinate with Section 09 22 27 - Acoustical Suspension.

.2 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

3.4 SCHEDULE

.1 Refer to Finish Key for ACT1 and ACT2:

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act (CEPA), 1999, c. 33

.2 Environmental Protection Agency (EPA)

.1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 - 1995, (for Surface Coatings).

.3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.4 Master Painters Institute (MPI)

.1 MPI Architectural Painting Specifications Manual, 2004.

.5 National Fire Code of Canada - 1995

.6 Society for Protective Coatings (SSPC)

.1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

.7 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

1.2 QUALITY ASSURANCE

.1 Qualifications:

.1 Contractor: minimum of five years proven satisfactory experience. Provide list of last three comparable jobs including, job name and location, specifying authority, and project manager.

.2 Journeymen: qualified journeymen who have "Tradesman Qualification Certificate of Proficiency" engaged in painting work.

.3 Apprentices: working under direct supervision of qualified tradesperson in accordance with trade regulations.

1.3 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Requirements.

.2 Product Data:

.1 Submit product data and instructions for each paint and coating product to be used.

.2 Submit product data for the use and application of paint thinner.

.3 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOCs during application and curing.

.3 Samples:

.1 Submit full range colour sample chips to indicate where colour availability is restricted.

.2 Submit duplicate 200 x 300 mm sample panels of each paint, stain and special finish with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on following substrate materials:

.1 3 mm plate steel for finishes over metal surfaces.

.2 13 mm white birch plywood for finishes over wood surfaces.

.3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.

.4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.

.3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.

.4 Test reports: submit certified test reports for paint from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.

.1 Lead, cadmium and chromium: presence of and amounts.

.2 Mercury: presence of and amounts.

.3 Organochlorines and PCBs: presence of and amounts.

.5 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.6 Manufacturer's Instructions:

.1 Submit manufacturer's installation and application instructions.

.7 Closeout Submittals: submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals include following:

.1 Product name, type and use.

.2 Manufacturer's product number.

.3 Colour numbers.

.4 MPI Environmentally Friendly classification system rating.

1.4 MAINTENANCE

.1 Extra Materials:

.1 Deliver to extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Section 01 77 00 - Contract Closeout Procedures.

.2 Quantity: provide one (1) - four litre can of each type and colour of primer stain finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

.1 Pack, ship, handle and unload materials in accordance with Section 01 60 00 - Product Requirements and manufacturer's written instructions.

.2 Acceptance at Site:

.1 Identify products and materials with labels indicating:

.1 Manufacturer's name and address.

.2 Type of paint or coating.

.3 Compliance with applicable standard.

.4 Colour number in accordance with established colour schedule.

.3 Remove damaged, opened and rejected materials from site.

.4 Storage and Protection:

.1 Provide and maintain dry, temperature controlled, secure storage.

.2 Store materials and supplies away from heat generating devices.

.3 Store materials and equipment in well ventilated area with temperature range 7 °C to 30 °C.

.5 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.6 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.

.7 Remove paint materials from storage only in quantities required for same day use.

.8 Fire Safety Requirements:

.1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.

.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.

1.6 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:

.1 Provide heating facilities to maintain ambient air and substrate temperatures above 10 °C for 24 hours before, during and after paint application until paint has cured sufficiently.

.2 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.

.3 Provide minimum lighting level of 323 Lux on surfaces to be painted.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless pre-approved written approval by product manufacturer, perform no painting when:

.1 Ambient air and substrate temperatures are below 10 °C.

.2 Substrate temperature is above 32 °C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.

.4 The relative humidity is under 85% or when the dew point is more than 3 °C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 °C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.

.5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.

.6 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.

.2 Perform painting work when maximum moisture content of the substrate is below:

.1 Allow new concrete and masonry to cure minimum of 28 days.

.2 15 % for wood.

.3 12% for plaster and gypsum board.

.3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".

.4 Test concrete, masonry and plaster surfaces for alkalinity as required.

.3 Surface and Environmental Conditions:

.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.

.3 Apply paint when previous coat of paint is dry or adequately cured.

.4 Additional interior application requirements:

.1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

Part 2 Products

2.1 MATERIALS

.1 Paint materials listed in the MPI Green Approved Products List and meeting the VOC limitations of LEED Canada are acceptable for use on this project.

.2 Provide paint materials for paint systems from single manufacturer.

.3 Conform to latest MPI requirements for interior painting work including preparation and priming.

.4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.

.5 Linseed oil, shellac, and turpentine: highest quality product from approved manufacturer listed in MPI Architectural Painting Specification Manual, compatible with other coating materials as required.

.6 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids:

- .1 Water-based Water soluble Water clean-up.
- .2 non-flammable biodegradable.
- .3 Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
- .4 Manufactured without compounds which contribute to smog in the lower atmosphere.
- .5 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.

.7 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.

.8 Flash point: 61.0 °C or greater for water-borne surface coatings and recycled water-borne surface coatings.

.9 Ensure manufacture and process of both water-borne surface coatings and recycled water-borne surface coatings does not release:

- .1 Matter in undiluted production plant effluent generating 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.
- .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to natural watercourse or a sewage treatment facility lacking secondary treatment.

.10 Water-borne paints and stains, recycled water-borne surface coatings and water borne varnishes to meet minimum "Environmentally Friendly" E2 rating.

.11 Recycled water-borne surface coatings to contain 50 % post-consumer material by volume.

.12 Recycled water-borne surface coatings must not contain:

- .1 Lead in excess of 600.0 ppm weight/weight total solids.
- .2 Mercury in excess of 50.0 ppm weight/weight total product.
- .3 Cadmium in excess of 1.0 ppm weight/weight total product.
- .4 Hexavelant chromium in excess of 3.0 ppm weight/weight total product.

.5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.

2.2 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site.

.2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

.3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.

.4 Thin paint for spraying according in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Consultant.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.3 GLOSS/SHEEN RATINGS

.1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - Velvet-Like Finish	Max.10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like Finish	20 to 35	min. 35
Gloss Level 5 - Traditional Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	

.2 Gloss level ratings of painted surfaces as indicated and as noted on Finish Schedule.

2.4 INTERIOR PAINTING SYSTEMS

.1 All products listed are 'or approved equivalent'.

.2 Concrete Masonry Units: smooth and split face block and brick

.1 Primer / Sealer - Latex Block Filler

.2 Finish coats - High Performance Architectural Latex – Gloss Level 5 with less than 150 g/L of Volatile Organic Compounds

.3 Structural Steel and Metal Fabrications: columns, beams, joists, etc.

.1 Primer / Sealer – Latex Institutional Interior - Less than 100 g/L of Volatile Organic Compounds

.2 Finish coats - High Performance Architectural Latex – Gloss Level 3 with less than 150 g/L of Volatile Organic Compounds. Any Primed Ferrous Steel to have gloss 5 finish.

.4 Galvanized Metal: doors, frames, railings, misc. steel, pipes, overhead decking, ducts, etc.

.1 Primer / Sealer – Latex Institutional Latex - Less than 100 g/L of Volatile Organic Compounds

.2 Finish coats - High Performance Architectural Latex – Gloss Level 3 with less than 150 g/L of Volatile Organic Compounds. Any Primed Ferrous Steel to have gloss 5 finish.

.5 Painted wood doors and trim

.1 Primer / Sealer – Latex Institutional Interior - Less than 100 g/L of Volatile Organic Compounds

.2 Finish coats – High Performance Architectural Latex – Gloss Level 3 with less than 150 g/L of Volatile Organic Compounds

.6 Concrete/Masonry Sealers

.1 Less than 100 g/L of Volatile Organic Compounds

.7 Plaster and Gypsum Board: gypsum wallboard, drywall, "sheet rock type material", etc., and textured finishes

.1 Primer / Sealer – Latex Institutional Interior - Less than 100 g/L of Volatile Organic Compounds

.2 Finish coats – High Performance Architectural Latex – Gloss Level 3 with less than 150 g/L of Volatile Organic Compounds

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 GENERAL

.1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Consultant damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

.2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:

.1 Stucco, plaster and gypsum board: 12 %.

.2 Concrete: 12%.

.3 Clay and Concrete Block/Brick: 12%.

.4 Wood: 15%.

3.4 PREPARATION

.1 Protection:

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Consultant.

.2 Protect items that are permanently attached such as Fire Labels on doors and frames.

.3 Protect factory finished products and equipment.

.4 Protect passing pedestrians, and general public in and about the building.

.2 Surface Preparation:

.1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.

.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.

.2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.

.3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.

.4 Allow surfaces to drain completely and allow to dry thoroughly.

.5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.

.6 Use trigger operated spray nozzles for water hoses.

.7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.

.4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

.5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

.6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.7 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes blowing with clean dry compressed air or vacuum cleaning.

.8 Touch up of shop primers with primer as specified.

3.5 APPLICATION

.1 Brush and Roller Application:

.1 Apply paint in uniform layer using brush and/or roller type suitable for application.

.2 Work paint into cracks, crevices and corners.

.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.

.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.

.5 Remove runs, sags and brush marks from finished work and repaint.

.2 Spray application:

.1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.

.2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.

.3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.

.4 Brush out immediately all runs and sags.

.5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.

.3 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.

.4 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.6 Sand and dust between coats to remove visible defects.

.7 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.8 Finish inside of cupboards and cabinets as specified for outside surfaces.

.9 Finish closets and alcoves as specified for adjoining rooms.

.10 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 MECHANICAL/ELECTRICAL EQUIPMENT

.1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.

.2 Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.

.3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

.4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.

.5 Do not paint over nameplates.

.6 Keep sprinkler heads free of paint.

.7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

.8 Paint fire protection piping red.

.9 Paint disconnect switches for fire alarm system and exit light systems in red enamel.

.10 Paint natural gas piping yellow.

.11 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

.12 Do not paint interior transformers and substation equipment.

3.7 SITE TOLERANCES

.1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.

.2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.8 FIELD QUALITY CONTROL

.1 Standard of Acceptance:

.1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.

.2 Ceilings: no defects visible from floor at 45 degrees degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

.2 Advise Consultant when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.3 Cooperate with inspection firm and provide access to areas of work.

.4 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Consultant.

3.9 RESTORATION

.1 Clean and re-install hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Consultant. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Consultant.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CAN/CSA B651-95, Barrier-Free Design

1.2 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with requirements of Contract Documents.

.2 Shop Drawings:

.1 Submit shop drawings in accordance with requirements of Contract Documents.

.2 Indicate fabrication details, plans, elevations, hardware, and installation details, including steel thicknesses / gauges.

.3 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.4 Delivery, Storage and Handling

.1 Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

.2 Handling: Handle materials to avoid damage.

Part 2 Products

2.1 ACCEPTABLE PRODUCTS

.1 Subject to compliance with the specifications, the following Laminate Toilet Partitions are acceptable:

.1 Bobrick Designer Series – Standard Floor Mount or approved alternate

.2 Basis of Design: Bobrick Designer Series

.3 Colour: As noted on 09 05 00 Finish Key

2.2 MATERIALS

.1 Finished Thickness: 1 inch (25 mm) for stiles, doors, screens and panels.

.2 Materials: 3-ply, stiles, panels, doors, and screens.

.1 Cores: 45 lb (20.4 kg) density, industrial grade, resin-impregnated, particle board.

.2 Surfaces: High-pressure laminated plastic NEMA LDS-1985 minimum thickness 0.050 inch (1.33 mm) with matte finish.

.3 Fabrication: Bonded high-pressure plastic laminate to core material with adhesive

specially formulated to prevent delamination. Edges bonded prior to bonding face sheets. Splices or joints in faces or edges are not acceptable except in the case of laminate material limitations. Color: as indicated on Drawings

.3 Fire Resistance:
.1 National Fire Protection Association/International Building Code Interior Wall and Ceiling Finish: Class B / Uniform Building Code: Class II.
.1 Flame Spread Index (ASTM E 84): 60 for panels and stiles.
.2 Smoke Developed Index (ASTM E 84): 265 for panels and stiles.

.4 Stiles: Floor-anchored stiles furnished with expansion shields and threaded rods.
.1 Leveling Devices: 3/8 inch x 7/8 inch (10 mm x 22 mm) steel bar welded to 11 gauge (3 mm) steel-reinforcing core; chromate-treated and double zinc-plated; welded to sheet-steel core of stiles.
.2 Stile Shoes: One-piece, 22 gauge (0.8 mm), 18-8, Type 304 stainless steel, 4 inch (102 mm) height; tops with 90 degree return to stile. One-piece shoe capable of adapting to 3/4 inch (19 mm) or 1 inch (25 mm) stile thickness and capable of being fastened (by clip) to stiles starting at wall line.

.5 Anchors: Expansion shields and threaded rods at floor connections as applicable. Threaded rods secured to supports above ceiling as applicable.

.6 Hardware:
.1 Compliance: Operating force of less than 5 lb (2.25 kg).
.2 Emergency Access: Hinges, latch allow door to be lifted over keeper from outside compartment on inswing doors.
.3 Materials: Stainless Steel 18-8, Type 304, heavy-gauge stainless steel with satin finish.
.4 Fastening: Hardware secured to door and stile by theft-resistant, pin-in-head Torx stainless steel machine screws into factory-installed, threaded inserts.
.5 Door Hardware:
.1 Standard, commercial hardware:
.1 Full length privacy brackets
.2 Latching: Track of door latch prevents inswing doors from swinging out beyond stile; on outswing doors, door keeper prevents door from swinging in beyond stile; 14 gauge (2.3 mm) sliding door latch, 11 gauge (2.3 mm keeper).
.3 Hinges: Balanced, with hinge filler and field-adjustable cam to permit door to be fully closed or partially open when compartment is unoccupied. Hinge fillers
.4 Locking: Door locked from inside by sliding door latch into keeper.
.5 Full length Doorstops for outswing doors to prevent door from swinging in beyond stile.

.8 Fittings: Standard, commercial hardware.
.1 Mounting Brackets: Mounted inside compartment; exposed brackets on exterior of compartment not acceptable with the exception of outswing doors.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATION - GENERAL

.1 Do work in accordance with CAN/CSA B651.

3.3 PARTITION INSTALLATION

.1 Examine surfaces to receive the work and proceed only if conditions are satisfactory.

.2 Install partitions secure, plumb and square.

.3 Leave ½" (12.7 mm) between wall and panel or end pilaster.

.4 Fix pilaster shoes in positions to mask pilaster fasteners.

.5 Install and adjust doors for correct setting and operation.

3.4 ADJUSTING

.1 Adjust doors and locks for optimum, smooth operating condition.

.2 Lubricate hardware and other moving parts.

3.5 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean surfaces after installation using manufacturer's recommended cleaning procedures.

.3 Clean aluminum with damp rag and approved non-abrasive cleaner.

.4 Clean and polish hardware and stainless components.

.5 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.6 SCHEDULE

.1 Supply and install as indicated on drawings.

END OF SECTION

Part 1 General

1.1 DRAWING SCHEDULE

.1 Refer to Drawings for Washroom Accessories Schedule

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM A167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.2 ASTM A653/A653M-13, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.3 ASTM A924/A924M-13, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

.2 Canadian Standards Association (CSA)

.1 CSA B651-95, Accessible Design for the Built Environment.

.2 CAN/CSA G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.

1.3 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures:

.1 Submit manufacturer's printed product literature, specifications and datasheet.

.2 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures:

.1 Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

.3 Submit closeout data in accordance with Section 01 78 00 – Closeout Submittals:

.1 Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

.2 Include list of sources for disposable supplies, replacement parts and service recommendations.

1.4 EXTRA MATERIALS

.1 Provide special tools required for accessing, assembly/disassembly or removal for toilet and bath accessories in accordance with requirements specified in Section 01 78 00 - Closeout Submittals.

.2 Deliver special tools to Owner.

Part 2 Products

2.1 MATERIALS

.1 Sheet steel: to ASTM A653/A653M cold rolled, commercial quality, 0.912 mm minimum nominal thickness, with ZF001 designation zinc coating.

.2 Stainless steel sheet metal: to ASTM A666, Type 304, finish as indicated in component list in 1.519 mm minimum nominal thickness.

.3 Stainless steel tubing: Type 304, commercial grade, seamless welded, 1.2 mm wall thickness.

.4 Fasteners: concealed screws and bolts hot dip galvanized after fabrication, tamper and theft resistant exposed fasteners to match material of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use.

2.2 COMPONENTS

.1 WA1: Toilet tissue dispenser – surface mounted

.1 Install Owner Supplied units

.2 WA2: Soap dispenser – surface mounted

.1 Install Owner Supplied units

.3 WA3a and WA3b: Mirrors – sizes and details as noted on Drawings

.1 Refer to 08 80 50 – Glazing and detail on drawings.

.4 WA4: Single coat hook, mounted on inside face of toilet partitions

.1 B-76727, Bobrick or approved equal

.5 WA5: laminate washroom partitions: refer to specification and Drawings for locations.

.6 WA6: Sanitary napkin disposal, surface mounted.

.1 B-270, Bobrick or approved equal

.7 WA7: "L" shaped grab bar size: 760mm X 760mm x 38 dia x 1.2mm thick stainless steel with satin finish, concealed mounting flanges, screw attachment, flanges welded to tubular bar, provided with steel back plates and all accessories. Knurl bar at area of hand grips. Grab bar material and anchorage to withstand downward pull of 2.2kN.

.1 B-5898, Bobrick or approved equal.

.8 WA8: straight grab bar size: 610mm length x 38 dia x 1.2mm thick stainless steel with satin finish, concealed mounting flanges, screw attachment, flanges welded to tubular bar, provided with steel back plates and all accessories. Knurl bar at area of hand grips. Grab bar material and anchorage to withstand downward pull of 2.2kN.

.1 Bobrick B-6806 x 24

2.3 FABRICATION

.1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.

.2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.

.3 Brake form sheet metal work with 1.5 mm radius bends.

.4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.

.5 Back paint components where contact is made with building finishes to prevent electrolysis.

.6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CSA G164.

.7 Shop assemble components and package complete with anchors and fittings.

.8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.

.9 Provide steel anchor plates and components for installation on studding and building framing.

2.4 FINISHES

.1 Chrome and nickel plating: to ASTM B456, satin finish.

.2 Baked enamel: condition metal by applying one coat of metal conditioner to CGSB 31-GP-107Ma, apply one coat Type 2 primer to CAN/CGSB-1.81 and bake, apply two coats Type 2 enamel to CAN/CGSB-1.88 and bake to hard, durable finish. Sand between final coats. Colour selected from standard range by Consultant.

.3 Manufacturer's or brand names on face of units not acceptable.

Part 3 Execution

3.1 INSTALLATION

.1 Install and secure accessories rigidly in place as follows:

.1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.

.2 Hollow masonry units or existing plaster/drywall: use toggle bolts drilled into cell/wall cavity.

.3 Solid masonry, marble, stone, or concrete: use bolt with lead expansion sleeve set into drilled hole.

.4 Toilet/shower compartments: use male/female through bolts.

.2 Install grab bars on built-in anchors provided by bar manufacturer.

.3 Use tamper proof screws/bolts for fasteners.

.4 Fill units with necessary supplies shortly before final acceptance of building.

.5 Install mirrors in accordance with Section 08 80 50 - Glazing.

3.2 SCHEDULE

.1 Locate accessories where indicated, and to CSA B651. Exact locations determined by Consultant.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 05 50 00 – Metal Fabrications

.2 Section 06 10 00 – Rough Carpentry

1.2 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01300 – Submittals.

.1 Indicate location, type, size, panel arrangement, backing, hardware, anchor or mounting details, frame or trim and accessories.

1.3 CLOSEOUT SUBMITTALS

.1 Provide operation and maintenance data for incorporation into manual specified in Section 01700 – Contract Completion.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Collect and separate waste for reuse, recycling, and other waste diversion strategies in accordance with Waste Management Plan.

Part 2 Products

2.1 MANUFACTURED MISCELLANEOUS SPECIALTIES

.1 Corner Guards

.1 Polished Stainless steel, 1220 x 50 x 50, adhered to wall.
.2 Quantity: 6 per floor as noted on A1.1

Part 3 Execution

3.1 INSTALLATION

.1 Install miscellaneous specialities in accordance with the manufacturer's printed installation instructions, data sheets, and standard details.

.2 Install securely to structure, plumb, true, level, and in alignment.

3.2 PROTECTION

.1 Protect installed work from construction damage, personnel traffic and other damage as required.

3.3 CLEANING

.1 Clean surfaces after installation using manufacturer's recommended cleaning procedures.

.2 Upon completion of the work, remove surplus materials, rubbish and debris resulting from the installation. Leave areas in neat clean and orderly condition.

END OF SECTION

Part 1 General

1.1 INTENT

.1 Work of this Section includes manually operated sunscreen roller shades at locations as indicated on Drawings and Roller Shade Schedule.

.2 Manual operation: typical

1.2 RELATED SECTIONS

.1 Section 06 10 00 – Rough Carpentry

.2 Section 09 21 16 – Gypsum Board Assemblies

1.3 DRAWING SCHEDULE

.1 Roller Window Shade Schedule (following this section)

1.4 REFERENCES

.1 American Architectural Manufacturer's Association (AAMA)

.1 AAMA 611-12, Voluntary Specification for Architectural Anodized Aluminum.

.2 American Society for Testing and Materials (ASTM)

.1 ASTM D1784-11, Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.

.2 ASTM G21-09, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

.3 Canada Green Building Council (CaGBC)

.1 LEED Canada 2009 Rating System, LEED Canada for New Construction and Major Renovations.

.4 National Fire Protection Agency (NFPA)

.1 NFPA 70, National Electrical Code 2011 Edition.

.2 NFPA 701 (2010 Edition), Fire Tests for Flame-Resistant Textiles and Films.

.5 Underwriters Laboratories Canada (ULC):

.1 CAN/ULC S109-03 Flame Tests of Flame Resistant Fabrics and Films

1.5 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures.

.1 Submit information for each type of product indicated including, but not limited to, the following:

.1 Styles, material descriptions, construction details, dimensions of individual components and profiles, features, and finishes.

.2 Manual shade operator operating instructions.

.3 Manual shade motor data, ratings, characteristics, and mounting arrangements.

.4 Operating instructions.

.2 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.

.1 Indicate dimensions in relation to window jambs, operator details, head and sill anchorage details, hardware and accessories details.

.3 Submit samples in accordance with Section 01 33 00 – Submittal Procedures.

.1 Submit one representative working sample of each type of shading device.

.2 After approval, samples will be returned for incorporation into the Work.

.4 Submit closeout data in accordance with Section 01 78 00 – Closeout Submittals:

.1 Methods for maintaining roller shades and finishes.

.2 Precautions about cleaning materials and methods that could be detrimental to fabrics, finishes, and performance.

.3 Operating hardware.

1.6 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Obtain roller shades through one source from a single manufacturer with a minimum of twenty years' experience in manufacturing products comparable to those specified in this section.

.2 Installer Qualifications: Installer trained and certified by the manufacturer with a minimum of ten years' experience in installing products comparable to those specified in this section.

.3 Regulatory Requirements:

.1 Flame Spread Rating: Provide panel materials with flame spread and smoke developed characteristics required by Authorities Having Jurisdiction as determined by testing identical products in accordance with CAN/ULC S109.

.2 Anti-Microbial Characteristics: 'No Growth' per ASTM G21 results for fungi ATCC9642, ATCC 9644, ATCC9645.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Deliver material to site in manufacturer standard packaging. Store and handle as recommended by manufacturer.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21– Waste Management and Disposal, and the Waste Reduction Workplan.

1.9 WARRANTY

.1 Manufacturer Warranty: Provide manufacturer's warranty from commencing from date of Substantial Performance covering the following minimum requirements for materials:

.1 Shade Hardware: ten (10) years.

.2 Shade Fabric/Shade Cloth: ten (10) years.

.3 Metal Coatings: ten (10) years.

Part 2 Products

2.1 MANUFACTURERS

.1 Acceptable Manufacturers: Subject to compliance with requirements specified in this Section, and as established by the Basis-of-Design Materials, manufacturers offering products that may be incorporated into the Work include the following:

.1 Altex SunProject

.2 MechoShade Systems

.3 Nysan Shading Systems

.4 Silent Gliss

.5 Solarfective Products

.6 UrbanEdgeShading Inc.

.7 Sunbeater

2.2 BASIS-OF-DESIGN

.1 Urban Edge, Model No. UE 205, chain operated, single cassette roller shade system; standard mount; with standard components and accessories, and to include optional components EX-504 sewn-in weight bar, and HA-543 chain hold-down; manual operation; Sunscreen fabric.

2.3 ROLLER SHADE COMPONENTS

.1 Roller Tube: One piece extruded 6061-T6 or 6063-T6 aluminum roller tube(s) meeting the requirements of ASTM B429, having anodized finish as follows:

.1 Protective Finish: AA-M12 Mechanical Finish; C22 Non-Specular; A21 Chemical Finish, etched, medium matte anodic coating; clear coating 0.025 mm or thicker to AMA 611; roller tube assemblies having mill finish will not be acceptable.

.2 Tube Diameter and Thickness: Manufacturers recommended engineered diameter, wall thickness, and aluminum grade as required for maximum allowable deflection of L/700.

.3 Tube Configuration: Extrude tube with provision made for mechanical engagement with the operator and drive assembly; and having channels to accept fabric attachment spline.

.2 Fabric Spline: Extruded vinyl profile, welded to fabric band or panel, allowing removal and re-installation of fabric bands or panels without removing the roller tube and hardware and having the following characteristics:

.1 Fabric bands or panels must be replaceable on site.

.2 Attachment of the fabric to the tube with double-sided adhesive tapes, adhesives, staples or rivets will not be acceptable.

.3 Fasteners: Non-corrosive fasteners as recommended by manufacturer.

.4 Valance: As indicated by manufacturer's designation for style and colour.

.5 Mounting: Inside mounting (confirm mounting with Consultant prior to ordering or fabrication), permitting easy removal and replacement without damaging roller shade or adjacent surfaces and finishes.

.6 Hold-Down Brackets and Hooks or Pins and Side Channels: Manufacturer's standard for fixing shade in place, keeping shade panel material taut, and reducing light gaps when shades are closed.

2.4 SHADE MATERIALS

.1 Shading Material Basis-of-Design:

.1 Sunscreen fabric: Sunscreen 601; colour 6502/6520; 6502 fabric on room side; fabric width 2500 mm; fabric opacity: 1%; by UrbanEdgeShading Inc.

.2 Direction of Roll: Regular, from back of roller, and reverse, from front of roller, for double roller shades (confirm Direction with Consultant prior to ordering or fabrication).

.3 Mounting Brackets: Fascia end caps, fabricated from steel finished to match fascia.

.4 Fascia: L-shaped, formed-steel sheet or extruded aluminum; long edges returned or rolled; continuous panel concealing front and bottom of shade roller, brackets, and operating hardware and operators; length required; removable design for access.

.5 Top/Back Cover: L-shaped; material and finish to match fascia; combining with fascia and end caps to form a six-sided headbox enclosure sized to fit shade roller and operating hardware inside.

.6 Bottom Bar: Steel or extruded aluminum, with plastic or metal capped ends. Provide concealed, by pocket of shade material, internal-type bottom bar with concealed weight bar as required for smooth, properly balanced shade operation.

.7 Shade Operation: Manual; with continuous loop bead chain, clutch, and cord tensioner and bracket lift operator.

.1 Position of Clutch Operator: Right side of roller, as determined by hand of user facing shade from inside, unless otherwise indicated on Drawings.

.2 Clutch: Capacity to lift size and weight of shade; sized to fit roller or provide adaptor.

.3 Lift Assist Mechanism: Manufacturer's standard spring assist for balancing roller shade weight and lifting heavy roller shades.

.4 Loop Length: Length required to make operation convenient from floor level.

.5 Bead Chain: Stainless steel.

.6 Cord Tensioner Mounting: Sill, or as otherwise directed by Consultant.

.7 Operating Function: Stop and hold shade at any position in ascending or descending travel.

2.5 OPERATORS

.1 Manual Chain Operator:

.1 Mounting Brackets: Angle shaped brackets size and thickness to manufacturer's standard; unitized pre-moulded assembly; allowing for continuous front or back roll fascia across multiple shades without exposed fasteners.

.2 Chain Drive System: Continuous loop of #10 stainless steel bead chain having a rated strength of 40 kg to prevent chain breakage under normal operating conditions; and as limited by ANSI/WCMA A100.1 safety requirements, and as follows:

.1 Gear reduction chain operator with inertia braking mechanism capable of locking shade panel at any point of travel. Set travel length of chain operator assembly on-site without disassembly of hardware to suit travel length of shade panel.

.2 Chain drive operator shall positively engage drive mechanism through internal profile configuration; friction fitted engagement of the roller tube to drive mechanism will not be acceptable.

.3 Chain operator shall prohibit operation by pulling on hem bar.

.4 Shade roller tube shall be removable from brackets without hardware removal; non-metal components shall be self-lubricating.

2.6 ROLLER SHADE FABRICATION

.1 Product Description: Roller shade consisting of a roller, a means of supporting the roller, a flexible sheet or band of material carried by the roller, a means of attaching the material to the roller, a bottom bar, and an operating mechanism that lifts and lowers the shade.

.2 Concealed Components: Non-corrodible or corrosion-resistant-coated materials.

.1 Lifting Mechanism: With permanently lubricated moving parts.

.3 Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 23° C:

.1 Shade Units Installed between Inside Jambs: Edge of shade not more than 6 mm from face of jamb. Length equal to head to sill dimension of opening in which each shade is installed.

.4 Installation Brackets: Designed for easy removal and reinstallation of shade, for supporting fascia, roller, and operating hardware and for hardware position and shade mounting method indicated.

.5 Installation Fasteners: Not fewer than two fasteners per bracket, fabricated from metal noncorrosive to shade hardware and adjoining construction; type designed for securing to supporting substrate; and supporting shades and accessories under conditions of normal use.

.6 Colour-Coated Finish: For metal components exposed to view, apply manufacturer's standard baked finish complying with manufacturer's written instructions for surface preparation including pre-treatment, application, baking, and minimum dry film thickness.

.7 Colours of Metal and Plastic Components Exposed to View: As indicated in Basis-of-Design specification.

.8 Hembars and Hembar Pockets:

.1 Ergonomic designed exposed extruded aluminum alloy 6063-T5, custom oval shaped profile 35 mm x 10 mm x 1.78 mm thick, with matching end caps, pre-weighted, to maintain bottom of shade fabric straight and flat. Colour prefinished to match adjacent window framing or as selected by Consultant. Underside of hem bar available with schlegel light seal. Attached to fabric panel by welded fabric spline.

.9 Fasteners:

.1 Non-corrosive as recommended by manufacturer.

2.7 ACCESSORIES

.1 Aluminum Fascia:

.1 Back / Regular Roll Shade Fascia:

.1 Extruded aluminum alloy 6063-T5, prefinished, 105 mm x 45 mm x 1.6 mm wall thickness, custom designed profile to fit onto premoulded end mounting brackets without exposed fasteners. Colour prefinished to match adjacent window framing or as selected by Consultant.

.2 Fascia shall conceal the mounting hardware, power and control cables, drive mechanism, roller tube, and all fabric rolled on the tube.

.3 Fascia shall not fit snug against side channels to prevent thermal shock to the glazing system.

2.8 FINISHES

.1 To be selected from Manufacturer's full range of colours.

Part 3 Execution

3.1 EXAMINATION

.1 Do not begin installation until substrates have been properly prepared.

.2 If substrate preparation is the responsibility of another installer, notify Owner's Representative of unsatisfactory preparation before proceeding.

3.2 PREPARATION

.1 Clean surfaces thoroughly prior to installation.

.2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

.1 Install shades level, plumb, square, and true, according to manufacturer's written instructions, and located so shade band is no closer than 50 mm to interior face of glass. Allow proper clearances for window operation hardware.

.2 Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

.3 Clean roller shade surfaces after installation, according to manufacturer's written instructions.

.4 Engage Installer to train Owner's maintenance personnel to adjust, operate, and maintain roller shade systems.

3.4 PROTECTION

.1 Protect installed products until completion of project.

.2 Touch-up, repair, or replace damaged products before Substantial Completion.

END OF SECTION

ROLLER WINDOW SHADE SCHEDULE					
FLOOR		**DIMENSIONS**		**QTY**	**REMARKS**
	Window Type	Height (mm)	Width (mm)		
3rd Floor	W3	2000mm	1100mm	1	Notes 1, 2
	W4	2000mm	1220mm	6	Notes 1, 2
	W5	2000mm	1370mm	5	Notes 1, 2
	W6	2000mm	1450mm	84	Notes 1, 2
	W7	2000mm	1600mm	8	Notes 1, 2
4th Floor	W3	2000mm	1100mm	1	Notes 1, 2
	W4	2000mm	1220mm	5	Notes 1, 2
	W5	2000mm	1370mm	5	Notes 1, 2
	W6	2000mm	1450mm	79	Notes 1, 2
	W7	2000mm	1600mm	8	Notes 1, 2
6th Floor	W3	2000mm	1100mm	1	Notes 1, 2
	W4	2000mm	1220mm	3	Notes 1, 2
	W5	2000mm	1370mm	4	Notes 1, 2
	W6	2000mm	1450mm	76	Notes 1, 2
	W7	2000mm	1600mm	8	Notes 1, 2
7th Floor	W3	2000mm	1100mm	1	Notes 1, 2
	W4	2000mm	1220mm	3	Notes 1, 2
	W5	2000mm	1370mm	4	Notes 1, 2
	W6	2000mm	1450mm	76	Notes 1, 2
	W7	2000mm	1600mm	8	Notes 1, 2
8th Floor	W3	2000mm	1100mm	1	Notes 1, 2
	W4	2000mm	1220mm	3	Notes 1, 2
	W5	2000mm	1370mm	4	Notes 1, 2
	W6	2000mm	1450mm	76	Notes 1, 2
	W7	2000mm	1600mm	8	Notes 1, 2
9th Floor	W1	2000mm	450mm	2	Notes 1, 2
	W2	2000mm	610mm	2	Notes 1, 2
	W3	2000mm	1220mm	5	Notes 1, 2
	W4	2000mm	1370mm	7	Notes 1, 2
	W6	2000mm	1450mm	76	Notes 1, 2

Notes:

1. Confirm all existing window sizes (height x width)
2. All roller shades to be manual operation