

**Sault Ste Marie Airport
Partial Re-Roof 2017**

for the

**Sault Ste Marie
Airport Development Corporation
475 Airport Rd
Sault Ste. Marie, Ontario**

Volume 2 - Specifications

Divisions 00—16

Project Number


1714

Date

24 May 2017

ePOH

ePOH inc.
Architects Engineers Interior Design
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Sault Ste. Marie, Ontario P6A 1X3
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Discipline	Company Name, Address and Name of Professional	Professional Seal
Architect Prime Consultant	EPOH Inc. 726 Queen Street East Sault Ste. Marie, Ontario Canada P6A 2A9 Architect: Franco Pastore	 A circular professional seal for the Ontario Association of Architects. The outer ring contains the text "ONTARIO ASSOCIATION OF ARCHITECTS" and the year "1714". The center features a signature, the name "FRANCO PASTORE", and the word "LICENCE" above the number "5170".

END OF SECTION

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END OF SECTION

PART 1 - GENERAL

1.1 The Agreement

.1 The Canadian Construction Document #2 2008 edition.

1.2 The Specification

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

1.3 The Drawings

.1 The following is the list of Drawings for the Project, dated **24 May 2017**:

Volume 1 - Architectural, Structural, Mechanical and Electrical

Architectural		
		Title Sheet
a	1.00	Roof Plan, Location Plan
a	7.50	Roof Details

1.4 Addenda

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

End of Section

PART 1 - GENERAL

1.1 INVITATION

- .1 Tender Call
- .1 Tender Submissions (Primary);; Offers signed under seal, executed, and dated will be received on or before:
- 3:00:00 p.m. local time on
Tuesday the 13th day of June, 2017**
- .2 Tender Submissions (Supplemental);; Offers signed under seal, executed, and dated will be received on or before:
- Not applicable**
- .3 Offers submitted after above time will be returned to bidder unopened.
- Address and deliver Tenders to:
- Sault Ste. Marie Airport
Partial Re-Roof 2017
for the
Sault Ste Marie Airport Development Corporation***
- c/o
- EPOH Inc.
421 bay Street, Suite 507
Sault Ste. Marie, ON
P6A 1X3**
- .4 Include name and address of Tenderer and project name and number on face of envelope
- .5 Amendments to submitted offer will be permitted if received in writing prior to bid closing and if endorsed by same party or parties who signed and sealed offer. Amendments may not be submitted electronically or by facsimile.
- .6 Where reference to Owner is made in the Contract Documents it shall mean the:
- Sault Ste Marie Airport Development Corporation**
- .7 Where reference to Consultant, Architect or Engineer is made in the Contract Documents it shall mean:

EPOH Inc.

1.2 INTENT

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

Sault Ste Marie Airport Partial Re-Roof 2017

- .2 Tenders are called for a Stipulated Price contract, in accordance with Contract Documents
- .3 Perform Work within time stated in Section 01 11 00 - Summary of Work and as further described and detailed in the Contract Documents
- .4 Initiate work within 5 days of receipt of notice of contract award. Letter of Intent

1.3 CONTRACT DOCUMENT IDENTIFICATION

- .1 Contract Documents are identified as **Project No. 1714** as prepared by Consultant, as listed in Section 01 13 01 - List of Tender Documents.
 - .1 This project number shall be referenced on all documents related to this project. Additional project numbers may be assigned by the successful, tenderer or others, and may be used, but must follow the Consultants Project Number Reference.

1.4 CONTRACT/BID DOCUMENTS

- .1 Agreement Form
 - .1 Contract Documents: Defined in **CCDC2 – 2008** Edition, Definitions
 - .2 And as amended with Supplementary General Conditions as described in Section 00 73 00.
- .2 Tender Documents: Contract Documents, including Drawings and Specifications, supplemented with Instructions to Tenders, Tender Form, and Tender Supplementary Forms identified herein:
 - .1 Tender, Offer, or Bidding: Act of submitting an offer under seal
 - .2 Tender Price: Monetary sum identified in Tender Form as an offer to perform work
- .3 Availability
 - .1 Tender Documents will be distributed to the following construction associations in digital format:
 - .1 Sault Ste. Marie Construction Association
 - .2 Tender documents are not available via hardcopy
 - .3 Tender Documents are made available only for purpose of obtaining offers for this project. Their use does not confer license or grant for other purposes.
- .4 Examination
 - .1 Upon receipt of Tender Documents verify that documents are complete.
 - .2 Immediately notify Consultant upon finding discrepancies or omissions in Tender Documents.
 - .3 Contractor shall be held to have carefully examined all drawings, specification, schedules, and site for all trade-work

- and to be familiar with all conditions, requirements and limitations pertaining to the work.
- .4 Examine the specifications and drawings thoroughly. Report to Architect all ambiguities, discrepancies, omissions, errors, departures from Building By-Laws, or from good practice, discovered during examination as early in the tender period as possible to allow clarification by addenda to be issued to all bidders. No claims for extra payment will be considered for work, expense or difficulties which are reasonably inferable from an examination of the documents prior to the closing of tenders.
- .5 The drawings and specifications complement each other and neither is to be considered alone. Hence, any item omitted in one, but mentioned or implied in the other, must be provided.
- .6 Bidders finding discrepancies or omissions in the drawings or specifications shall at once notify the Consultant who shall send written instructions to all bidders. Bidders may, during the tender period, be advised by addenda of any additions, alterations or deletions to the specifications and drawings. All such changes shall be covered by the tender and become part of the contract documents.
- .7 If any person submitting a bid on this project is in doubt as to the true meaning and intent of any part of the specifications or other documents, he must request an interpretation from the Consultant. If such interpretation is not requested, the bids will be presumed to be based on the interpretation or directions that may be subsequently given by the Consultant after award of the Contract, in accordance with the provisions of the Contract.
- .5 Queries/Addenda
- .1 Questions pertaining to the content of the contract documents, scope of work, etc. shall be directed to the design Consultants. Queries may be directed to the consultant responsible for the discipline as indicated in the Specification Table of Contents or Drawing Sheet title-block, but a copy must be sent to the Prime Consultant Project Manager.
- .1 Prime Consultant/Project Manager
EPOH Inc.
726 Queen Street East
Sault Ste. Marie, Ontario P6A 2A9
Principal in Charge: Kenneth Oliver
Email: koliver@epohinc.com
- .2 All Queries, Requests for Clarification and Requests for Approved Alternates by bidders must be provided in writing via email, verbal queries will not be accepted.
- .3 All Queries, Requests for Clarification and Requests for Approved Alternates by bidders must be received at the office of the consultant, not less than **seventy-two (72) hours** before time set for receipt of Tenders.
- .4 Verbal answers by the Owner or Consultant will not be binding unless confirmed by written addenda
- .5 Reply will be in form of written addendum, a copy of which

will be forwarded to registered bidders and construction associations no later than **twenty-four (24) hours** before receipt of Tenders.

- .6 Product/System Options – Proposed Substitutions
 - .1 Refer to specification Section 01 34 00 – Substitution Alternate Procedures
 - .2 Where Tender Documents stipulate a particular product, substitutions will be considered by Consultant up to four (4) business days before receipt of Tenders. Request made after this deadline, will not be considered.
 - .3 When a request to substitute a product is made, Consultant may approve substitution and will issue an Addendum to registered bidders
 - .4 Submission shall include sufficient information to enable Consultant to compare proposed alternate to specified product and determine acceptability of such products. Incomplete or illegible proposals may be summarily rejected. No notification will be provided.
 - .5 The Consultant reserves the right to reject, without detailed or any explanation, any such request for approval.
 - .6 In submission of substitutions to products specified, Bidders shall include in their Tender, ***any and all*** changes required in work to accommodate such substitutions. It shall be the sole responsibility of the Tenderer to ensure that the substituted material or equipment is fully compatible with available space, location, method of installation, work of other trades, and the like. A later claim by Bidder/Contractor for an addition to contract price or contract time because of changes in work necessitated by use of substitutions shall not be considered. The Consultant does not undertake any obligation to revise the design, dimensions or structure to accommodate a proposed substitution.

1.5 UNSOLICITED BIDDERS
ALTERNATES

- .1 Contractors are encouraged to provide Unsolicited Alternate Prices for proposed cost savings for alternate materials, means or methods currently designed into the project.
- .2 Provide a complete description of the proposed alternate with the bid submission for evaluation by the Consultant Team and Owner for review with the Tender. Minimum requirements to include the following:
 - .1 Specified Materials
 - .2 Proposed Alternate with
 - .1 Title
 - .2 Brief Description
 - .3 Supporting Documentation. Listing the number of pages appended to the tender form.
 - .4 Price to be deducted from the Tender Price.
- .3 In providing alternates to materials, means or methods specified, Bidders shall include in their Tender, ***any and all*** changes required in work to accommodate such alternates. It shall be the sole responsibility of the Tenderer to ensure that the alternate material or equipment is fully compatible with available space, location, method

of installation, work of other trades, and the like. A later claim by Bidder/Contractor for an addition to contract price or contract time because of changes in work necessitated by use of the alternate shall not be considered.

- .4 The Consultant does not undertake any obligation to revise any design, dimensions or structure to accommodate a proposed alternate.
- .5 The Owner reserves the right to accept or reject any and/or all proposed alternates.

1.6 SUB-DIVISION OF WORK

- .1 These Specifications have been divided into Divisions and Sections of work according to the accepted standards of Construction Specifications Canada (CSC) for the Construction Specifications Institute (CSI)
- .2 The Contractor shall have sole responsibility for determination of subdivision of the material, labour and services necessary to complete the project to the specified standards of the proposed Contract Documents
- .3 The Contractor shall be responsible for distributing all sections and divisions of the work to the Sub-trades bidding the work during tender phase and to the Sub-trades which are retained to perform the work during construction
- .4 The Contractor will ensure that all of his/her Sub-trades are completely familiar with all the requirements of the Contract Documents which may affect their price.
- .5 Main Divisions as listed in the table of contents are intended to be bid directly to the General Contractor. If major divisions are carried under another major division's contract, mark-up will only be allowed once.

1.7 SITE ASSESSMENT

- .1 A site visit to review the existing facilities and site has been arranged as indicated below
- .2 **Mandatory** Meeting
 - .1 Location: Sault Ste. Marie Airport
475 Airport Road
Sault Ste. Marie Ontario
 - .2 Date: Tuesday June 6th, 2017
 - .3 Time: 11:00 (11:00am) local time.
- .3 Attendance at this meeting is **mandatory** for prime tenderers for this project. General Contractors and/or their representatives, wishing to provide tenders for the project will be required to fill out an attendance form at the meeting. This list will be reviewed against the tenders received at the tender close. Tenders received, who did not have a representative at the mandatory meeting will not be opened.
- .4 Representatives from the design team and the Owner will be in

attendance at the meeting to field any questions that may arise. Information provided at the meeting that may affect the tender will be circulated via addenda following the meeting

1.8 SITE EXAMINATION

- .1 The project Site shall be accepted by the Contractor in its condition at time of tender. The Contractor will be held to have visited the site and to have carefully examined all conditions affecting the site, the work to be done there on, including the location of all services which may have to be protected, removed or relocated. The Contractor shall accept sole responsibility for any error or neglect on their part in this respect. Submission of Tender shall be deemed confirmation that tenderer has inspected site and is thoroughly conversant with existing conditions as can be observed at the date of tender close. No claims for extra payment will be considered for extra work, expense or difficulties encountered due to conditions on each site which were visible upon or reasonably inferable from an examination of the said site prior to the closing of tenders

1.9 QUALIFICATIONS

- .1 Firms or persons submitting tenders shall be actually engaged in the line of work required by the proposed Contract Documents and shall be able to refer to work of similar nature completed by them.
- .2 It is the bidder's responsibility to closely review the qualifications to confirm they meet and can readily demonstrate their ability to meet or exceed the listed qualifications. Any questions or concerns with the qualifications or evaluation process must be identified to the Consultant ten (10) days prior to the tender close.
- .3 The Tenderer shall submit a resume of company history with a list of projects, contact names and telephone numbers (work of similar nature) if requested by Consultant.
- .4 Subcontractors
 - .1 Owner reserves right to reject a proposed subcontractor for reasonable cause.
 - .2 Refer to CCDC2 - 2008, Article GC 3.7 of General Conditions.
 - .3 The Owner may request any proposed sub-contractor to provide satisfactory evidence that they have the ability, experience, capital and plant to enable them to execute their portion of the work of the contract
 - .4 Nothing contained in the Contract Documents shall be interpreted as the Owner having any contractual obligations or relationships to a sub-contractor.

1.10 BID SUBMISSION

- .1 Bid Ineligibility
 - .1 Tenders that are unsigned, improperly completed, improperly signed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may at discretion of Owner, be declared informal
 - .2 Tenders with Tender Forms and enclosures which are improperly prepared may at discretion of Owner, be declared

- .3 informal
- .3 Tenders that fail to include security deposit, agreement to bond/provide security or insurance requirements may at discretion of Owner, be declared informal
- .4 Oral, telegraphed, faxed, or telephoned proposals, or modifications to, submitted proposals will not be accepted or considered.
- .2 Submissions:
 - .1 Tenderers shall be solely responsible for delivery of their Tenders in manner and time prescribed.
 - .2 Submit one copy of executed offer on Tender Forms provided, signed and with corporate seal together with required security in a sealed opaque envelope, clearly identified with Tenderers name, project name and Owner's name on outside
 - .3 Fill in all spaces, monetary items shall be filled in with words and figures
 - .4 State in Tender Form, Contractor's name, address and contact information in spaces provided
 - .5 Addenda: Acknowledge all Addenda, inserting the number of the final Addenda received, in the proper place on the Tender Form
 - .6 State in Tender Form, Tenderer's offer, in the form of a Stipulate Sum, for the labour, material and services required to complete the Work described in the Contract Documents.
 - .7 Contract Time. State in Bid Form, time (in weeks) required to complete the Work. See below for additional information.
 - .8 Tenderer, in submitting an offer, will have to declare a completion date for completing the work to "Substantial Performance". Completion date in Agreement shall be this completion time added to Award date
- .3 Tender Signing
 - .1 Tender form shall be signed under seal by Tenderer
 - .2 Sole Proprietorship: Signature of sole proprietor in presence of witness who will also sign. Insert words "Sole Proprietor" under signature. Affix seal
 - .3 Partnership: Signature of all partners in presence of witness who will also sign. Insert word 'Partner' under each signature. Affix seal to each signature
 - .4 Limited Company: Signature of duly authorized signing officer(s) in normal signatures. Insert officer's capacity in which signing officer acts, under each signature. Affix corporate seal. If Tender is signed by officials other than President and Secretary of company, or President-Secretary-Treasurer of company, copy of by-law resolution of Board of Directors authorizing them to do so must also be submitted with Tender in Tender envelope.
 - .5 Joint Venture: Each party of joint venture must execute Tender under respective seals in manner appropriate to such party as described above, similar to requirements of Partnership

1.11 CONTRACT TIME

- .1 The contractors shall assign the amount of time required to complete

the Work as described in their tender. This shall be the date of "total performance" of the specified work and shall be understood to include the supply of all labour, supervision, material and equipment to construct, completely finish and install fixtures and items of construction as provided in the contract Documents provided and include other expenses such as customs, duties, excise taxes as well as Harmonized Sales Taxes as noted in the Tender Form, fees for all approvals, permits and inspections, insurances, Workers' Compensation Insurance as well as overhead and profit. This shall be expressed in a number of Calendar Weeks.

- .2 This number will be used by the Consultant to assign the Contact Completion date in the preparation of the formal Contracts. And will be calculated from the date of the Letter of Intent plus number of calendar weeks.

1.12 TENDER SUBMISSION REQUIREMENTS

PRIMARY

- .1 Tender Form
.1 Fill in all spaces, monetary items shall be filled in with words and figures.
- .2 Tender Form Appendix A – List of Separate, Alternate and Unit Prices
.1 Fill in all spaces, monetary items shall be filled in with words and figures.
- .3 Tender Form Appendix B – Unsolicited Alternate Prices
.1 Fill in all spaces, monetary items shall be filled in with words and figures.
- .4 Security Deposit (Bid Bond). Refer to Section 00 60 00 Bonding Requirements and provide.
.1 If using Bid Bond, endorse Bid Bond, as obligee, signed and sealed by principal Contractor and surety
.2 Use latest edition CCDC approved bond forms
.3 If Using a Certified Cheque, make cheque payable to the Owner.
- .5 Consent of Surety or (Agreement to Bond)
.1 Tenders shall be accompanied by, a Consent of Surety or Agreement to Bond, signed and sealed by Tender's surety, stating that surety providing Bid Bond is willing to supply Performance and Labour and Materials Payment Bond or in the case where a certified cheque will be provided in lieu, a letter from the Bidders financial institution indicating that such a cheque will be available to the Bidder, or an Irrevocable Letter of Credit would be provided in the said amounts should their tender be accepted, as specified in Section 00 60 00 – Bonding Requirements.
.2 Include cost of bonds in Tender Price

1.13 TENDER SUBMISSION REQUIREMENTS

SUPPLEMENTAL

- .1 Not Applicable

-
- 1.14 LOCAL MANPOWER .1 The Tenderer are encouraged to utilize as much local manpower as possible for the work of the Contract. Refer to this Section item 1.8.3.4 (Qualifications) for qualifications and requirements of bidders pertaining to this project
- 1.15 TENDER EVALUATION .1 Evaluation of the tenders will be performed by the Owner and their representatives as follows:
- .1 All tender submissions, received prior to the specified closing date/time, will be reviewed for compliance with the submission requirements.
 - .2 The formal compliant tender submissions will be ranked according to submitted tender price.
 - .3 If the low bidder is disqualified for any reason, the Owner may request supplemental qualifications from the next low bidder
- 1.16 OFFER ACCEPTANCE / REJECTION .1 Duration of Offer Acceptance/Rejection
- .1 Tenders shall remain open to acceptance, and irrevocable for a period of **Sixty (60) days** after the Tender closing date. If withdrawn the respective Tenderer shall forfeit his Security Deposit. No telephone calls, facsimiles or telegrams will be considered.
- .2 Acceptance of Offer
- .1 Owner reserves right to accept or reject any or all offers
 - .2 The Owner reserves the power and right to reject tenders received from parties who cannot show a reasonable acquaintance of the class of work herein specified and shown on the drawings.
 - .1 Evidence of such competency must be furnished by tenderer when requested.
 - .3 In the reception of tenders for the work, no obligation is incurred to accept the lowest or any proposal provided by a tenderer. The Owner reserves the right to refuse any or all tenders for any sub-division of the work or to decline to proceed with all the work if the Owner so determines.
 - .4 After acceptance by Owner, the Consultant will issue a letter (Letter of Intent) to the successful Tenderer, relating the Owners acceptance of the Tender. This Letter of Intent will form the start date of the Contract. Formal contracts will be prepared for signatures and circulated to required parties by the Consultant.
 - .5 The Owner reserves the right to request any other additional information he/she may require to evaluate the submission. Failure to provide the information requested in a timely manner may result in the tender being disqualified.
 - .6 Upon acceptance the successful Tenderer shall provide, within 10 business days, along with the required bonding, a Workplace Safety and Insurance Board Certificate of Clearance and a Certificate of Insurance as required
 - .7 The Owner does not bind itself to accept the lowest or any

tender.
.8 The Owner, at its sole discretion, reserves the right to negotiate with the lowest compliant bidder.

.3 Tender Securities
.1 Only after Tender has been accepted by the Owner, the Consultant will notify the unsuccessful Tenders that their Tender Securities will be available for pick-up.

1.17 AWARD OF THE CONTRACT

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

1.18 DELETION OF WORK UNDER THE CONTRACT

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

1.19 BUILDING CODES AND SAFETY ACT

.1 All work is to be carried out in accordance with the latest edition of the Local, Provincial and Federal Construction and Building Codes, By-laws, including the Occupation Health and Safety Act
.2 Comply with requirements of Workplace Hazardous Materials Information System (WHIMS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material and safety data sheets acceptable to Labour Canada and Health and Welfare Canada.
.1 Deliver copies of WHIMS data sheets to Owner on delivery of materials and provide copies in Maintenance Manuals.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not used.

END OF SECTION

ARCHITECTS PROJECT NUMBER 1714

PROJECT NAME **Sault Ste Marie Airport, Partial Re-Roofing 2017
for the
Sault Ste Marie Airport Development Corporation.**

SUBMITTED BY

Contractor Name: _____

Address: _____

Telephone Number: _____

Primary E-Mail: _____

OFFER

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

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

_____ (\$ _____ .____)

Harmonized Sales Tax:

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

_____ (\$ _____ .____)

Completion Date:

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

Substantial Performance.: _____ weeks from contract award

Total Performance.: _____ weeks from contract award

I/We also recognize that this declared completion date may be used by the Owner for the purpose of evaluating the best overall value of the project.

Signatures:

Authorized Signatures:

Name and title of person signing

Signature: _____

Name and title of Witness signing

Witness: _____

Name and title of person signing

Date: _____

Contractor's Corporate Seal:

END OF TENDER FORM

ARCHITECTS PROJECT NUMBER 1714

PROJECT NAME **Sault Ste Marie Airport, Partial Re-Roofing 2017
for the
Sault Ste Marie Airport Development Corporation.**

Submitted By: (Contractor's Name)

1.0 Separate Prices Provide Separate Prices as per Section 01 23 10. All prices provided shall be exclusive of Harmonized Sales Tax.

1.1 Separate Price Number 1 Not Applicable

2.0 ALTERNATE PRICES Provide Alternate Prices as per Section 01 23 10. All prices provided shall be exclusive of Harmonized Sales Tax.

2.1 Alternate Price Number 1 Not Applicable

3.0 UNIT PRICES Provide Separate Prices as per Section 01 23 10. All prices provided shall be exclusive of Harmonized Sales Tax.

Variance between add and deduct may not exceed 15%.
Add _____ Deduct _____

3.1 Unit Price number 1.
Additional parapet framing.
Removal of existing and
installation of new 2x6
Section 01 23 10 article 1.8.1 _____ /8' length _____ /8' length

END OF SECTION

ARCHITECTS PROJECT NUMBER 1714

PROJECT NAME **Sault Ste Marie Airport, Partial Re-Roofing 2017
for the
Sault Ste Marie Airport Development Corporation.**

Submitted By: (Contractors Name)

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

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

1.1 UNSOLICITED ALTERNATE PRICE .1 Specified Materials

Number 1 .2 Proposed Alternate

Title. _____

Brief Description _____

Supporting Documentation No. of Pages _____

Deduct from Tender Price (\$ _____ . _____)

1.2 UNSOLICITED ALTERNATE .1 Specified Materials

PRICE

Number 2

.2 Proposed Alternate
Title.
Brief Description
Supporting Documentation No. of Pages
Deduct from Tender Price (\$.)

1.3 UNSOLICITED ALTERNATE PRICE

.1 Specified Materials

Number 3
.2 Proposed Alternate
Title.
Brief Description
Supporting Documentation No. of Pages
Deduct from Tender Price (\$.)

1.4 UNSOLICITED ALTERNATE PRICE

.1 Specified Materials

Number 4
.2 Proposed Alternate
Title.
Brief Description
Supporting Documentation No. of Pages
Deduct from Tender Price (\$.)

END OF SECTION

PART 1 - GENERAL

1.1 BONDS OR SECURITIES

- .1 The successful Tenderer shall be required to furnish the following Bonds/Surety or Provide adequate Security as defined below for the execution of the Contract:
- .1 **Bonding**
- .1 A Performance Bond, not less than **One Hundred percent (100%)** of the Tender amount.
- .1 The form of the Bond shall be the CCDC form 221 (2002) Performance Bond, and as may be amended by the Supplementary General Conditions.
- .2 Refer to CCDC Document 2 (Revised 2008) Article GC 11.2
- .3 The issuing company of the Bond must be approved by the Canadian Construction Association
- .4 Performance Bond shall remain in place for a period of 12 months from the date of final certificate of payment.
- .2 A Labour Material Payment Bond, not less than **Fifty percent (50%)** of the Tender amount.
- .1 The form of the Bond shall be the CCDC form 222 (2002) Labour Material Payment Bond, and as may be amended by the Supplementary General Conditions.
- .2 Refer to CCDC Document 2 (Revised 2008) Article GC 11.2
- .3 The issuing company of the Bond must be approved by the Canadian Construction Association
- .2 **Other acceptable forms of security**
- .1 In lieu of the Bonding described above, the Owner will also consider a certified cheque or an Irrevocable Letter of Credit in an amount no less than forty percent (40%) of the Tender amount.
- .1 Certified Cheques used shall be drawn on a member of the Canadian Payments Association or a local cooperative credit society that is a member of a central cooperative credit society having membership in the Canadian Payments Association, payable to the order of the Owner, for no less than the amount stated above
- .2 Irrevocable Letters of credit will be considered from reputable Canadian Banks and Credit Unions at the discretion of the Owner, be provided on the financial institutions letter head, be unconditional, allow for multiple partial draws, and automatically renew until the Owner notifies the financial institution in writing that the project obligations have been completed (12 months from the date of final certificate of payment).

- .3 All costs to provide the Security described above shall be included in the Tender Amount.
- .4 Formalized, sealed, certified copies of the type of security being issued are to be provided within seven (7) days of Tender Award, after receiving notification of acceptance of their quotation from the Owner, (Letter of Intent) or forfeit the amount of the Bid Bond enclosed with the tender.

1.2 CONSENT OF SURETY OR AGREEMENT TO BOND

- .1 Tenders shall be accompanied by an agreement to provide the required security in the form of either:
 - .1 Consent of Surety or Agreement to Bond, signed and sealed by Tender's surety, stating that surety is willing to supply Performance and Labour and Materials Payment Bond as described above.
 - .2 or a signed letter from the financial institution confirming the Contractors capacity and the financial institutions intent to provide the contractor with the required security as described above along with a copy of the standard security form for review.
- .2 Include the cost to provide this Consent or Surety in the Tender Amount.

1.3 SECURITY DEPOSIT / BID BOND

- .1 Tenders shall be accompanied by a Security Deposit/Bid Bond in the amount of **\$25,000.00 (Twenty Five Thousand Dollars)**
- .2 The security deposit can be in the form of an Irrevocable Letter of Credit, a Certified Cheque or a Bid Bond.
- .3 If a Bid Bond is used it shall be in the name of the Owner, as obligee, signed and sealed by the principal Contractor and Surety. Use the latest edition CCDC approved Bond Forms.
- .4 Security deposit will be returned after delivery to Owner of Required Performance, and Labour Material Payment Bond(s) by the accepted tenderer.
- .5 If no contract is awarded, all security deposits will be returned.

PART 2 - PRODUCTS

PART 3 - EXECUTION

End of Section

PART 1 – GENERAL

1.1 INTRODUCTION

- .1 The following Supplementary Conditions modify, change, delete from or add to the Articles of Agreement, the Definitions, and the General Conditions of the Stipulated Price Contract, **Standard Construction Document CCDC2, 2008**.
- .2 Where any Article, Definition, General Condition, paragraph, subparagraph or clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Definition, General Condition paragraph, subparagraph or clause shall remain in effect.

1.2 MODIFICATIONS TO
GENERAL CONDITIONS

- .1 **ARTICLE A-6 – RECEIPT AND ADDRESSES FOR NOTICES IN WRITING**
- .1 Delete Article A-6.1 and substitute new article 6.1:
“6.1 Notices in Writing between the parties or between them and the Consultant shall be considered to have been received by the addressee on the date of receipt if delivered by hand or by commercial courier or if sent during normal business hours by fax and addressed as set out below. Such Notices in Writing will be deemed to be received by the addressee on the next business day if sent by fax after normal business hours or if sent by overnight commercial courier. Such Notices in Writing will be deemed to be received by the addressee on the fifth Working Day following the date of mailing, if sent by pre-paid registered post, when addressed as set out below. An address for a party may be changed by Notice in Writing to the other party setting out the new address in accordance with this Article.”
- .2 **DEFINITIONS**
- .1 Add the following definition:
“19a. Submittals
Submittals are documents or items required by the *Contract Documents* to be provided by the *Contractor*, such as:
- *Shop Drawings*, samples, models, mock-ups to indicate details or characteristics, before the portion of the *Work* that they represent can be incorporated into the *Work*; and
 - Record drawings and manuals to provide instructions to the operation and maintenance of the *Work*.
- .3 1. GENERAL
- 1.1 Where a General Condition or paragraph of the General Conditions of the Stipulated Price Contract is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions or

paragraphs shall remain unchanged, and the numbering of the deleted item will be retained, unused.

.4 **GC 1.1 CONTRACT DOCUMENTS**

- .1 Add to the end of subparagraph 1.1.2.2
"Except where the *Consultant* shall be indemnified as a third party beneficiary as provided in subparagraphs 9.2.7.4, 9.2.8.4, 9.5.2.4 and 9.5.3.4 and in 12.1.1."
- .2 Add new subparagraph 1.1.7.5:
"1.1.7.5 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the *Contract Documents*." GC 1.1 Documents:
- .3 Delete 1.1.8 in its entirety and substitute:
"1.1.8 The *Consultant* will provide the *Contractor* **six (6)** copies of the *Contract Documents* to perform the *Work* and such additional copies required for as-built documents and permits. Additional copies requested by the Contractor will be furnished at cost of reproduction."
- .4 Add following subparagraph to Paragraph 1.1.10:
".2 in case of conflict other documents shall govern over the Colour Schedule and Colour Schedule Drawings."
- .5 Add following paragraph to GC 1.1:
"1.1.11 The Specifications are divided into Divisions and Sections for convenience. They shall be read as a whole. This division places no responsibility upon the Architect to settle disputes between any Subcontractors or between any Subcontractor and the Contractor, relating to the scope of work."

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

- .1 Delete paragraph 2.2.4. in its entirety.
- .2 Add the word "schedules" after the word "techniques" in paragraph 2.2.6.
- .3 Add to the end of the second sentence of paragraph 2.2.6. "or to adhere to the construction schedule."
- .4 Add at the end of paragraph 2.2.9. "The *Owner* and the *Contractor* shall waive any claims against the *Consultant* arising out of the making of such interpretations and findings in accordance with paragraphs 2.2.7., 2.2.8. and 2.2.9".
- .5 Delete the comma after the word "submittals" and add the words "which are provided" before the words "in accordance" in paragraph 2.2.14.
- .6 Add new sentence to end of paragraph 2.2.11 "The *Consultant's* obligation to make findings on a large claim or large number of claims is subject to the terms and conditions of the *Owner/Consultant* agreement."

.6 **GC 2.4 DEFECTIVE WORK**

- .1 Add new subparagraphs 2.4.1.1 and 2.4.1.2:
“2.4.1.1 The *Contractor* shall rectify, in a manner acceptable to the *Owner* and the *Consultant*, all defective work and deficiencies throughout the *Work*, whether or not they are specifically identified by the *Consultant*.
2.4.1.2 The *Contractor* shall prioritize the correction of any defective work which, in the sole discretion of the *Owner*, adversely affects the day to day operation of the *Owner*.”
- .7 **GC 3.1 CONTROL OF THE WORK**
- .1 Add the word “schedules” after the word “techniques” in paragraph 3.1.2.
- .2 Add new paragraph 3.1.3:
“3.1.3 Prior to commencing individual procurement, fabrication and construction activities, the Contractor shall verify, at the Place of the Work, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the Work and shall further carefully compare such field measurements and conditions with the requirements of the *Contract Documents*. Where dimensions are not included or exact locations are not apparent, the *Contractor* shall immediately notify the *Consultant* in writing and obtain written instructions from the *Consultant* before proceeding with any part of the affected work.”
- .8 **GC 3.4 DOCUMENT REVIEW**
- .1 Delete paragraph 3.4.1 in its entirety and substitute new paragraph 3.4.1:
“3.4.1 The Contractor shall review the Contract Documents and shall report promptly to the Consultant any error, inconsistency or omission the Contractor may discover.
Such review by the Contractor shall comply with the standard of care described in paragraph 3.14.1 of the Contract. Except for its obligation to make such review and report the result, the Contractor does not assume any responsibility to the Owner or to the Consultant for the accuracy of the Contract Documents. The Contractor shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the Contract Documents, which the Contractor could not reasonably have discovered. If the Contractor does discover any error, inconsistency or omission in the Contract Documents, the Contractor shall not proceed with the work affected until the Contractor has received corrected or missing information from the Consultant.”
- .9 **GC 3.7 SUBCONTRACTORS AND SUPPLIERS**

- .1 Delete the words “through the Consultant” in paragraph 3.7.6.
- .10 **GC 3.8 LABOUR AND PRODUCTS**
- .1 Add new paragraph 3.8.4:
“3.8.4 The Contractor is responsible for the safe on-site storage of Products and their protection (including Products supplied by the Owner and other contractors to be installed under the Contract) in such ways as to avoid dangerous conditions or contamination to the *Products* or other persons or property and in locations at the *Place of the Work* to the satisfaction of the *Owner* and the *Consultant*. The *Owner* shall provide all relevant information on the *Products* to be supplied by the *Owner*.”
- .11 **GC 3.10 SHOP DRAWINGS**
- .1 Add the words “AND OTHER SUBMITTALS” to the Title after SHOP DRAWINGS.
- .2 Add “and Submittals” after the words “Shop Drawings” in paragraphs 3.10.1, 3.10.2, 3.10.4, 3.10.7, 3.10.8, 3.10.8.2, 3.10.9, 3.10.10, 3.10.11, and 3.10.12.
- .3 Delete 3.10.3 in its entirety and substitute new paragraph 3.10.3
“3.10.3 The Contractor shall prepare a schedule of the dates for provision, review and return of Shop Drawings and Submittals and submit it to the Consultant for review.”
- .4 Delete the last sentence in paragraph 3.10.9
- .5 Delete the words “so as to cause no delay in the performance of the Work” in paragraph 3.10.12.
- .12 **GC 3.14 PERFORMANCE BY CONTRACTOR**
- .1 Add new General Condition 3.14.1
“3.14.1 In performing its services and obligations under the Contract, the Contractor shall exercise a standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The Contractor acknowledges and agrees that throughout the Contract, the Contractor’s obligations, duties and responsibilities shall be interpreted in accordance with this standard. The Contractor shall exercise the same standard of due care and diligence in respect of any Products, personnel, or procedures which it may recommend to the Owner.
3.14.2 The Contractor further represents, covenants and warrants to the Owner that:
- .1 The personnel it assigns to the Project are appropriately experienced;
- .2 It has a sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager,

subject to the Owner's approval, in the event of death, incapacity, removal or resignation."

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

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

"4.1.4 Where the actual cost of the Work under any cash allowance exceeds the amount of the allowance, any unexpended amounts from other cash allowances shall be reallocated, at the Consultant's direction, to cover the shortfall, and, in that case, there shall be no additional amount added to the Contract Price for overhead and profit. Only where the actual cost of the Work under all cash allowances exceeds the total amount of all cash allowances shall the Contractor be compensated for the excess incurred and substantiated, plus an amount for overhead and profit on the excess only, as set out in the Contract Documents."

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

"4.1.5 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the Contract Price by Change Order without any adjustment for the Contractor's overhead and profit on such amount."

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

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

.4 Add new paragraph 4.1.8:

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

.14 **GC 5.2 Applications for Progress Payment:**

.1 Add new article 5.2.8 as follows:

"5.2.8 The second and all subsequent applications for payment shall be accompanied by a Statutory Declaration, executed by the Contractor, in the form prescribed by the Architect, declaring that all Subcontractors, wages for labour, and accounts for products have been paid up to and including the date of the last previously approved application for payment."

.15 **GC 5.3 PROGRESS PAYMENT**

.1 Delete subparagraph 5.3.1.1 in its entirety.

.2 Revise article 5.3.1.3 as follows:

"5.3.1.3 the Owner shall make payment to the

Contractor on account as provided in Article A-5 of the Agreement – PAYMENT on or before 30 calendar days after the issuance of a certificate for payment by the Consultant.”

.16 GC 6.2 CHANGE ORDER

.1 Add new paragraph 6.2.3 as follows:

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

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

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

- The General Contractor may add to the net cost of additional work by a Subcontractor, a markup, of Five (5%) per cent of the net sum quoted by such Subcontractor.

- Subcontractor may add to the total net cost of additional work to be carried out by his own forces, a markup of Five (5%) per cent.

- The Subcontractor may add to the net cost of additional work by a Sub-Subcontractor or Supplier, a markup, of Five (5%) per cent of the net sum quoted by such Sub-Subcontractor or Supplier

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

‘Overhead’ shall include any additional charges and/or premiums for **Supervision, Permits, Bonds, Insurance, Office Overhead** and the like, which may result from Changes in the Work. The cost for

these items shall not be added onto any
Cost for Changes prior to applying mark-up."

- .16 **GC 6.4 CONCEALED OR UNKNOWN CONDITIONS**
- .1 Add new subparagraph 6.4.5:
"6.4.5 The Contractor confirms that, prior to bidding the Project, it carefully investigated the Place of the Work and applied to that investigation the degree of care and skill described in paragraph 3.14.1, given the amount of time provided between the issue of the bid documents and the actual closing of bids, the degree of access provided to the Contractor prior to submission of bid, and the sufficiency and completeness of the information provided by the Owner. The Contractor is not entitled to compensation or to an extension of the Contract Time for conditions which could reasonably have been ascertained by the Contractor by such careful investigation undertaken prior to the submission of the bid."
- .17 **GC 6.5 DELAYS**
- .1 Delete the period at the end of paragraph 6.5.1, and substitute the following words:
", but excluding any consequential, indirect or special damages."
- .2 Delete the period at the end of paragraph 6.5.2, and substitute the following words:
", but excluding any consequential, indirect or special damages."
- .3 Add new subparagraph 6.5.6.
"6.5.6 If the Contractor is delayed in the performance of the Work by an act or omission of the Contractor or anyone employed or engaged by the Contractor directly or indirectly, or by any cause within the Contractor's control, then the Contract Time shall be extended for such reasonable time as the Consultant may decide in consultation with the Contractor. The Owner shall be reimbursed by the Contractor for all reasonable costs incurred by the Owner as the result of such delay, including all services required by the Owner from the Consultant as a result of such delay by the Contractor and, in particular, the cost of the Consultant's services during the period between the date of Substantial Performance of the Work stated in Article A-1 herein as the same may be extended through the provisions of these General Conditions and any later, actual date of *Substantial Performance of the Work* achieved by the *Contractor*."
- .18 **GC 6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE**
- .1 Delete paragraph 6.6.5. in its entirety and substitute new paragraph 6.6.5.
"6.6.5. The *Consultant's* findings, with respect to a claim made by either party will be given by *Notice in*

- Writing by the Consultant to both parties within reasonable time after receipt of the claim information noted in paragraph 6.6.3.”*
- .2 Add new paragraph 6.6.7
“6.6.7. The *Owner* may make claims arising out of the costs incurred for additional services provided by the *Consultant* resulting from the *Contractor’s* failure to reasonably perform the Work in accordance with the terms and conditions of the Contract, including the *Contractor’s* issuance of unnecessary Requests for Information. The *Consultant* will notify the *Owner* and *Contractor* where it has been determined that additional services will be required or have been provided in order not to cause a delay. The *Owner* shall make claims based on the *Consultant’s* invoices.”
- .19 **GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION**
- .1 Revise the heading, “GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION” to read, “GC 8.2 NEGOTIATION AND MEDIATION”.
- .2 Delete paragraphs 8.2.6, 8.2.7, and 8.2.8 in their entirety.
- .20 **GC 9.1 PROTECTION OF WORK AND PROPERTY**
- .1 Delete subparagraph 9.1.1.1 in its entirety and substitute new subparagraph 9.1.1.1:
“9.1.1.1 errors in the Contract Documents which the Contractor could not have discovered applying the standard of care described in paragraph 3.14.1;”
- .2 Delete paragraph 9.1.2 in its entirety and substitute the following new paragraph 9.1.2:
“9.1.2 Before commencing any Work, the Contractor shall determine the locations of all underground utilities and structures indicated in or reasonably determinable from the Contract Documents, or that are reasonably determinable from an inspection of the *Place of the Work* exercising the degree of care and skill described in paragraph 3.14.1.”
- .21 **GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES**
- .1 Add to paragraph 9.2.6 after the word “responsible”, the following new words:
“or whether any toxic or hazardous substances or materials already at the Place of the Work (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the Owner or others,”
- .2 Add “and the Consultant” after the word “Contractor”

- in subparagraph 9.2.7.4.
- .3 Add to paragraph 9.2.8 after the word "responsible", the following new words:
"or that any toxic or hazardous substances or materials already at the Place of the Work (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the Owner or others,"
- .4 Add "and the Consultant" after the word "*Owner*" in subparagraph 9.2.8.4.
- .22 **GC 9.5 MOULD**
- .1 Add "and the Consultant" after "Owner" in subparagraph 9.5.2.4.
- .2 Add "and the Consultant" after "Contractor" in subparagraph 9.5.3.4.
- .23 **GC 10.2 LAWS, NOTICES, PERMITS, AND FEES**
- .1 Delete from the first line of paragraph 10.2.5 the word, "The" and substitute the words:
"Subject to paragraph 3.14.1, the".
- .24 **GC 12.1 INDEMNIFICATION**
- .1 Add "and the Consultant" after the words "hold harmless the other" in paragraph 12.1.1.
- .25 **GC 12.3 WARRANTY**
- .1 Delete from the first line of paragraph 12.3.2 the word, "The" and substitute the words:
"Subject to paragraph 3.14.1, the...".

END OF SECTION

PART 1 - GENERAL

1.1 Responsibility

- .1 The Consultant may issue Addenda up to 24 hours prior to tender closing to provide revisions to, alterations to, additions to or deletions from the scope of work. Such revisions shall become part of the Contract Documents. Include all costs in Tender Price.
- .2 Addenda will be issued in electronic format only (PDF) to all registered bidders and plans takers. Contractors shall be responsible for providing printing of documents.
- .3 Addenda will be issued to the following Construction Associations:
 - Sault Ste. Marie Construction Association
- .4 Tenderers shall be held responsible to ensure that the Work of all issued Addenda is included in their Tender.
- .5 Indicate, in the space provided, on the Tender Form the number of Addenda included in the Tender.
- .6 Attach addenda following this section.

PART 2 - PRODUCTS

- .1 Not Applicable

PART 3 - EXECUTION

- .1 Not Applicable

End of Section

PART 1 - GENERAL

1.1 WORK COVERED BY
CONTRACT DOCUMENTS

- .1 Work covered under this Contract involves the complete replacement of the existing roof of the Sault Ste. Marie Airport, including all levels of the south block and the block that connects to the north block. Replacement includes the removal of the existing roof and installation of the new roofing, parapets, flashings et.all. Refer to plans and details for additional information on the scope of the work.

1.2 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.

1.3 WORK SEQUENCE

- .1 The General Contractor will construct the building and site in accordance with the drawings and specifications.
- .2 Proceed with construction in accordance with best practices and the contractors detailed schedule of events.
- .3 The Contractor will be required to develop a specific schedule and phasing plan to be reviewed and approved by the Consultant and Owner. This phasing plan will need to address the specifics of how construction activities will occur and identify risks and coordination activities required between trades. This will be reviewed at each OAC meeting and updated as required to ensure the Owners operations are not compromised.
- .4 All construction activities shall be performed in accordance with best practices and the contractor's detailed schedule of events.

1.4 CONTRACTOR USE OF
PREMISES

- .1 The existing site is a fully operational International Airport and must remain operational at all times during construction. As such the Contractor shall have limited use of the project site. Coordinate with the Consultant and the Owner to determine the owners operational needs and work around the owners use of the building and site
 - .1 A meeting will be held shortly after contract award to review the contractors use of the building and site.
 - .2 Cooperate with the owners needs as they are provided.
- .2 Contractors use of the project site may not limit the Owners right to perform work on the site or retain other contractors to work in other areas of the site.
- .3 Obtain and pay for use of additional storage or work areas where needed for operations under this contract.

- .4 All adjacent floor areas will continue to be operational during all phases of construction and therefore the Contractor must take special precautions to:
 - .1 Maintain a clean and safe construction site
 - .2 Observe strict contamination control standards
 - .3 Cooperate with the Owner in all respects so that there is as little or no interference to the ongoing operations.
 - .4 Limit all activities (i.e., demolition, material delivery, material removal) which could disturb the current operation
 - .5 Limit noise and any work which may disturb the Flight Control Tower

1.5 OWNER OCCUPANCY

- .1 The Owner will occupy the facility at all times during construction. Contractors may not impede the owners use of the facility at any time.
- .2 Tenderers are expected to establish their own Substantial and Total completion dates for this project based on their resources and capabilities and include this information in the tender form.
 - .1 The declared completion date will be used by the Owner for scheduling and commencement of Occupancy.
 - .2 Additional consideration may be provided in the tender evaluation, for tenders declaring completion date(s) prior to the final dates indicated above.
 - .3 The contractor shall be held to have reviewed this condition with all their sub-trades and agree to complete the project by the dates provided.
- .3 Substantial Performance. Refer to the requirements of the Construction Lien Act and the requirements as stated elsewhere in these contract documents, specifically Section 01 77 00 Closeout Procedures.
- .4 Total Performance. Refer to the requirements of the Construction Lien Act and the requirements as stated elsewhere in these contract documents, specifically Section 01 77 00 Closeout Procedures.

1.6 FURNITURE FIXTURES AND EQUIPMENT (FFE)

- .1 There are various items of equipment on the roof levels including antenna, apparatus, measuring equipment, security devices and the like. Unless otherwise noted, the contractor shall assume that all equipment is operational and essential to the daily operation of the facility and not, otherwise disrupt or alter in any way without the approval of the owner.

1.7 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 Change Orders.
 - .6 Other Modifications to Contract.

- .7 Field Test Reports.
- .8 Copy of Approved Work Schedule.
- .9 Health and Safety Plan and Other Safety Related Documents.
- .10 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 Owner requirements, relevant municipal, provincial and other regulations.
- 1.2 USE OF SITE AND FACILITIES .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Consultant and Owner to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 The Owner will assign sanitary facilities for use by Contractor's personnel. Keep facilities clean.
- .5 Closures: protect work temporarily until permanent enclosures are completed.
- 1.3 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING .1 Execute work with least possible interference or disturbance to building operations, occupants, public and normal use of premises. Arrange with Consultant/Owner to facilitate execution of work.
- 1.4 EXISTING SERVICES .1 Notify Consultant and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, provide written notice to the Owner and Consultant **Forty-Eight (48) hours'** notice for necessary interruption of **ANY** throughout course of work. Minimize duration of interruptions.
- .1 Carry out work at times as approved by the owner and in accordance with the governing authorities with minimum disturbance to pedestrian vehicular traffic and tenant operations.
- .2 Keep duration of interruptions to a minimum.
- .3 Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .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 of findings.
- .5 Provide temporary services when directed by Consultant to maintain

critical building and tenant systems.

- .6 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .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.

1.5 SPECIAL REQUIREMENTS

- .1 The project site is an operational International Airport and has a number of special requirements including, but not limited to:
 - .1 Increase security requirements
 - .2 High winds, including propeller and jet backwash. (See also FOD below)
 - .3 Air Traffic Control Tower, which
 - .1 Must remain fully operational and not disturbed during its operational hours which are 6:30 am to 10:30 pm, 7 days a week.
 - .2 Visual connection to any part of the Air Field may not be interrupted at any time, during operational hours.
 - .3 Construction noise, beside or above the control tower, may not impede the operation of the air traffic control tower during operational hours.
 - .4 Foreign Object Debris (FOD) are not permitted on the apron or "air side" (airplane side) of the terminal building. Contractors shall take all precautions necessary and required to ensure that **NO** FOD is permitted to fall or otherwise end up on the air side of the terminal. Foreign screws/nails can blow a tire on an airplane and simple objects like paper and plastic can get sucked into an engine and cause a catastrophic failure.
 - .1 Contractors shall put together a plan to ensure that materials will not end up on the air field. Present and be prepared to review this plan at the preconstruction meeting.
 - .2 Present and review the completed plan with all workers on the project.
 - .5 Site Cranes. Material lift(s) should be schedule in conjunction with the owners operation of the building. Additional coordination may be required with the Owners tenants, NAV Canada as a Notice to Airmen (NOTAM) may be necessary and ensure that tower sight lines are not obstructed. Discuss/coordinate with the Owner prior to scheduling any lifts.
- .2 Security Clearances. Personnel employed for certain aspects of this project will require security badges. The Contractor will be

responsible to coordinate with the Owner to obtain security clearances for workers and provide and maintain the badges.

- .1 Contractors and any worker that may work on the air side (Airplane side) will be required to wear a security badge.
- .2 Contractors will be required to sign off on a SSM airport security form and SMS airside forms.
- .3 Should persons not sign the required forms or not pass the security clearances, they will not be permitted to work on the site.

.3 Airside Construction Safety Waiver.

- .1 Contractors shall be required to review and conform to all the requirements of the Owners special "Airside Construction Safety Waiver as included with specification section 01 14 00 b.
 - .1 The successfully tenderer shall be required to initial each page, sign the final page and submit this to the owner prior to commencing work.

.4 Carry out noise generating Work in accordance with City of Sault Ste. Marie By-Laws and additional requirements as may be provided by the Owner.

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

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

1.6 BUILDING SMOKING ENVIRONMENT

- .1 Comply with Owners smoking restrictions.
 - .1 Smoking is permitted only in the Designated Area and ***NEVER*** within or ***ON*** the building.
 - .2 Smoking is ***not*** permitted in any of the construction zones even if they are exterior to the building.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION



Sault Ste. Marie Airport Development Corporation
Partial Re-Roofing 2017
Airside Construction Safety Compliance Requirements

There are many rules and regulations that must be adhered to when working at the Sault Ste. Marie Airport. Contractors **must** take the time to read and fully understand the following rules. If there are any questions, please do not hesitate to ask questions.

1. Definitions - The following are definitions used within this document.

- **Airport** means an aerodrome for which under the Canadian Aviation Regulations, an airport certificate has been issued by Transport Canada.
- **Airport Operator** means the holder of an airport certification or the person in charge of such airport, whether an employee, agent or representative.
- **Airside** means the aircraft movement area of an aerodrome, adjacent terrain and buildings or portion thereof, to which access is controlled.
- **Airside Vehicle Operator Permit (AVOP)** means a document issued by the airport operator certifying that the person named therein is authorized to operate vehicles in an airside area.
- **Apron** means that part of an aerodrome, other than the manoeuvring area, intended to accommodate the loading and unloading of passengers and cargo, the refuelling, servicing, maintenance, and parking of aircraft, and any movement of aircraft, vehicles, and pedestrians to allow execution of those functions.
- **Contractor** means a person, partnership or group of persons who, through a contract, an agreement or ownership, directs the activities of one or more employers involved in work at a work site.
- **Foreign Object Debris (FOD)** means a substance, part, component, natural element or live animal that, because of its proximity to the area of aircraft in motion, has the potential to accidentally encounter an aircraft and threaten its safe operation and/or require a repair.
- **Groundside** means that area of an airport not intended to be used for activities related to aircraft operations and to which the public normally has unrestricted access.
- **Restricted Area-** an area which requires any person within it Restricted Area Pass to be displayed at all times or be escorted by somebody with one.
- **Runway** means a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.
- **Taxiway** means that part of an aerodrome used for manoeuvring aircraft and airport equipment between the apron area and runway.
- **Terminal Building** means the main air terminal building on airport premises.
- **Tower crane** means a crane using wire rope which raises and lowers a load and moves a load horizontally by means of a carriage or a trolley travelling on a jib or boom that sways about the vertical axis of a mast.
- **Vehicle** means a device, including powered mobile equipment, in, on or by which a person or thing may be transported or drawn.
- **Worker** means a person engaged in an occupation.

- **Work area** means a place on a work site where a worker is or may be during his work or during a work break.
 - **Work site** means a location where a worker is, or is likely to be, engaged in any occupation and includes any vehicle or mobile equipment used by a worker in an occupation.
2. **Smoking** – is only permitted in designated **groundside** areas. Smoking is not permitted anywhere within the airside of the Airport. Any airside smoking violation will result in the worker being removed from the job site.
 3. **F.O.D** – the contractor must adopt a “clean as you go” process. No materials shall be left to blow around the construction site; this poses a major threat to aircraft. The damage to an aircraft resulting from the ingestion of foreign object debris (FOD) can be significant. This damage has the potential to not only be costly to airlines, but can be dangerous to passengers and construction personnel. Good housekeeping practices will also include the control and **clean up of mud and stones tracked onto aprons and aircraft maneuvering areas by construction vehicles**. Types of FOD include paper, small hardware (such as bolts, nuts, nails, etc.), stones, baggage hardware (such as handles, wheels, locks) and other debris. Every person whose work duties require them to be on the airside is responsible for monitoring potential FOD hazards and ensuring that foreign objects are not discarded on or near aircraft maneuvering areas. All airport contractors working on the airside are required to appoint an FOD control officer. This officer is responsible for ensuring that the company’s FOD control procedures are followed, and that all workers (and contractors) are aware of potential FOD hazards and act to eliminate them.
 4. **Cranes** – crane usage anywhere at the Sault Ste. Marie Airport has the potential to create a significant impact on its operation. It is extremely important that, if a crane is required to be used during the construction process, a *land use submission form* is filed with NavCanada. This process will take approximately **30 days for approval**. If the submission is approved, an aviation notice (NOTAM) will be issued by NavCanada to alert airport users from being negatively impacted.
 5. **Airside Service Road** – the service road is used by Airport Maintenance staff many times throughout the day for access to the Airport’s runways and taxiways. The Airport Crash Rescue Vehicle is located in the maintenance garage and the service road is the only road that leads to the airside. It is imperative that the Airport Crash Rescue Vehicle has unrestricted access to the airside service road. **All means of entry to and exit from the service road must be maintained** in a good state of repair and free from materials, equipment and other obstructions that might endanger workers or impede the road in case of an emergency.
 6. **Security Perimeter** – when entering the maintenance compound, it is imperative that the gate is visibly watched to ensure it is closed and nobody entered without proper authority. The standard procedure is for the vehicle operator to pass through the gate, stop the vehicle on the other side, and **wait for the gate to close entirely**.

7. **Barricades, Signage, and Hoarding** - Hard barricades and signs will be required wherever the general public can access a potentially hazardous work area. Barricades shall be highly visible and of adequate strength to perform the task. Barricades cannot be attached to fixtures i.e. rope tied to chairs and garbage cans. The contractor shall verify that loads and materials are secured from unintentional movement that could adversely affect the safety of workers, aircraft, and the general public.
8. **Security** - When access to "*restricted areas*" of the airport is provided, an employee or agent of the contractor is subject to the Sault Ste. Marie Airport's security controls before entering. These measures can include body searches, surveillance, escorts, or others. A Restricted Area Pass holder agreement supplied by the contractor or by Sault Ste. Marie Airport shall provide security controls. A designated escort for contractors shall maintain continuous two-way communication with the contractor or airport security at all times. This can be achieved through the use of portable radios.
9. **Security Passes** – temporary security passes are issued and are the property of the Sault Ste. Marie Airport. The pass shall be returned to the Pass Control Office upon termination of employment, completion of contract, or at any time upon the request of issuing authority. The pass **must be visibly displayed** (worn on a worker's outer clothing) **at all times** when working in a restricted area. The pass must be safeguarded at all times. **Loss or theft of the pass must be reported to the Pass Control Office immediately.** Unauthorized use of the pass is prohibited. The pass is only to be used while employees or agents of the contractor are performing work in areas requiring a pass. Violations of the terms of issue for Restricted Area Passes are subject to prosecution under the Aerodrome Security Regulations. A violation may also result in suspension of pass privileges. A fee of \$100.00 shall be charged for a lost or non-returned security pass.
10. **Environmental** - chemical spills of any kind must be immediately reported to the Airport CEO
Office – 705-779-3031 ext 205
Cell - 705-257-9055
11. **Vehicles** – vehicles and service equipment that are working airside are not permitted to roam freely on any aircraft maneuvering area (taxiway, runway, apron) without a qualified escort. Vehicles requiring access to an aircraft maneuvering area **MUST be escorted** by SSMADC staff and must follow directions of staff. **Aircraft and all emergency vehicles must be given the right of way** without hesitation.
12. **Safety**— the safety of people, and airport and airline property will be given priority over all else. Contractors will keep access and egress areas clean and free of tripping and slipping hazards.

THE CONTRACTOR ACKNOWLEDGES THAT HE OR SHE HAS HAD SUFFICIENT OPPORTUNITY TO REVIEW THE PROVISIONS OF THIS DOCUMENT AND UNDERSTANDS ITS PURPOSE, MEANING AND INTENT.

BY SIGNING THIS DOCUMENT, THE CONTRACTOR ACKNOWLEDGES HAVING READ AND UNDERSTOOD ITS MEANING AND CONTENTS.

Signature of Contractor:

Name (Print Please):

Representing:

Date:

SSMADC Authorized Signature:

Name (Print Please):

Date:

PART 1 - GENERAL

1.1 REFERENCES

- .1 Section 00 03 00 – Tender Form
- .2 Section 01 11 00 – Summary of Work
- .3 Section 01 29 83 – Testing and Inspection Payment

1.2 CASH ALLOWANCES

- .1 Include in Contract Price specified Cash Allowances.
- .2 Cash allowances, unless otherwise specified, cover net cost to Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage, Installation and other authorized expenses incurred in performing Work.
- .3 Contract Price, and not cash allowance, includes Contractor's Overhead and profit in connection with such cash allowance.
- .4 If entire cash allowance is not required to be expended against at the end of the project, entire residual value will be retained by the owner, or at any time during the project at the owner's discretion.
- .5 Contract Price will be adjusted by written order to provide for excess or deficit to each cash allowance.
- .6 Where costs under a cash allowance exceed amount of allowance, Contractor will be compensated for excess incurred and substantiated plus allowance for overhead and profit as set out in Contract Documents.
- .7 Include progress payments on accounts of work authorized under cash allowances in Consultant's monthly certificate for payment.
- .8 Include the following amounts in the Contract Price for each respective allowance, for Work specified in respective specification Sections, as follows:

.1	Testing and Inspection	\$ 0.00
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1.3 CONTINGENCY ALLOWANCE .1

Contingency Allowance:

- .1 Include an allowance of **\$10,000.00** (Ten Thousand Dollars) for Construction Contingencies
- .2 Expenditures under contingency allowance will be authorized by issuance of a Change Order only.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Product Installation Alternatives to Agreement to the Work
.2 Incorporation of Accepted Alternatives into Agreement
- 1.2 RELATED SECTIONS .1 Section 011100 – Instructions to Bidders
.2 Section 014113 - Tender Form Appendix B
- 1.3 REQUIREMENTS .1 Referenced specification Sections stipulate pertinent requirements for products and methods to achieve the Work stipulated under each Alternative.
.2 Coordinate affected related Work and modify surrounding Work to integrate the Work under each Alternative.
.3 Unless otherwise noted, all prices shall include all labour, material, delivery, equipment, tools, scaffolding etc., necessary and required for the complete installation of the work noted. Prices shall include all overhead and profit and shall exclude Harmonized Sales Tax.
.4 All prices submitted take into consideration and allow for changes and adjustments in other work as may be necessary to provide a finished and functional result, unless specifically indicated otherwise.
.5 Should the acceptance, by the Owner, of any Separate, Alternate or Unit Prices necessitate the use of an alternate subcontractor for work of a particular section, list such subcontractors below applicable prices indicated in the tender form. If no subcontractor is indicated, the subcontractors indicated in the tender form appendix form shall be used.
- 1.4 AWARD/SELECTION OF ALTERNATIVES .1 Indicate variation of Bid Price for Alternatives described below and listed in Tender Form. Note that this form requests a 'difference' in Price by adding to or deducting from the base bid price.
.2 In accordance with CCDC Document No. 23 "A Guide to Calling Bids and Awarding Contracts", the low Tender shall be determined on basis of lowest Tender in accordance with Contract Documents on which Project is to be actually constructed, including those alternate and separate price options for which prices have been invited and which are to be incorporated in the Work.
- 1.5 ALTERNATE PRICES .1 None
- 1.6 SEPARATE PRICE OPTIONS .1 None
.2

1.7 UNIT PRICES

- .1 Unit Prices are required to be provided in Appendix B of the Tender Forms.
- .2 These Unit prices will be utilized for any additional or reduction in the scope of work as defined in the contract documents.
- .3 Prices variance between ADD and DEDUCT for any one item may not exceed Fifteen (15) percent.
- .4 All pricing shall be less HST.
- .5 Provide pricing for all items listed.
- .6 Failure to provide all pricing may result in tender being deemed invalid.

1.8 UNIT PRICE No. 1

- .1 Parapet wood framing, additional 2x6x8'-0". Provide price to remove an 8'-0" long section of existing parapet (rotten) and replace it with new 2x6.
 - .1 Note: this is intended to include for additional rotten wood parapet framing, over and above what has been indicated as base contract work. See details for further description.
 - .2 Provide lump sum cost.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS .1 Section 01 77 00 – Closeout Procedures
- 1.2 APPLICATIONS FOR PROGRESS PAYMENT .1 Make applications for payment on account monthly as Work progresses.
- .2 Date applications for payment last day of monthly payment period and ensure amount claimed is for value, proportionate to amount of Contract, of Work performed and Products delivered to Place of Work at that date.
- .3 Submit to Consultant, at least 14 days before first application for payment. Schedule of values for parts of Work, aggregating total amount of Contract Price, to facilitate evaluation of applications for payment.
- .4 The application for payment from the General Contractor will not be submitted to the Consultant before the 25th of any month”
- .5 If the Consultant determines that the application for payment is not consistent with the scope of the work performed, he will return the application “not reviewed”
- 1.3 SCHEDULE OF VALUES .1 Provide schedule of values supported by evidence as Consultant may reasonably direct and when accepted by Consultant, be used as basis for applications for payment.
- .2 Schedule of Values for the Project shall be based on the example minimum schedule of values appended to this section.
- .3 Include statement based on schedule of values with each application for payment.
- .4 Materials not being on site are not eligible for payment under this section.
- 1.4 PREPARING SCHEDULE OF UNIT PRICE TABLE ITEMS .1 Submit separate schedule of unit price items of Work requested in the Form of Tender
- .2 Make form of submittal parallel to Schedule of Values, with each line item identified same as line item in Schedule of Values. Include in unit prices only:
- .1 Cost of material.
- .2 Delivery and unloading at site.
- .3 Sales taxes.
- .4 Installation, overhead and profit.
- .3 Ensure unit prices multiplied by quantities given equal material cost of that item in Schedule of Values.

1.5 PROGRESS PAYMENT

- .1 Consultant will issue to Owner, no later than 10 consecutive days after receipt of an application for payment, certificate for payment in amount applied for or in such other amount as Consultant determines to be due. If Consultant amends application, Consultant will give notification in writing giving reasons for amendment.
- .2 Owner will pay the contractor in accordance with the COP, not more than 30 consecutive days from receipt of the Certificate of Payment.
- .3 In the case that 30 days from issuance of the Certificate of Payment falls on a weekend or holiday, payment will be due the working day before the weekend or holiday.

1.6 SUBSTANTIAL PERFORMANCE OF WORK

- .1 "Substantial Performance" of the work shall be as legislated by the requirements of the Construction Lien Act, current version, at date of application, and as supplemented herein.
- .2 Refer also to section 01 77 00 – Closeout Procedures for additional instructions/requirements regarding Substantial Performance.
- .3 The Consultant will determine and indicate the date of Substantial Performance of Work in a certificate that will be issued to the Contractor and Owner. This will occur once at the end of the project or turnover of the final project phase.
- .4 Immediately following issuance of certificate of Substantial Performance of Work, in consultation with Consultant, establish reasonable date for finishing Work.
- .5 Certificates of payment will not be issued past substantial completion until Total Completion is achieved.
 - .1 The contractor must complete all outstanding work and provide a signed completed deficiency list and a letter from the Contractors Project Manager confirming that the Work of the project has achieved Total Completion.
 - .2 Only upon receipt of this letter will the Consultant and Owners Representative review the site to confirm the Deficiency are complete.
 - .3 Cost for additional inspections by the Consultant, Consultant Team and Owner Representative shall be borne by the Contractor.

1.7 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK

- .1 Payment of Holdback shall follow the requirements of the Construction Lien Act, current version, and as supplemented here.
- .2 After issuance of certificate of Substantial Performance of Work:
 - .1 Submit separate application for payment of holdback amount.
 - .2 Submit sworn statement that accounts for labour, subcontracts, products, construction machinery and equipment, and other indebtedness which may have been incurred in Substantial Performance of Work and for which

Owner might in be held responsible have been paid in full, except for amounts properly retained as holdback or as identified amount in dispute.

- .3 After receipt of application for payment and sworn statement, Consultant will within seven (7) working days, issue certificate for payment of holdback amount to the Owner.
- .4 Amount authorized by certificate for payment of holdback amount is due and payable on day following expiration of holdback period stipulated in lien legislation applicable to Place of Work. Where lien legislation does not exist or apply, holdback amount is due and payable in accordance with other legislation, industry practice, or provisions which may be agreed to between parties. Owner may retain out of holdback amount sums required by law to satisfy liens against Work or, if permitted by lien legislation applicable to Place of Work, other third party monetary claims against Contractor which are enforceable against Owner.

1.8 PROGRESSIVE RELEASE OF HOLDBACK .1

Where legislation permits, if Consultant has certified that Work of subcontractor or supplier has been performed prior to Substantial Performance of Work, Owner shall pay holdback amount retained for such subcontract Work, or products supplied by such supplier, on day following expiration of holdback period for such Work stipulated in lien legislation applicable to Place of Work.

- .2 In addition to provisions of preceding paragraph, and certificate wording, ensure that such subcontract Work or products is protected pending issuance of final certificate for payment and be responsible for correction of defects or Work not performed regardless of whether or not such was apparent when such certificates were issued.
- .3 Due to the immense amount of processing requirements, Progressive Release of Holdback shall be at the discretion of the Consultant only. Contractor shall not dispute the decision of the Consultant in not approving progressive release of Holdback for any portion of the work.
- .4 The procedure for early release of construction lien holdback monies shall be initiated by the General Contractor's written request for an inspection to determine the date of 100% completion of the subcontract. This request shall be complete with the following documentation
 - .1 Statutory declaration from the General Contractor that all work under the subcontract is 100% performed
 - .2 Statutory declaration from the Subcontractor that all work under the subcontract is 100% performed
 - .3 Workplace Safety & Insurance Board interim release for the General Contractor
 - .4 General Contractor's written guarantee to the Owner that they will make good any work of the Subcontractor as required by the contract documents
 - .5 Confirmation that the bonding company has been notified of the intent to claim early release of holdback monies

- .5 Upon satisfactory receipt of all documentation required under item 1 above, the Architect and/or their Consultants shall review the work within ten (10) working days. If satisfied that all work under the particular subcontract has been properly performed, the Architect shall issue a certificate to the Owner, General Contractor and Subcontractor within seven (7) working days of the date of the inspection of the work. The date of the inspection shall be noted by all parties.
- .6 The General Contractor shall then issue, over the signature of one of their officers, a statutory declaration to the Owner, to the effect that
 - .1 No written notices of lien have been received by them
 - .2 The Subcontractors have been paid in full, except for construction lien holdback
 - .3 Final net amount of the subcontract, and the amount owing to it are as stated in the declaration
- .7 The Subcontractor shall issue, simultaneously, and over the signature of one of their officers, a statutory declaration to the Contractor, to the effect that
 - .1 They have received no written notices of lien claims
 - .2 Their own Subcontractors and suppliers are listed completely in the declaration
 - .3 They have received payment in full from the General Contractor except for Construction lien holdback
 - .4 Final net amount of their Subcontract and amount owing to it are as stated in the declaration
 - .5 They have received the certificate issued by the Architect pursuant to Part IV of the Construction Lien Act on
day of 20
- .8 The Subcontractor must provide releases from the Workplace Safety & Insurance Board on their own behalf and on behalf of their Subcontractors and Suppliers
- .9 The Subcontractor shall provide a waiver of lien rights to the Owner, on their own behalf, and on behalf of their Subcontractors and Suppliers
- .10 A Construction Lien Search shall be made 45 calendar days after the date that the Architect's Certificate has been advertised in the Daily Commercial News as per the current Construction Lien Act provided that
 - .1 No liens or certificates of action are registered
 - .2 All documents noted herein have been received; and
 - .3 No written or oral notices of lien claims or of unpaid Subcontractors, Sub-subcontractors or Suppliers have been received by the Owner
- .11 The Owner shall then make payment to the General Contractor on the basis of the Architect's Certificate for Payment
- .12 **NOTE:** The early release of holdback monies does not affect the commencement date and warranty requirements of the Contract,

(i.e. the warranty period for the subcontract shall commence on the date of substantial performance of the prime contract).

1.9 FINAL PAYMENT

- .1 Immediately following issuance of certificate of Substantial Performance of Work, in consultation with Consultant, establish reasonable date for finishing Work
- .2 Certificates of payment will not be issued past Substantial Completion until Total Completion is achieved.
 - .1 The contractor must complete all outstanding work and provide a signed completed deficiency list and a letter from the Contractors Project Manager confirming that the Work of the project has achieved Total Completion.
 - .2 Submit application for final payment when Work is completed
 - .3 Only upon receipt of this letter will the Consultant and Owners Representative review the site to confirm the Deficiency are complete.
 - .4 Cost for additional inspections by the Consultant, Consultant Team and Owner Representative shall be borne by the Contractor.
- .3 Consultant will, no later than 10 days after receipt of application for final payment, review Work to verify validity of application. Consultant will give notification that application is valid or give reasons why it is not valid, no later than 7 days after reviewing Work.
- .4 Consultant will issue final certificate for payment when application for final payment is found valid.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Sault Ste Marie Airport, Partial Re-Roof 2017
 for the Sault Ste Marie Airport Development Corp.
 475 Airport Rd, Sault Ste. Marie, Ontario

1714

APPLICATION for PAYMENT (minimum requirements)

(Contractor Name)

AP# (??)

(Date)

No.	Description	Value (\$)	Complete to date		Previously billed		This Invoice		Amount to complete	
			(%)	Amount (\$)	(%)	Amount (\$)	(%)	Amount (\$)	(%)	Amount (\$)
ALLOWANCES										
	List each as sperate item as defined in Section 012100. See bottom of sheet for required itemized breakdown of each item									
DIVISION 1 - GENERAL CONDITIONS										
	Bonds and Insurance									
	Building Permit									
	Tempory Power & Lights									
	Temporary Heating & Ventalization									
	Cold Weather (Heating & Hoarding)									
	Temporary Barriers and Signage									
	General Cleaning									
	Final Cleaning									
	Construction Meeting Minutes & Schedule									
	Commissioning (General Requiements)									
	As Bults (arch - all series)									
	Final Survey Drawing									
	General Administration									
	Site Compound/Offices									
	Office Ongoing Costs									
	Demobilization									
	Building Management Manual									
DIVISION 6 - WOOD & PLASTICS										
	Rough Carpentry									
DIVISION 7 - THERMAL & MOISTURE PROTECTION										
	Roofing (Shop Drawings)									
	Roofing (Material)									
	Roofing (Labour)									
	Metal Flashing and Trim									
Subtotals		0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Change Orders / Change Directives										
co#1	??									
	??									
	??									

APPLICATION for PAYMENT (minimum requirements)

(Contractor Name)

AP# (??)

(Date)

No.	Description	Value (\$)	Complete to date		Previously billed		This Invoice		Amount to complete	
			(%)	Amount (\$)	(%)	Amount (\$)	(%)	Amount (\$)	(%)	Amount (\$)
	??									
Subtotals		0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00

Holdback

Subtotals

Holdback Release

Subtotal

HST

Amount Due for this Progress Draw

<table border="1"> <tr> <td style="width: 50px;">0.0</td> <td style="width: 50px;">0.00</td> </tr> </table>	0.0	0.00
0.0	0.00	

APPLICATION for PAYMENT (minimum requirements)

(Contractor Name)

AP# (??)

(Date)

No.	Description	Value (\$)	Complete to date		Previously billed		This Invoice		Amount to complete	
			(%)	Amount (\$)	(%)	Amount (\$)	(%)	Amount (\$)	(%)	Amount (\$)
Allowance Expenditures (summary of individual expenditures of each allowance)										
Allowance #1 (name from list in Section 012100)										
	??									
	??									
	??									
Subtotals		0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Allowance #2 (name from list in Section 012100)										
	??									
	??									
	??									
Subtotals		0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Allowance #3 (etc.) (name from list in Section 012100)										
	??									
	??									
	??									
Subtotals		0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS .1 Section 01 45 00 – Quality Controls
.2 Section 01 21 00 – Allowances
- 1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by the Engineer are specified under various sections.
- 1.3 APPOINTMENT AND PAYMENT .1 The Owner, on a recommendation from the Engineer will appoint and pay for services of testing laboratory except as follows:
.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
.2 Inspection and testing performed exclusively for Contractor's convenience.
.3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
.4 Mill tests and certificates of compliance.
.5 Tests specified to be carried out by Contractor under the supervision of The Engineer
.2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by The Engineer to verify acceptability of corrected work.
.3 The Contractor shall solicit a minimum of 3 quotations from qualified testing agencies as outlined in Section 01 45 00. Quotations will outline fixed and unit prices as required for the project. Contractor will present quotations and qualifications to the Consultant for selection of the agency for this project.
.4 The selected agency shall be the sole agency for this project unless agency does not offer a specific service required. In such case, the consultant shall select the agency to be used.
.5 The Testing and Inspection Agencies are employed by the owner and are acting as their agent for this purpose. The Testing and Inspection agency will not withhold any reports from The Consultant and will submit all correspondence in copy to him between himself and the contractor
- 1.4 CONTRACTOR'S RESPONSIBILITIES .1 Provide labour, equipment and facilities to:
.1 Provide access to Work for inspection and testing.
.2 Facilitate inspections and tests.
.3 Make good Work disturbed by inspection and test.
.4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.

- .2 Notify The Engineer sufficiently in advance of operations to allow for assignment of personnel and scheduling of test.
- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by The Engineer.

PART 2 - PRODUCTS

- .1 Not Used.

2.1 NOT USED

PART 3 - EXECUTION

- .1 Not Used.

3.1 NOT USED

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- .1 Section includes administrative provisions for the coordinating construction operations on the Project including, but not limited to, the following:
 - .1 General coordination procedures
 - .2 Construction superintendent
 - .3 Coordination drawings
 - .4 Regulatory requirements
 - .5 Requests for information (RFI's)
 - .6 Project meetings - General
 - .7 Preconstruction meeting
 - .8 Project management meeting
 - .9 Project close-out meeting.
- .2 Every contractor and sub-contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to specific contractor(s).

1.2 GENERAL COORDINATION PROCEDURES

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

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

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

1.3 CONSTRUCTION SUPERINTENDANT

- .1 Refer to the General Conditions of the Contract, and as augmented herein:
- .2 The Contractor shall provide a full-time Construction Superintendent for the project.
 - .1 The Construction Superintendent must remain on site for all phases of the construction until "Total Performance" of the Contract has been achieved.
- .3 The Construction Superintendent must be experienced in projects of similar size and nature as this proposed project.
 - .1 The Consultant may request references for the proposed superintendent.
 - .1 Should the proposed Construction Superintendent be deemed unsuitable, at the express discretion of the Owner and Consultant, the Contractor shall provide an alternate acceptable Construction Superintendent with no adjustment in the Contract Price or Time.
- .4 The Construction Superintendent shall represent the Contractor on site, directions given to him by the Consultant or Owner shall be as given to the Contractor. The Construction Superintendent must have the authority to make binding decisions on behalf of the Contractor.
- .5 The Construction Superintendent shall not be changed except for good reason and only then after consultation with, and agreement by, the Owner and Consultant
- .6 The Contractor shall request and ensure that all trades employ satisfactory, experienced and qualified supervisors for their sections of work.

1.4 BUILDING PERMIT

- .1 Building Permits
 - .1 Complete the application, obtain and pay for Building Permit on behalf of the project.
 - .1 **The Building Permit will be paid for by the Contractor.**
 - .2 Coordinate and provide to the Authorities Having Jurisdiction, any and all responses required from all parties to satisfy any questions arising out of the building permit application.
 - .2 Provide authorities having jurisdiction with any and all information as may be requested throughout the course of the project.

- .1 Coordinate and provide, any and all information required from all parties to satisfy any questions that may be provided.
- .3 The Contractor shall notify the Chief Building Official or the registered code agency where applicable, of the readiness, substantial completion, and completion of the stages of construction as set out in the Ontario Building Code.
 - .1 The Contractor shall be present at each site inspection by an inspector or registered code agency as applicable under the Ontario Building Code.
 - .2 The Contractor shall take minutes of these meetings and distribute copies to any and all persons, companies necessary and required to resolve all issues.
 - .3 The contractor shall collect and coordinate the response with the various parties and provide a consolidated response to the authorities having jurisdiction.
- .2 Other Permits
 - .1 Make application for and obtain all other permits on behalf of the project.
 - .1 These permits will be applied for and paid for by the Contractor or his sub-trades.
 - .2 Include the cost in the Stipulated Sum Tender Price.
 - .3 Coordinate and provide to the Authorities Having Jurisdiction, any and all responses required from all parties to satisfy any questions arising out of the building permit application.

1.5 REGULATORY REQUIREMENTS

- .1 Building Codes
 - .1 The project work has been documented to comply with the requirements of the Ontario Building Code and all amendments to date
 - .2 Modifications to the project must not reduce the requirements of the Ontario Building Code.
 - .3 Conform to local by-laws which amend or expand upon the requirements of the Ontario Building Code.
 - .4 Conform to Ontario Fire Code, latest amendment
- .2 Safety Codes
 - .1 Comply with the requirements of the Ontario Ministry of Labour specifically, and municipal and/or federal authorities as applicable for construction safety on this project
 - .2 Contractor to include all costs for temporary facilities necessary to comply with safety standards
 - .3 Conform to local by-laws which amend or expand upon the requirements of the Ontario Building Code
- .3 Ministry of Labour – Constructor Guidelines
 - .1 Comply with the requirements of the Occupational Health and Safety Branch Ministry of Labour – Constructor Guidelines – March 2009.

- .1 A copy of this guideline is appended to this specification.

1.6 REQUESTS FOR INFORMATION (RFI's)

- .1 General: Review Contract Documents ahead of work required for the project and submit RFI's in a timely fashion so as to not delay the work. Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified
 - .1 Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response
 - .2 Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors
- .2 Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following
 - .1 Project name
 - .2 Project number
 - .3 Date.
 - .4 Name of Contractor
 - .5 Name of Architect
 - .6 RFI number, numbered sequentially
 - .7 RFI subject
 - .8 Specification: Section Title, Section Number, Article and Item number and related paragraphs, as appropriate
 - .9 Drawing: Number, and location reference and photocopy/printed scan of portion of drawing as may be required to fully describe information required.
 - .10 Field dimensions and conditions, as appropriate
 - .11 Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI
 - .12 Contractor's signature
 - .13 Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation
 - .1 Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- .3 Architect's Action: Architect will review each RFI, determine action required, and respond. Allow ten (10) working days for Architect's response for each RFI.
 - .1 The following Contractor-generated RFIs will be returned without action
 - .1 Requests for approval of submittals
 - .2 Requests for approval of substitutions
 - .3 Requests for approval of Contractor's means and methods
 - .4 Requests for coordination information already indicated in the Contract Documents
 - .5 Requests for adjustments in the Contract Time or the Contract Sum
 - .6 Requests for interpretation of Architect's actions on

- submittals
- .7 Incomplete RFIs or inaccurately prepared RFIs
- .2 Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information
- .3 Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal.
 - .1 If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within three (3) days of receipt of the RFI response.
- .4 RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit up-to date log bi-weekly at commencement of OAC construction meetings. Log shall include no less than the following:
 - .1 Project name
 - .2 Name and address of Contractor
 - .3 RFI number including RFIs that were returned without action or withdrawn
 - .4 RFI description/title
 - .5 Date the RFI was submitted
 - .6 Date Architect's response was received.
- .5 On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within three (3) days if Contractor disagrees with response
 - .1 Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate
 - .2 Identification of related Site Instruction, Change Order, Change Directive, and Proposal Request, as appropriate

1.7 PROJECT MEETINGS - GENERAL

- .1 Schedule and administer project meetings throughout the progress of the work at bi-weekly intervals on a day and time coordinated with the Owner and Consultant.
- .2 Prepare agenda for meetings.
- .3 Send a re-occurring meeting request to Owner, Tenant, Consultants, Sub-Consultants, Sub-Contractors and other pertinent parties as required by the phase and progress of the work.
- .4 Preside at meetings.
- .5 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties. Distribute the meeting minutes within 2 days of the meeting for action by all parties.
- .6 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.8 PRECONSTRUCTION MEETING

- .1 Within 5 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Senior Representatives of Owner, Consultant, Sub Consultants, Contractor, major Subcontractors, field inspectors and Supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 2 days before meeting.
- .4 Provide adequate meeting space for the meeting.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16 - Construction Progress Schedules
 - .3 Schedule of submission of shop drawings, samples, colour samples. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site signs, offices, storage sheds, utilities, fences in accordance with contract documents.
 - .5 Site security in accordance with contact documents
 - .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .7 Owner provided products.
 - .8 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .9 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
 - .10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
 - .11 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .12 Process of Appointment of inspection and testing agencies or firms.
 - .13 Insurances, transcript of policies.

1.9 PROGRESS MEETINGS OAC .1
(Owner/ Architect/Contractor)

- .1 During course of Work and schedule progress meetings bi-weekly at a time to be agreed upon by all team participants.
- .2 Owner, Tenant, Consultant, General Contractor and Major Subcontractors, Supervisors involved in the work are to be in attendance as a minimum.
- .3 Notify parties minimum 5 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 2 days after meeting.

-
- .1 Do not include items in minutes that were not discussed at the meeting.
 - .5 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Construction Schedule
 - .1 Review progress since the last meeting.
 - .2 Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule.
 - .3 Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so.
 - .4 Review schedule for next period
 - .5 Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - .5 Review of Request For Information (RFI) Schedule
 - .6 Review Submittal Schedules:
 - .7 Maintenance of quality standards.
 - .8 Review proposed changes for effect on construction schedule and on completion date.
 - .9 Other business.
- 1.10 PROJECT CLOSEOUT MEETING
- .1 Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than **90** days prior to the scheduled date of Substantial Completion
 - .1 Conduct the conference to review requirements and responsibilities related to Project closeout
 - .2 Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work
 - .3 Agenda: Discuss items of significance that could affect or delay Project closeout, including the following
 - .1 Preparation of record documents
 - .2 Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance
 - .3 Submittal of written warranties
 - .4 Requirements for preparing operations and maintenance data
 - .5 Requirements for delivery of material samples, attic stock, and spare parts
 - .6 Requirements for demonstration and training
 - .7 Preparation of Contractor's punch list/deficiency list
 - .8 Procedures for processing Applications for Payment

- .9 at Substantial Completion and for final payment
- .9 Submittal procedures
- .10 Owner's partial occupancy requirements
- .11 Installation of Owner's furniture, fixtures, and equipment
- .12 Responsibility for removing temporary facilities and controls
- .4 Minutes: Entity conducting meeting will record and distribute meeting minutes

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS .1 Section 013300 - Submittals
- 1.2 DEFINITIONS
- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
 - .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal GANTT Chart Schedules for this project shall be created in either Primavera or MS Project.
 - .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
 - .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
 - .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
 - .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
 - .7 Milestone: significant event in project, usually completion of major deliverable.
 - .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
 - .9 Project Planning, Monitoring and Control System: overall system operated by The Consultant to enable monitoring of project work in relation to established milestones.
- 1.3 REQUIREMENTS
- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
 - .2 Plan to complete Work in accordance with prescribed milestones and time frame.
 - .3 Limit activity durations to maximum of approximately 30 working days, to allow for progress reporting.

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

1.4 START DATE

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

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Consultant within 10 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Consultant within 10 working days of receipt of acceptance of Master Plan.

1.6 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Consultant will review and return revised schedules within 5 working days.
- .3 Revise any impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.7 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Award.
 - .2 Shop Drawings, Samples.
 - .3 Permits.
 - .4 Mobilization.
 - .5 Demolition of Roofing.
 - .6 New Roofing
 - .7 Flashings
 - .8 Flood Test

1.8 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on monthly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Provide the consultant a copy of the updated schedule in digital, manipulateible .mpp or p3 format with each progress draw.
- .3 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and

impact with possible mitigation.

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

1.9 SCHEDULE RESPONSIBILITY .1

The Owner, Tenant and Consultant will use the schedule for budgeting, planning and coordinating activities and as such;

- .2 The schedule is the responsibility of the Contractor. Once the initial schedule is reviewed and approved by the consultant, the contractor will implement measures as required to maintain the schedule and or make up the slippage lost. The owner will not be responsible for the cost required in overtime, expedited material etc... as a result of slippage in the schedule.

1.10 PROJECT MEETINGS .1

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

PART 2 - PRODUCTS

2.1 NOT USED .1

Not used.

PART 3 - EXECUTION

3.1 NOT USED .1

Not used.

END OF SECTION

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS
- .1 Division 1 – General Requirements
 - .2 Section 01 32 16.06 – Construction Progress Schedule
 - .3 Section 01 45 00 – Quality Control
 - .4 Section 01 77 00 – Closeout Submittals
 - .5 All Section and Divisions of the Work
- 1.2 DEFINITIONS
- .1 Action Submittals: Written and graphic information and physical samples that require Consultant's responsive action.
 - .2 Informational Submittals: Written and graphic information and physical samples that do not require Consultant's responsive action. Submittals may be rejected for not complying with requirements.
- 1.3 ACTION SUBMITTALS
- .1 Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Consultant and additional time for handling and reviewing submittals required by those corrections
 - .1 Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule
 - .2 Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication
 - .3 Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule
 - .1 Submit revised submittal schedule to reflect changes in current status and timing for submittals
 - .4 Format: Arrange the following information in a tabular format
 - .1 Scheduled date for first submittal
 - .2 Specification Section number and title
 - .3 Submittal category: Action; Information
 - .4 Name of subcontractor
 - .5 Description of the Work covered
 - .2 Submission Log: Prepare a SUBMITTAL LOG for the project. Maintain, update and distribute an updated log with each regular construction meetings, throughout the course of the Work. Log shall included the following minimum requirements:

- .1 Shop drawing number
- .2 Submission Number (Initial submission or indicate revision number)
- .3 General Contractors date submitted to Consultant
- .4 Status indicator
- .5 Consultant submitted to
- .6 Excepted return date (minimum 15 days from submission date, or as otherwise indicated)
- .7 Actual return date
- .8 Review indicator (reviewed, revise as noted, revise and resubmit, not reviewed)

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

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

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

1.5 PROCESSING TIME

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

1.6 ADMINISTRATIVE

- .1 Time for review shall commence on Consultant's receipt of submittal
- .2 Submit to Consultants, submittals listed/schedule for review. Submit promptly and in orderly sequence to not cause delay in Work. 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. Contractor shall coordinate this

- requirement with the submission schedule and Construction Schedule
- .3 Do not proceed with Work affected by submittal until review is complete.
 - .4 Present shop drawings, product data, samples and mock-ups in Metric units or Imperial Units depending on units provided by Consultant. Shop drawings provided in units contrary to this **will** be returned to contractor un-reviewed for conversion to the appropriate units.
 - .5 Review submittals prior to submission to Consultants. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinate 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.
 - .1 If, in the express opinion of the Consultant, the submission has not been properly or thoroughly reviewed by the Contractor, the submission **will** be returned without being examined and considered rejected.
 - .6 Options: Identify options (highlight, and provide action sticky) requiring selection by Consultant
 - .7 Coordination: Coordinate preparation and processing of submittals with performance of construction activities
 - .1 Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity
 - .2 Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule
 - .3 Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals
 - .4 Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination
 - .8 Verify that field measurements and affected adjacent Work are coordinated.
 - .9 Electronic Submittals: Are permitted, coordinate the review, mark up, return and final process with Consultant prior to the first submission.
 - .10 Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for re-submittal without review
 - .11 Submittals not required by the Contract Documents may be returned by the Consultant without action
 - .12 Contractor's responsibility for errors and omissions in submission is

- not relieved by Consultant's review of submittals.
- .13 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant's review.
 - .14 The Consultant will review and return shop drawings and samples with reasonable promptness so as to avoid delay.
 - .1 This review by the Consultant, or any of its sub-consultants, of shop drawings, samples and data sheets pertains to general design only.
 - .2 Errors in dimensions, quantities or interference will be marked if noticed, but this will not relieve the Contractor in any way from his responsibilities for the proper fitting, finishing, quality, quantities, erection and coordination of the Work in accordance with the requirements of the Contract Documents.
 - .3 The Contractor shall be fully responsible in his review for errors on shop drawings and for furnishing materials and labour not specifically indicated or specified but required to properly complete the Work.
 - .4 Before preparation of shop drawings, or prior to fabrication, the Contractor shall confirm dimensions which can be correlated with job conditions
 - .15 Keep one reviewed copy of each submission on site.
 - .16 Separate submissions: Separate submissions by Consultant discipline and by specification section and provide separate submission cover for each item required.
 - .17 Partial and preliminary submissions: Partial submissions and preliminary submissions should not be provided for the project, without the prior approval of the Consultant. If provided without approval they will be returned without action.
 - .1 Co-ordinate the preparation, submission, review, (re-submission and re-review) of all submittals with the Construction schedule.
 - .18 Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Consultant on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal
 - .19 Resubmittals: Make resubmittals in same form and number of copies as initial submittal
 - .1 Note date and content of previous submittal
 - .2 Note date and content of revision in label or title block and clearly indicate extent of revision
 - .3 Resubmit submittals until they are marked with approval notation from Consultant's action stamp

- .20 Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms
- .21 Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Consultant's action stamp

1.7 DELIVERY INFORMATION

- .1 Number of Submissions: Quantities of shop drawings shall be discussed at the Project Preconstruction meeting. Modifications to the quantities to be provided, and distribution may be provided at the discretion of the Consultant.
 - .1 Initial submission eight (8) copies
 - .1 One (1) to Prime Consultant
 - .2 Seven (7) to design Consultant
 - .2 Five (5) will be returned to General Contractor for retention on site, distribution to trades and suppliers and for Close Out Submittals.
- .2 Submit (7) Hard Copies of shop drawings directly to consultant having jurisdiction. Initial submission and resubmissions submit
 - .1 One (1) copy to the Prime Consultant (EPOH Inc.) and the remaining copies directly to the Design Consultant
 - .1 Architectural to EPOH Inc.
 - .2 Refer to Section 00 01 07 - Seals Page for addresses of Consultant team members
- .3 Transmittal: All copies of shop drawings shall include a round trip transmittal and stamping sheet.
 - .1 Indicate name of firm or entity that prepared each submittal on label or title block
 - .2 Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Consultant
 - .3 Include the following information for processing and recording action taken
 - .1 Project name
 - .2 Project Number (Architects project number)
 - .3 Date
 - .4 Submittal number or other unique identifier, including revision identifier
 - .1 Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06 10 00.01).
 - .2 Re-submittals shall include an alphabetic suffix after another decimal point (e.g., 06 10 00.01.A)
 - .5 Specification Section Number and Name
 - .6 Drawing number and detail reference number (as applicable)

- .7 Name of Consultant
- .8 Name of Subcontractor
- .9 Name of Supplier
- .10 Name of Manufacturer
- .11 Submittal number or other unique identifier, including revision identifier
- .12 Other information as may be required or requested by the Consultant.

**1.8 SHOP DRAWINGS AND
PRODUCT DATA**

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work. Proceeding with the work without approval for additional scope is the contractor's acceptance that they accept all cost associated with the supply and install as indicated on the shop drawings.
- .5 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.
- .6 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.

- .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
-
- .7 After Consultant review, distribute copies.
 - .8 Delete information not applicable to project.
 - .9 Supplement standard information to provide details applicable to project.
 - .10 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, (#of) copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, only two (2) copies will be returned to the contractor for resubmission. Re-submit, through same procedure indicated above.
 - .11 The review of shop drawings by Consultant is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that The Consultant approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.
-
- 1.9 DELEGATED DESIGN SERVICES
- .1 Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated
 - .1 If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Consultant
 - .2 Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit five paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional
 - .1 Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services

1.10 CERTIFICATES AND
TRANSCRIPTS

- .1 Immediately after award of Contract, submit WSIB Clearance.
- .2 Submit transcription of insurance immediately after award of Contract.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

-
- PART 1 - GENERAL
- .1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section
 - .2 Section includes administrative and procedural requirements for substitutions that may be required post tender.
 - .3 Substitutions or alternates should all be pre-approved prior to close of tender. However certain conditions, may arise that necessitate the need of a substitution or alternate. These specific conditions are outline below.
 - .4 Requests for alternates or substitutions submitted with shop drawing submissions will not be considered.
- 1.2 RELATED REQUIREMENTS
- .1 Division 1 – General Requirements
 - .2 Section 01 61 00 – Common Product Requirements
- 1.3 ACCEPTABLE PRODUCTS
- .1 First item named or specified by catalogue number meets specifications in all respects regarding performance, quality of material and workmanship, and is acceptable to the Architect
 - .2 Items, other than first named, meeting specifications regarding quality of materials and workmanship only, are acceptable to the Architect, if they also meet performance, match the first named product in colour and texture, etc. and/or capacities specified and can be accommodated within the space allotted
 - .3 General approval indicated by inclusion of other manufacturers named is subject to final review of submitted samples of shop drawings, performance data and test reports
 - .4 Where the contractor uses equivalent products other than that first named, on which design is based, the contractor shall be fully responsible for all details of installation including product size, arrangement, fit, colour, etc. and maintenance of all required clearances.
- 1.4 SCHEDULE AND COORDINATION
- .1 Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Consultant and additional time for handling and reviewing submittals required by those corrections
 - .1 Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule
 - .2 Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those

- required early because of long lead time for manufacture or fabrication
- .3 Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule
 - .1 Submit revised submittal schedule to reflect changes in current status and timing for submittals
- .4 Format: Arrange the following information in a tabular format
 - .1 Scheduled date for first submittal
 - .2 Specification Section number and title
 - .3 Submittal category: Action; informational
 - .4 Name of subcontractor
 - .5 Description of the Work covered
 - .6 Scheduled date for Consultant's final release or approval
 - .7 Scheduled dates for installation
 - .8 Activity or event number

1.5 DEFINITIONS

- .1 Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor
 - .1 Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as, regulatory changes, or other reason as approved by the consultant.
 - .2 Substitutions for Owner Benefit: Changes proposed by Contractor that will provide superior performance, or provide the Owner with some other benefit, to materials/items specified.
 - .1 Provide with proposal, a full description of the specified material and the proposed substitution with a comparison of the two items and a description/outline of the Owner Benefit.
 - .3 Substitutions for Contractor Benefit or Convenience: Changes proposed by Contractor that are not required in order to meet the Project requirements.
 - .1 Will not be permitted
- .2 "Or-Equal"
 - .1 Where the phrase "or equal", "approved equal", or "equal as approved by the Architect" occurs in the Contract Documents, do not assume that materials, equipment, or methods will be approved by the Architect
 - .2 The decision of the Architect shall be final

1.6 AVAILABILITY OF SPECIFIED ITEMS

- .1 Verify, prior tender close, that all specified items are or will be available in time for installation or the project.
 - .1 Coordinate all aspects, with suppliers and trades for ordering material and obtain shop drawing review with the project schedule.
- .2 In the event specified items are not, or will not be so available, notify the Architect prior to tender close.

- .1 Submit one request for substitution for each item for Consultant review.
 - .2 Submit with cover document including the following information:
 - .1 Project Name
 - .2 Project Number
 - .3 Item Name
 - .4 Specification and/or Drawing Reference including article and sub-article reference
 - .5 Manufacturer/supplier name, address and contact information.
 - .3 Proposed alternate with all relevant data for comparison to specified product.
 - .4 Submit no later than four (4) working days prior to tender close, for evaluation by the Consultant.
- .3 Changes to Contract Price or Contract Time, because of non-availability of specified items, will not be borne by the Owner
- .4 Additional time required by the consultant team to review additional submissions may back-charged to the contractor, and shall not be borne by the Owner

1.7 SUBMITTALS

- .1 Substitution Requests: Submit three (3) copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles
 - .1 Documentation: Show compliance with requirements for substitutions and the following, as applicable
 - .1 Provide cover sheet or Contractors Requested for Alternate (RFA) form and indicate the following:
 - .1 Project Name
 - .2 Project Date
 - .3 Specification reference including item number.
 - .4 Drawing reference where applicable.
 - .2 Statement indicating why specified product or fabrication or installation cannot be provided, if applicable
 - .3 Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution
 - .4 Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified

- .5 Product Data, including drawings and descriptions of products and fabrication and installation procedures
 - .6 Samples, where applicable or requested
 - .7 Certificates and qualification data, where applicable or requested
 - .8 List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners
 - .9 Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated
 - .10 Research reports evidencing compliance with building code in effect for Project
 - .11 Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery
 - .12 Cost information: Include a statement that the proposed change shall not change the contract price
 - .13 Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated
 - .14 Contractor's waiver of rights to additional costs or time that may subsequently become necessary because of coordination or failure of proposed substitution to produce indicated results
- .2 Additional Information: If necessary, the Consultant may request additional information or documentation for evaluation within **seven (7)** working days of receipt of a request for substitution. Provide requested information as soon as possible, to assist in the review process.
- .3 Evaluation period: Submit requisitions allowing ample time for review process, coordinate with construction schedule. Allow for a minimum of **fifteen (15)** working days of Consultants receipt of all information for evaluation process.
- .4 Acceptance or Rejection:
- .1 Acceptance: If approved, the Consultant will issues formal paperwork to document the approval, with accepted contract forms
 - .1 Upon acceptance, and only after acceptance, submit project specific shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
 - .2 Rejection: If rejected, the consultant will issue instruction to the contractor of the rejection.
 - .1 The Consultant may not, nor is required to, provide

- reasons for rejection.
- .2 Appeals to rejected items will not be permitted.

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

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

PART 2 - PRODUCTS

- 2.1 SUBSTITUTIONS .1 Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than **fifteen (15)** working days prior to time required for preparation and review of related submittals.
- .1 Conditions: Consultant will consider Contractor's request for substitution only when all of the following conditions are satisfied. If the following conditions are not satisfied, Consultant will return requests without action, except to record noncompliance with these requirements
 - .1 Requested substitution is consistent with the Contract Documents and will produce indicated results
 - .2 Requested substitution provides sustainable design characteristics that specified product provided
 - .3 Substitution request is fully documented and properly submitted
 - .4 Requested substitution will not adversely affect Contractor's construction schedule
 - .5 Requested substitution has received necessary approvals of authorities having jurisdiction
 - .6 Requested substitution is compatible with other portions of the Work
 - .7 Requested substitution has been coordinated with other portions of the Work
 - .8 Requested substitution provides specified warranty
 - .9 If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved
 - .2 Substitutions for Convenience: Will not be permitted, unless otherwise indicated, or approved by the Consultant.

PART 3 – EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Ontario
 - .1 Occupational Health and Safety Act, R.S.O. Latest Addition.

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 10 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation.
- .3 Submit 1 copy of Contractor's authorized representative's work site health and safety inspection reports to Consultant Weekly.
- .4 Submit 1 copy of each health and safety meeting minutes to Consultant.
- .5 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .6 Submit copies of incident and accident reports.
- .7 Consultant will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 10 days after receipt of plan. Revise plan as appropriate and resubmit plan to Consultant within 10 days.
- .8 Consultant's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

1.3 FILING OF NOTICE

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

1.4 SAFETY ASSESSMENT

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

1.5 MEETINGS

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

-
- 1.6 REGULATORY REQUIREMENTS .1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements
- 1.7 PROJECT/SITE CONDITIONS .1 Work at site will include contact with:
.1 Sault Ste Marie Airport Development Corporation (SSMADC)
.2 Others
- 1.8 GENERAL REQUIREMENTS .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
.2 Consultant may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.
- 1.9 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.
- 1.10 UNFORSEEN HAZARDS .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province Territory having jurisdiction and advise Departmental Representative DCC Representative Consultant verbally and in writing.
- 1.11 HEALTH AND SAFETY CO-ORDINATOR .1 Employ and assign to Work, competent and authorized representative as Health and Safety coordinator. Health and Safety coordinator must:
.1 Have site-related working experience specific to activities associated with this type and scale of construction.
.2 Have working knowledge of occupational safety and health regulations.
.3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
.4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
.5 The authorized representative shall be on site when construction activities are ongoing
.6 The authorized representative shall not be employed in any other capacity except to discharge this duty (ie: cannot be a

site superintendent, project manager, work coordinator,
labourer etc...)

- 1.12 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.
- 1.13 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.
- 1.14 BLASTING .1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Consultant.
- 1.15 POWDER ACTUATED DEVICES .1 Use powder actuated devices only after receipt of written permission from Consultant.
- 1.16 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 RELATED REQUIREMENTS .1 Section 012983 – Testing & Inspection Payment
.2 Section 012100 – Allowances
- 1.2 INSPECTION .1 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant’s instructions, or law of Place of Work.
.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
.4 Consultant will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, The Owner shall pay cost of examination and replacement.
- 1.3 INDEPENDENT INSPECTION AGENCIES .1 Independent Inspection/Testing Agencies will be engaged in accordance with 012983 for purpose of inspecting and/or testing portions of Work.
.2 Allocated costs: to Section 012100 - Allowances
.3 Provide equipment required for executing inspection and testing by appointed agencies.
.4 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
.5 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 to Owner Pay costs for retesting and re-inspection.
.6 Inspectors shall be qualified to perform type of inspection required and shall meet basic requirements of ASTM E329 “Standard of Specification for Agencies engaged in the testing and or inspection of materials used in construction.”
.7 Concrete testing shall be performed by testing agency conforming to

the requirements of CSA A283 "Qualification Code for Concrete Testing Laboratories."

1.4 STANDARDS

- .1 Where initials of an organization are used, followed by number or combination of numerals and letters, this designates a standard produced by the organization. Conform to issue of standard so designated, as amended and revised to date of contract. When designation does not indicate particular edition of standard edition current at date of Contract shall apply.
 - .1 Contractor shall provide a copy of all standards indicated or required for the project in the Construction trailer and will provide copies to the consultant upon request.
- .2 Wherever a standard confers upon a person, a body politic or a body corporate the right to approve, to select, to exercise authority or to interpret the standard, and refers to that person, body politic or body corporate as the Authority having jurisdiction, the Authority, the Engineer, the Department, the Purchaser, the Contracting Officer or by some other such designation, the Architect shall have the right to exercise the powers of any such person, body politic, or body corporate.
- .3 Where standards and manufacturer's instructions reduce the requirements of the Contract Documents, the Contract Documents shall govern.
- .4 Where standards and manufacturer's instructions are in excess of the requirements of the Contract Documents, the Standards and manufacturers instruction shall govern.

1.5 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.

1.6 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.
- .4 Unless more restrictive/demanding requirements as specified in other sections, the following construction tolerances will be accepted:
 - .1 "plumb and level" 3mm in 3m (1/8" in 10')
 - .2 "square" 10 seconds more or less than 90 degrees
 - .3 "straight" 3mm (1/8") under a 3m (10') straight edge
 - .4 Tolerances shall not be cumulative

- .5 Roofing: - Manufacturer's Field Services: Have Representative of membrane manufacturer visit Site on day and roofing are commenced and periodically thereafter, to ensure work is properly performed.
 - .1 Provide written reports of each visit, detailing their findings to the Consultant
 - .2 Check that applicator is licensed and/or approved by material manufacturer, and has satisfactory experience with materials, products and systems being used.
 - .3 Record weather conditions and temperatures of substrate and atmosphere.
 - .4 Inspect substrate for required finish, cure, dryness, slope to drains, setting of drains to correct levels and provision of air seals.
 - .5 Check materials and installation provided by other trades for compatibility and suitability to accept roofing.
 - .6 Check type, quality and condition of equipment and measuring devices.
 - .7 Check storage of materials.
 - .8 Check that shelf life of materials are not exceeded.
 - .9 Check that debris and contaminants resulting from substrate preparation have been removed.
 - .10 Check treatment of cracks, treatment of horizontal to vertical junctions, expansion and control joints, reinforcements, flashings, reglets, items penetrating through slabs, parapets.
 - .11 Check that materials are not contaminated and are free of impurities.
 - .12 Check that cold applied materials are thoroughly mixed and that liquid applied materials are free of air bubbles.
 - .13 Check by measuring, including test cuts of completed work, to ensure that materials are applied to required, consistent, uniform thicknesses.
 - .14 Check that roofing is bonded to substrate in accordance with requirements of Specifications
 - .15 Check that protection is provided and care is taken to prevent damage to membranes, flashings and other parts of system during Work of this Contract.
 - .16 Check that roofing work is provided as required by Drawings and Specifications.
 - .17 Examine expansion joints.
 - .18 Upon completion of work, manufacturer's representative shall inspect roofing and verify quality of performance to yield weather tight waterproofing and roofing systems and issue manufacturer's warranty

- .6 Sealants - Independent inspection and testing company may be hired to carry out inspection and testing. Tests may include sampling of installed product where adhesion, cohesion or reversion failure is suspected.
 - .1 Where work or materials fail to meet requirements as indicated by test results, pay costs of additional inspection and testing required for new replacement work or materials. Submit a signed certificate from sealant manufacturers prior to commencement of this work which states:
 - surface preparation requirements;

- priming and application procedures;
- verification that proper joint backing material is selected;
- verification that sealant materials are selected for use from those specified;
- verification that sealants are suitable for purposes intended and joint designs;
- verification that sealants are compatible with other materials and products with which they come in contact, including but not limited to sealants provided under other Sections, insulation adhesives, bitumens, vapour barriers, waterproofing, metals and metal finishes and stone;
- verification that sealants will not stain substrate;
- verification that sealant is suitable for temperature, humidity and weather conditions at time of application.

1.7 SCAFFOLDING

- .1 The Contractor shall provide at their own expense all manner of materials, labour, scaffolding, ladders, hand tools, and appliances necessary for the due execution and proper completion of work described herein, unless otherwise specified in tender specifications
- .2 Erect scaffolding independent of walls. Use scaffolding so as to interfere as little as possible with other trades. When not in use, move scaffolding as necessary to permit installation of other work. Construct and maintain scaffolding in rigid, secure and safe manner. Remove scaffolding promptly when no longer required. Scaffolding must comply to Occupational Health and Safety Act

1.8 FLOOR SURFACES

- .1 Adequately protect new floors and finishes from damage. Take special measures and/or provide protective cover when moving heavy loads or equipment on them.
- .2 Keep floors free of oils, grease, or other material likely to damage them, discolour them, or affect bond of applied finishes
- .3 Once building is enclosed, keep floors as dry as possible after curing

1.9 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, Consultant 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 the Consultant.

- 1.10 REPORTS
- .1 Submit 2 copies of inspection and test reports to Consultant.
 - .2 Provide copies to the general contractor, subcontractor & manufacturer of work being inspected or tested.

- 1.11 TESTS AND MIX DESIGNS
- .1 Furnish test results and mix designs as requested

PART 2 - PRODUCTS

- 2.1 NOT USED
- .1 Not Used.

PART 3 - EXECUTION

- 3.1 NOT USED
- .1 Not Used.

END OF SECTION

PART 1 - GENERAL

- 1.1 ACTION AND INFORMATIONAL SUBMITTALS .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures
- 1.2 INSTALLATION AND REMOVAL .1 Provide temporary utilities controls in order to execute work expeditiously.
.2 Remove from site all such work after use.
- 1.3 WATER SUPPLY .1 Contractor may use existing water supply from the existing building at no cost. Do not abuse this privilege.
- 1.4 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 of the addition 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 Protect woodwork and other sensitive building elements from excessive/lack of humidity.
.6 Provide adequate ventilation to meet health regulations for safe working environment.
.4 Maintain temperatures of minimum 10 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 and ventilating system of building shall not be

used even if available unless approved by consultant. Be responsible for damage to heating system if use is permitted.

.1 If permitted and upon completion of Work for which permanent heating system is used, replace filters, clean entire HVAC system, ductwork & diffusers, clean strainers

.7 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.

.8 Pay costs for maintaining temporary heat, when using permanent heating system.

.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.

1.5 TEMPORARY POWER AND LIGHT

.1 Contractor may utilize existing power as it is available from the building for construction purposes at no cost.

.2 Arrange for connection with owner, temporary power can be connected to existing distribution panels where space is available. Pay costs for installation, maintenance and removal.

.3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 200lx.

1.6 TEMPORARY SANITARY FACILITIES

.1 Permanent on site facilities may be used by the Contractor's forces.

.1 Do not abuse the washroom privileges or the privileges will be revoked and the contractors will be required to provide their own washroom facilities.

.2 Post notices and take such precautions as required by local health authorities.

.3 Keep area and premises in sanitary condition

1.7 TEMPORARY COMMUNICATION FACILITIES

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

1.8 FIRE PROTECTION

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

.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

END OF SECTION

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS .1 Section 013119 – Project Management and Coordination.
- 1.2 REFERENCES .1 Canadian General Standards Board (CGSB)
.1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
.2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
.2 Canadian Standards Association (CSA International)
.1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
.2 CSA-0121-M1978(R2003), Douglas Fir Plywood.
.3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
.4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
.3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.
- 1.3 ACTION AND INFORMATIONAL SUBMITTALS .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- 1.4 INSTALLATION AND REMOVAL .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
.2 Identify areas which have to be gravelled to prevent tracking of mud.
.3 Indicate use of supplemental or other staging area.
.4 Provide construction facilities in order to execute work expeditiously.
.5 Remove from site all such work after use.
- 1.5 SCAFFOLDING .1 Scaffolding in accordance with CAN/CSA-S269.2.
.2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms and temporary stairs as required for all stages of construction.
- 1.6 HOISTING .1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

.2 Hoists and cranes to be operated by qualified operators only.

1.7 ELEVATORS

- .1 Limit use of permanent elevators to personnel absolutely requiring them. Make good any damage arising from construction use.
- .2 Provide protective coverings for finish surfaces of cars and entrances.

1.8 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.

1.9 CONSTRUCTION PARKING

- .1 Parking will be permitted on site in the designated contractor parking areas.
- .2 Provide and maintain adequate access to project site.

1.10 SECURITY

- .1 Provide adequate security services, as deemed necessary by this Contractor for protection of the building and all materials on site.
- .2 Owner shall not be liable for any theft, vandalism or other malicious acts on the property prior to substantial completion.

1.11 OFFICES

- .1 General Contractor and Subcontractors to provide their own offices as necessary. Direct location of these offices.

1.12 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.13 BARRIERS

- .1 Provide barriers for protection of the public, for security, and as may be required by governing authorities.
- .2 Markings on barriers shall be provided by way of signs, reflectors or flashing devices to indicate degree of hazard to direct public and notify safety requirements.
- .3 Hoarding
 - .1 Erect hoarding to protect public, workers and property from damage. Remove from site all such work after use.
 - .2 Hoarding constructed as solid barriers or greater if required by regulatory authorities shall be provided for all aspects and components of the site.

- .3 Erect temporary hoarding using 2" x 4" construction grade lumber framing at 24" centers and 4' x 8' x 1/2" thick exterior grade fir plywood to CSA O121- M1978 (R1998), as required to protect public and existing finishes as required.
- .4 Apply plywood panels vertically. Provide suitable supports to adequately brace the hoarding in accordance with requirements of authorities having jurisdiction.
- .5 Paint public side of permanent hoarding enclosure in selected colours with one coat of CGSB 1-GP-55M and one coat exterior paint to CAN/CGSB-1.59-M89. Colour to be selected by Consultant. Maintain public side of enclosure in clean condition.
- .6 Provide hoarding barriers, signs and lights round the building site so as to provide proper protection and comply with regulations and bylaws of the municipality and authorities having jurisdiction. Hold the Owner harmless from any damage or expense arising from failure to properly execute this work.
- .7 Protect the building, premises and adjoining premises from damage during the construction period and during any period when the work is closed down for any cause.
- .8 Work shall include barricades for traffic control, and to prevent damaging traffic over exterior and interior finished areas, as well as safety barricades and otherwise, as may be required.
- .9 Comply with Provincial Construction Safety Regulations, Ontario Building Code, Workplace Safety and Insurance Board, Ontario Ministry of Labour Regulations, and Municipal Statutes.

1.14 WEATHER ENCLOSURES

- .1 Provide temporary weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs, as required to protect it against the elements, to maintain environmental conditions required for work within the enclosure, and to prevent damage to materials stored within.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work area for temporary heat.
- .3 Erect enclosures to allow complete accessibility for installation of materials and working during time enclosures remain in place.
- .4 Design enclosures to withstand wind and snow loads as required for the building. Ensure structural integrity of the building is not affected by enclosures and the loads place on enclosures. Keep surfaces of enclosures free of snow and ice to avoid overloading of building structure.

1.15 CONSTRUCTION AIDS

- .1 Scaffolding
 - .1 When not provided as part of normal practice by sub trades, provide, erect, move and dismantle scaffolding necessary to complete the work.

- .2 Scaffold must be rigid, secure and provided with necessary planking and barriers required by regulatory authorities.
- .3 Protect non-finished and finished work equally from damage by the use of scaffolding and replace immediately and damaged work.

.2 Hoists and Cranes

- .1 Employ hoists and cranes or other powered lifting equipment in strict accordance with safety requirements or regulatory authorities.
- .2 Hoisting operations shall not create hazards or damage to existing conditions.
- .3 Scheduling of major hoisting shall be performed to create the least on-site use of machinery as possible.
- .4 Special consideration shall be given to use of large equipment which might impede operations and functions of existing building.

.3 Guard Rails and Barricades

- .1 Provide secure, rigid guard railings and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs in accordance with the requirements of authorities having jurisdiction.

.4 Garbage Chutes

- .1 Provide as required and maintain garbage chutes in rigid, secure and safe manner.
- .2 Erect chutes independent of walls. Locate chutes in such a manner as to interfere as little as possible with other trades. Location and duration of use to be approved by Owner.
- .3 Remove chutes when no longer required.

1.16 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS .1 Section 014500 – Quality Controls.
- 1.2 REFERENCES .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Consultant reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be born by Owner in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- 1.3 QUALITY .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Consultant based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.4 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 MATERIALS

- .1 Review all material delivered to the site for conformance with the Contract Documents.
 - .1 Reject material that does not conform to the contract documents.
 - .2 Requests for approval of alternates will be rejected.
 - .3 Remove from the Place of the Work
- .2 Reject material damaged in transit to the site prior to installation into the Work.
 - .1 Remove from site and replace damaged materials
- .3 Store packaged materials in original undamaged containers with manufacturer's labels and seals intact.
- .4 Handle and store materials in accordance with manufacturers' and suppliers' recommendations.
- .5 Prevent damage.

1.6 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementations products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber and doors on flat, solid supports and keep clear of ground.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags

and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

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

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

1.7 TRANSPORTATION

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

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

1.8 MANUFACTURER'S INSTRUCTIONS

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

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

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

1.9 QUALITY OF WORK

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

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

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

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

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

-
- 1.10 CO-ORDINATION
- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
 - .2 General contractor to be the coordinator of the work of all trades.
 - .3 General contractor will ensure that all trades have planned the work such that major conflict and removal is not required and that the co-ordination drawings have been completed and followed.
 - .4 Be responsible for coordination and placement of openings, sleeves and accessories.
- 1.11 CONCEALMENT
- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
 - .2 Before installation inform Consultant if there is interference. Install as directed by Consultant.
- 1.12 REMEDIAL WORK
- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
 - .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.
- 1.13 LOCATION OF FIXTURES
- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
 - .2 Inform Consultant of conflicting installation. Install as directed.
- 1.14 FASTENINGS
- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
 - .2 Prevent electrolytic action between dissimilar metals and materials.
 - .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
 - .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
 - .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
 - .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

- 1.15 FASTENINGS - EQUIPMENT .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.
- 1.16 PROTECTION OF WORK IN PROGRESS .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Consultant.
- .2 Employ the services of a Professional Engineer licensed in the Province of Ontario if there are areas deemed to potentially require the use of significant shoring or bracing to evaluate the area and provide a design to proceed.
- 1.17 EXISTING UTILITIES .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work and/or building occupants and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.
- PART 2 - PRODUCTS
- 2.1 NOT USED .1 Not Used.
- PART 3 - EXECUTION
- 3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or separate contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Owner or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.2 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Changes that require a change in the contract price or time require the submission of a Change Request, which may or may not be accepted by the Consultant. Include a clear description of the request, breakdown of cost impacts, schedule impacts, reason for change etc...

1.3 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.

- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Remove samples of installed Work for testing.
- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .10 Restore work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 - Firestopping, full thickness of the construction element.
- .13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.5 WASTE MANAGEMENT AND DISPOSAL

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

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.
END OF SECTION

PART 1 - GENERAL

- 1.1 PROJECT CLEANLINESS
- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
 - .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site.
 - .3 Clear snow and ice from access to construction and buildings under construction, remove snow from site.
 - .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
 - .5 Provide on-site containers for collection of waste materials and debris.
 - .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .7 Dispose of waste materials and debris at certified designated dumping areas on Crown property and within city limits. Keep a record of and provide waybills to consultant when requested.
 - .8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
 - .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
 - .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
 - .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
 - .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.
- 1.2 FINAL CLEANING
- .1 General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations
 - .2 Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program.

- Comply with manufacturer's written instructions
- .3 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
 - .4 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
 - .5 Prior to final review remove surplus products, tools, construction machinery and equipment.
 - .6 Remove waste products and debris including that caused by Owner or other Contractors.
 - .7 Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site.
 - .8 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
 - .9 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
 - .10 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls.
 - .11 Clean lighting reflectors, lenses, and other lighting surfaces.
 - .12 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
 - .13 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
 - .14 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
 - .15 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
 - .16 Remove dirt and other disfiguration from exterior surfaces.
 - .17 Clean and sweep roofs, gutters, areaways, and sunken wells.
 - .18 Sweep and wash clean paved areas.
 - .19 Clean equipment and fixtures to sanitary condition; replace filters of mechanical equipment.
 - .20 Clean roofs, downspouts, and drainage systems.
 - .21 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.22 Remove snow and ice from access to building.

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

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 WASTE MANAGEMENT GOALS

- .1 Prior to start of Work conduct meeting with Consultant to review and discuss The Waste Management Plan and Goals, consistent with the requirements of the City of Sault Ste. Marie.
- .2 Accomplish maximum control of solid construction waste.
- .3 Preserve environment and prevent pollution and environment damage.

1.2 INTENT

- .1 This is not a LEED Certified project. The intent of this section is to provide guidelines for the contractor to make every effort possible to reduce the impact on the environment from construction waste and to divert as much construction waste from landfills as possible.

1.3 REFERENCES

- .1 CCA 27-1997 – A Guide on Construction Environmental Management Planning (available from <http://cca-acc.com/en/industry-practices/cca-documents>)
- .2 CCA 81-2001 – A Best Practices Guide to Solid Waste Reduction (available from <http://cca-acc.com/en/industry-practices/cca-documents>)

1.4 DEFINITIONS

- .1 Class III: non-hazardous waste - construction renovation and demolition waste.
- .2 Cost/Revenue Analysis Workplan (CRAW): based on information from WRW, and intended as financial tracking tool for determining economic status of waste management practices.
- .3 Demolition Waste Audit (DWA): relates to actual waste generated from project.
- .4 Inert Fill: inert waste - exclusively asphalt and concrete.
- .5 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in

altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

- .9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items including pallets or unused products to vendors.
- .10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .11 Separate Condition: refers to waste sorted into individual types.
- .12 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .13 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.
- .14 Waste Management Co-ordinator (WMC) : contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .15 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

1.5 DOCUMENTS

- .1 Maintain at job site, one copy of following documents:
 - .1 Waste Audit.
 - .2 Waste Reduction Workplan.
 - .3 Material Source Separation Plan.
 - .4 Schedules A, B, C, D, E completed for project.

1.6 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit following prior to project start-up:
 - .1 Submit 2 copies of completed Waste Audit (WA): Schedule A.
 - .2 Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B.
 - .3 Submit 2 copies of completed Demolition Waste Audit (DWA): Schedule C.
 - .4 Submit 2 copies of Cost/Revenue Analysis Workplan (CRAW): Schedule D.
 - .5 Submit 2 copies of Materials Source Separation Program (MSSP) description.

- .3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
 - .1 Failure to submit could result in hold back of payment.
 - .2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled or disposed of.
 - .3 For each material reused, sold or recycled from project, include amount and the destination.
 - .4 For each material land filled or incinerated from project, include amount of material and identity of landfill, incinerator or transfer station.

- 1.7 WASTE AUDIT (WA)
 - .1 Conduct WA prior to project start-up.
 - .2 Prepare WA: Schedule A.
 - .3 Record, on WA - Schedule A, extent to which materials or products used consist of recycled or reused materials or products.

- 1.8 WASTE REDUCTION WORKPLAN (WRW)
 - .1 Prepare WRW prior to project start-up.
 - .2 WRW should include but not limited to:
 - .1 Destination of materials listed.
 - .2 Deconstruction/disassembly techniques and sequencing.
 - .3 Schedule for deconstruction/disassembly.
 - .4 Location.
 - .5 Security.
 - .6 Protection.
 - .7 Clear labelling of storage areas.
 - .8 Details on materials handling and removal procedures.
 - .9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.
 - .3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
 - .4 Describe management of waste.
 - .5 Identify opportunities for reduction, reuse, and recycling of materials. Based on information acquired from WA.
 - .6 Post WRW or summary where workers at site are able to review content.
 - .7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.
 - .8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

- 1.9 DEMOLITION WASTE AUDIT (DWA)
 - .1 Prepare DWA prior to project start-up.

- .2 Complete DWA: Schedule C.
- .3 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

1.10 COST/REVENUE ANALYSIS .1
WORKPLAN (CRAW)

- .1 Prepare CRAW: Schedule D.

1.11 MATERIALS SOURCE .1
SEPARATION PROGRAM (MSSP)

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Consultant
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated material[s] in area[s] which minimize material damage.
- .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
 - .1 Transport to approved and authorized recycling facility or to users of material for recycling.
- .8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.
 - .1 Ship material[s] to [site operating under Certificate of Approval] [premises of Owner].
 - .2 Materials must be immediately separated into required categories for reuse or recycling.

1.12 WASTE PROCESSING .1
SITES

- .1 Province of Ontario
 - .1 City of Sault Ste. Marie
Waste Management Site
705-759.2500

1.13 STORAGE, HANDLING AND .1
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 Support affected structures. If safety of building is endangered, cease operations and immediately notify Consultant.
- .7 Protect surface drainage, mechanical and electrical from damage and blockage.
- .8 Separate and store materials produced during dismantling of structures in designated areas.
- .9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.
 - .3 Provide waybills for separated materials.

1.14 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 Keep records of construction waste including:
 - .1 Number and size of bins.
 - .2 Waste type of each bin.
 - .3 Total tonnage generated.
 - .4 Tonnage reused or recycled.
 - .5 Reused or recycled waste destination.
- .4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.15 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, provide temporary security measures approved by Consultant

1.16 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.

3.3 DIVERSION OF MATERIALS .1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Consultant and consistent with applicable fire regulations.
.1 Mark containers or stockpile areas.
.2 Provide instruction on disposal practices.
.2 On-site sale of salvaged, recovered, reusable, recyclable materials is not permitted.

.3 **Demolition Waste:**

Material Type	Recommended Diversion %	Actual Diversion %
Acoustic Tile	50	[]
Acoustical Insulation	100	[]
Carpet	100	[]
De-mountable Partitions	80	[]
Doors and Frames	100	[]
Electrical Equipment	80	[]
Furnishings	80	[]
Marble Base	100	[]
Mechanical Equipment	100	[]
Metals	100	[]
Rubble	100	[]
Wood (uncontaminated)	100	[]
Other		[]

.4 **Construction Waste:**

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100	[]
Plastic Packaging	100	[]
Rubble	100	[]
Steel	100	[]
Wood (uncontaminated)	100	[]
Other		[]

3.4 WASTE AUDIT (WA)

.1

Schedule A - Waste Audit (WA):

(1) Material Category	(2) Material Quantity Unit	(3) Estimated Waste %	(4) Total Quantity of Waste (unit)	(5) Generation Point	(6) % Recycled	(7) % Reused
-----------------------------	-------------------------------------	--------------------------------	--	----------------------------	-------------------	-----------------

Wood
 and
 Plastics
 Material
 Description
 Off-cuts
 Warped
 Pallet
 Forms
 Plastic
 Packaging
 Cardboard
 Packaging
 Other
 Doors
 and
 Windows
 Material
 Description
 Painted
 Frames
 Glass
 Wood
 Metal
 Other

3.5 WASTE REDUCTION
 WORKPLAN (WRW)

.1 **Schedule B: Waste Reduction Workplan
 (WRW)**

(1) Material Category	(2) Person(s) Responsible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units) Projected	Actual (5) Recycled Amount (unit) Projected	Actual (6) Material(s) Destination
Wood and Plastics Material Description Chutes Warped Pallet Forms Plastic Packaging Cardboard Packaging Other Doors and Windows Material Description Painted Frames Glass Wood Metal Other					

3.6 DEMOLITION WASTE AUDIT .1
(DWA)

Schedule C - Demolition Waste Audit (DWA):

(1) Material Description	(2) Quantity	(3) Unit	(4) Total	(5) Volume (cum)	(6) Weight (cum)	(7) Remarks and Assumption
--------------------------------	-----------------	-------------	--------------	------------------------	------------------------	-------------------------------------

Wood
Wood
Stud
Plywood
Baseboard
-Wood
Door
Trim -
Wood
Cabinet
Doors
and
Windows
Panel
Regular
Slab
Regular
Wood
Laminate
Byfold -
Closet
Glazing

3.7 COST/REVENUE ANALYSIS
WORKPLAN (CRAW)

.1 **Schedule D - Cost/Revenue Analysis**
Workplan (CRAW):

(1) Material Description	(2) Total Quantity (unit)	(3) Volume (cum)	(4) Weight (cum)	(5) Disposal Cost/Credit \$(+/-)	(6) Category Sub-Total \$(+/-)
Wood					
Wood Stud					
Plywood					
Baseboard					
- Wood					
Door Trim					
- Wood					
Cabinet					\$
Doors and					
Windows					
Panel					
Regular					
Slab					
Regular					
Wood					
Laminate					
Byfold -					
Closet					
Glazing					\$
		(7) Cost			\$
		(-)/			
		Revenue			
		(+)			

3.8 CANADIAN GOVERNMENTAL .1
DEPARTMENTS CHIEF
RESPONSIBILITY FOR THE
ENVIRONMENT

Schedule E - Government Chief Responsibility for the Environment:

Province	Ontario
Address	Ministry of Environment and Energy 135 Clair Avenue West Toronto, Ontario M4V 1P5
General Inquires	416-323-4321
Fax	416-323-4682

END OF SECTION

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS .1 Division 1 – General Requirements
.2 Section 01 29 00 - Payment Procedures
.3 Section 01 78 00 – Closeout Submittals
- 1.2 REFERENCES .1 OAA/OGCA – General Take Over Procedures
- 1.3 SUMMARY .1 Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following
.1 Submittals
.2 Pre-Substantial Performance Requirements
.3 Substantial Completion procedures
.4 Final Completion Procedures
.5 List of Incomplete Items
.6 Final Cleaning
.7 Repair of the Work
- 1.4 SUBMITTALS .1 Contractor's List of Incomplete Items: Initial submittal at Substantial Completion
.2 Certified List of Incomplete Items: Final submittal at Final Completion
.3 Certificates of Release: From authorities having jurisdiction
.4 Certificate of Insurance: For continuing coverage
.5 Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections
- 1.5 PRE-SUBSTANTIAL PERFORMANCE REQUIREMENTS .1 Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:
.1 Advise Owner of pending insurance changeover requirements
.2 Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions
.3 Complete startup and testing of systems and equipment
.4 Perform preventive maintenance on equipment used prior to Substantial Completion (if permitted)
.5 Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit

- demonstration and training video recordings specified in Section 01 79 00 - Demonstration and Training.
- .6 Advise Owner of changeover in heat and other utilities
- .7 Participate with Owner in conducting inspection and walkthrough with local emergency responders
- .8 Conduct an inspection of the facility with Local Building Officials and other Authorities Having Jurisdiction and prepare and distribute a list of outstanding items issues to all relevant parties.
- .9 Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements
- .10 Complete final cleaning requirements, including touchup painting
- .11 Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects

1.6 SUBSTANTIAL COMPLETION .1
PROCEDURE

In general terms, (not to supersede the requirements of the Construction Lien Act) the Contract is Substantially Performed when the following conditions are achieved.

- .1 The final phase of the improvements to be made under the contract is ready for use, or being used for its intended purpose.
- .2 The cost for the outstanding work of the Contract falls within a specific calculation as outlined below
 - .1 3 per cent of the first \$500,000 of the Contract Price
 - .2 2 per cent of the next \$500,000 of the Contract Price
 - .3 1 per cent of the balance of the contract.

- .2 Determining if the project is "ready for its intended use".
 - .1 The project is ready for its intended use when the following is provided:
 - .1 All early warning and life safety systems are installed, operational, and complete
 - .1 Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases, including but not limited to the following:
 - .1 Sprinkler System Verification
 - .2 Final Fire Alarm Verification
 - .3 Local Fire Department fire alarm inspection and approval.
 - .4 Lightning Protection System installation certificate
 - .5 Final Electrical Inspection Certificate
 - .6 TSSA Compliance Certificates.
 - .2 Building structure complete and verified.
 - .3 All exit stairs complete with handrails and guardrails and free of all construction debris and equipment.
 - .4 All exit and means of egress doors and hardware are installed and complete. Including all doors and hardware in fire separations

- .5 All exits and means of egress are free of any and all construction debris and equipment.
 - .6 All Fireproofing and Fire-stopping is installed and complete
 - .7 All Fire Dampers in building HVAC system are installed and complete
 - .8 All exit signs installed and operational.
 - .9 Communications systems installed and connected to life safety equipment.
- .2 All primary building systems are installed and complete, including the following:
- .1 Elevator Inspection certificate and authorization to use.
 - .2 Handicapped Lift Inspection certificate and authorization to use
 - .3 Building Shell complete, including but not limited to the following:
 - .1 Roofing complete, building interior waterproof.
 - .2 All exterior doors and windows installed and secured.
 - .3 Building cladding complete and weatherproof.
 - .4 Washroom specialties installed including toilet paper dispensers, toilet partitions, soap dispensers.
 - .5 Domestic water pressure and chlorination verification.
 - .6 Sanitary system complete, operational and verified.
 - .7 BAS (Building Automation System) complete and operational.
 - .8 Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information
 - .9 Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents
 - .10 Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Consultant. Label with manufacturer's name and model number where applicable
 - .1 Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Owners' signature for receipt of submittals
- .3 The Contractor shall coordinate with all applicable trades and

Authorities Having Jurisdiction and assemble the required information, certificates and test reports items listed above (and additional items as may be required by the Consultant). The contractor shall review and verify that all the requirements are provided, then submit the complete package to the Consultant for review.

.1 Contractor to provide a cover transmittal for all items listed. Verify that all are complete and current. The contractor shall also provide a letter to the Consultant, signed and dated by the Contractors Project Manager, attesting that all items are complete.

.1 If incomplete do not submit to the Consultant for review.

.3 Determining the "Cost for the Outstanding Work". To assess the amount of work outstanding in the contract the contractor shall complete the following procedure:

.1 Contractors Deficiency Review: The contractor shall prepare and submit to Consultant a comprehensive list of all outstanding work to be completed or corrected (Deficiency or Punch list). The contractor shall assign "preliminary cost" for each item to be completed. This list shall be in the form of an Excel spreadsheet in paper and electronic format, sample forms may be provided by the Consultant. The Consultant will not participate in this review secession (see below)

.1 The contractors shall include separate items and monies for all trades for all close-out submittals as may be required by the contract.

.2 These costs will be the contractor's interpretation of the amount of the corrective measures and may not necessarily reflect the Consultants opinion of the associated cost (see below).

.3 The contractor shall then review the total cost of the outstanding work with the calculation for determining substantial performance of the work as prescribed by the Construction Lien Act.

.1 If the value of the outstanding work falls within the prescribed calculation, then the contractor may submit the list to the consultant for review. See below.

.2 If the value of the outstanding work does not fall within the prescribed calculation, then the Contractor shall correct the deficiencies and re-inspect and revise the list prior to submitting to the consultant.

.2 Contractor/Consultant/Owner Deficiency Review: The Contractor, having followed the requirements as listed above, the Contractor may submit a proposed deficiency list to the Consultant, and schedule a review with the Contractor, Major Sub-trades and the Owners Representative to review and evaluate the contractors proposed deficiency list.

.1 Allow 5 working days for the Consultant's preliminary review of the Contractor's Deficiency Review.

.2 If, in the express opinion of the Consultant, the

- amount of work outstanding is exceeds what the contractor has indicated in the Contractor's Deficiency Review, the Consultant will reject the list. The contractor shall then correct deficiencies to the satisfaction of the Consultant and re-apply for the Contractor/Consultant/Owner Deficiency Review
- .3 If the Consultant receives the Contractor's Deficiency Review the contractor shall schedule a review with the Contractor, Major Sub-trades and the Owners Representative to review and evaluate the contractors proposed deficiency list
 - .4 This team will review the project site and the Consultant will take over control of the Deficiency List. The consultant will modify the list to include additional items discovered during this review and, re-review and re-assign values to the amount of outstanding work. The values assigned by the consultant are final.
 - .1 If, the amount of outstanding work falls within the requirements of the Construction Lien Act financial calculation as described above, see below for application for Substantial Performance
 - .2 If the amount of work outstanding does not meet the requirements of the Construction Lien Act financial calculation as described above, the contractor shall correct deficiencies and re-apply for an inspection by the Consultant team.
 - .1 The consultant will provide two (2) inspections of the site to confirm substantial performance, (the initial inspection as indicated above and the final inspection). Costs for additional inspections shall be borne by the Contractor.
 - .4 When both primary Substantial Performance conditions have been achieved:
 - .1 Determining if the project is "ready for its intended use"
 - .2 Determining the "Cost for the Outstanding Work"the contractor shall assemble all documentation, into a single submission, and make a formal Application for Substantial Performance" to the Consultant.
 - .5 No later than 7 days after receipt of the complete package and application, the Consultant will review application to verify the validity of application. No later than 7 days after completing this review, the Consultant will notify Owner and Contractor if in his opinion the Work is substantially performed.
 - .6 The Consultant will determine and indicate the date of Substantial Performance of Work in a certificate that will be issued to the Contractor and Owner.

1.7 FINAL COMPLETION PROCEDURES

- .1 Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following
 - .1 Final Application for Payment according to Section 01 29 00 – Payment Procedures
 - .2 Certified List of Incomplete Items (Deficiency List): Submit certified copy of Consultant's Substantial Completion inspection list of items to be completed or corrected, endorsed and dated by Consultant. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
- .2 Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Consultant will either proceed with inspection or notify Contractor of unfulfilled requirements.
 - .1 Re-inspection: Cost of re-Inspection shall be borne by the Contractor.

1.8 LIST OF INCOMPLETE ITEMS (DEFICIENCY LIST)

- Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction
- .1 Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor
 - .2 Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems
 - .3 Include the following information at the top of each page:
 - .1 Project Name
 - .2 Project Number
 - .3 Date
 - .4 Name of Consultant
 - .5 Name of Contractor
 - .6 Page Number
 - .4 Submit list of incomplete items in the following format
 - .1 MS Excel electronic file. Consultant will return annotated file

1.9 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

1.10 REPAIR OF THE WORK

- .1 Complete repair and restoration operations before requesting inspection for determination of Substantial Completion

- .2 Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - .1 Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials
 - .2 Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration
 - .1 Do not paint over "ULC" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification
 - .3 Replace parts subject to operating conditions during construction that may impede operation or reduce longevity
 - .4 Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures

PART 2 - PRODUCTS

- 2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

- 3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

- .1 Canadian Environmental Protection Act (CEPA)
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with All Contractor's Representatives, Consultant and Owner in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify Project requirements.
 - .2 Review warranty requirements.
 - .2 Consultant to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
 - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Consultant two final copies of operating and maintenance manuals in English.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.4 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf [219 x 279] mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
 - .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence

of Table of Contents.

- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.
- .9 Provide 1:1 scaled CAD files in dwg format on CD of all drawing series. Consultant will provide the Contractor with CAD files prior to the start of work.

1.5 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.

1.6 AS -BUILT DOCUMENTS AND
SAMPLES

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

1.7 RECORDING INFORMATION
ON PROJECT RECORD
DOCUMENTS

.1 Record information on set of black line opaque drawings.

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

.3 Record information concurrently with construction progress.

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

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

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

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

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

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

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

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

.2 Changes made by Addenda and change orders.

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

1.8 EQUIPMENT AND SYSTEMS

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

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

.2 Include performance curves, with engineering data and tests,

and complete nomenclature and commercial number of replaceable parts.

- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control and 01 91 13 - General Commissioning (Cx) Requirements.
- .15 Aboveground storage tank inspection documentation, registration, forms, decommissioning and removal in accordance with CEPA SOR/2008-197.
- .16 Additional requirements: as specified in individual specification sections.

1.9 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.

1.10 MAINTENANCE MATERIALS .1

Spare Parts:

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to Consultant
 - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

.2 Extra Stock Materials:

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to Consultant.
 - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

.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 [site] [location as directed]; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to Consultant
 - .2 Include approved listings in Maintenance Manual.

1.11 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

1.12 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Consultant for 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 joint 4 month and 9 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 roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems such as fire protection, alarm systems, sprinkler systems,

- lightning protection systems, etc...
- .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 4 and 9 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.

1.13 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 SUMMARY

- .1 Section Includes.
 - .1 Methods and procedures for demolishing, salvaging, recycling and removing site work items designated to be removed in whole or in part.
- .2 Related Sections.
 - .1 Section 01 33 00 - Submittal Procedures.
 - .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .3 Section 01 45 00 - Quality Control.
 - .4 Section 01 56 00 - Temporary Barriers-Enclosures
 - .5 Section 01 51 00 – Temporary Utilities

1.2 REFERENCES

- .1 Canadian Council of Ministers of the Environment (CCME).
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .3 Transport Canada (TC).
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34
- .4 Environmental Protection Act , Ontario Regulation 102/94 (EPAOR102/94) Waste Audits and Waste Reduction Work Plans.

1.3 DEFINITIONS

- .1 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos PCB's, CFC's, HCFC's poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.
- .2 Waste Audit (WA): detailed inventory of materials in building. Indicates quantities of reuse, recycling and landfill.
 - .1 Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project.
 - .2 Indicates quantities of reuse, recycling and landfill.
- .3 Waste Management Coordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements. The contractor shall fulfill the requirements of the WMC.
- .4 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

1.4 SUBMITTALS

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

Procedures.

- .2 Shop drawings.
 - .1 Submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning, where required by authorities having jurisdiction.
 - .2 Submit drawings stamped and signed by qualified professional engineer, in good standing, registered or licensed in Province in which the Work occurs.
- .3 Hazardous Materials: provide description of Hazardous Materials and Notification of Filing with proper authorities prior to beginning of Work as required.
- .4 Waste Reduction Workplan: prior to beginning of Work on site submit detailed Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal and indicate any and all requirements as mandated by the Regulation, and at least the following:
 - .1 Descriptions of and anticipated quantities in percentages of materials to be salvaged reused, recycled and landfilled.
 - .2 Schedule of selective demolition.
 - .3 Number and location of dumpsters.
 - .4 Anticipated frequency of tippage.
 - .5 Name and address of haulers and waste facilities.
- .5 Certificates: submit copies of certified weigh bills/bills of lading/receipts from authorized disposal sites and reuse and recycling facilities for material removed from site on monthly basis upon request of Consultant.
 - .1 Written authorization from Owner and Consultant is required to deviate from haulers or receiving organizations listed in Waste Reduction Workplan.

1.5 ENGINEERED DRAWINGS

- .1 Demolition Drawings
 - .1 Where required by authorities having jurisdiction, retain an Engineer, and submit for approval, any and all drawings, diagrams or details that may be required by the Authorities having Jurisdiction. Said drawings shall bear stamp and signature of qualified professional engineer, in good standing, registered in the Province of Ontario.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements: ensure Work is performed in compliance with CEAA, TDGA, EPAOR102/94 and any other applicable Federal, Provincial and Municipal regulations.
- .2 Site Meetings.
 - .1 Convene Pre-Demolition Meeting prior to beginning work of this Section, coordinate meeting with the project schedule. The intent of this meeting is to:
 - .1 Verify project requirements.
 - .2 Review Waste Reduction requirements and

- expectations.
 - .3 Review existing installation and current conditions, develop work plan to suit new work required by Electrical and Owner fire alarm vendor sub-trades as indicated on the Drawings, which must be verified prior removal of existing fire alarm system within area of demolition work. Ensure all existing circuits within the demo zone are protected during demo activities occurring prior to removal to ensure no negative operational impacts, false alarms, troubles, etc. to adjacent occupied portion of building.
 - .4 Co-ordination with other building sub-trades.
 - .5 Co-ordinate with the owners continued use of the building.
 - .6 Identify potential project risk items and develop solutions.
 - .2 Coordinate and arrange attendance for this meeting with the following:
 - .1 General Contractor Project Manager
 - .2 General Contractor Superintendent
 - .3 Owners Representative
 - .4 Consultants Representative(s)
 - .5 Ministry of the Environment Representative
 - .3 Waste management reporting.
 - .1 Reporting Requirements: The WMC shall complete all applications reporting and final verifications to the Ministry of the Environment as may be required. Copies of all correspondence shall be provided to the consultant and the owner for their records.
 - .2 WMC must provide written report on status of waste diversion activity at each meeting.
 - .3 Contractor will provide written notification of change to meeting schedule established upon contract award 24 hours prior to scheduled meeting.
 - .4 Health and Safety. Unless otherwise specified, carry out demolition work in accordance with the Occupational Health and Safety Act, and Regulations for Construction Projects and applicable regulations as amended and revised to date of award of Contract including the regulation respecting asbestos made under O.H.S.A., Ontario Regulation 654/85 or latest edition
- 1.7 DELIVERY, STORAGE AND HANDLING
- .1 Storage and Protection.
 - .1 Protect existing items designated to remain and items designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Consultant and Owner at no cost to the Owner.
 - .2 Remove and store materials to be salvaged, in manner to prevent damage.
 - .3 Store and protect in accordance with requirements for maximum preservation of material.
 - .4 Handle salvaged materials as new materials.

- .2 Waste Management and Disposal.
 - .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .2 Separate for recycling and place in designated containers Steel, Metal, or Plastic waste in accordance with Waste Management Plan.
 - .3 Place materials defined as hazardous or toxic in designated containers.
 - .4 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal, regulations.
 - .5 Label location of salvaged material's storage areas and provide barriers and security devices.
 - .6 Ensure emptied containers are sealed and stored safely.
 - .7 Source separate for recycling materials that cannot be salvaged for reuse including wood, metal, concrete and asphalt, and gypsum.
 - .8 Remove materials that cannot be salvaged for reuse or recycling and dispose of in accordance with applicable codes at licensed facilities.

1.8 SITE CONDITIONS

- .1 Site Environmental Requirements.
 - .1 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
 - .2 Do not dispose of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
 - .1 Ensure proper disposal procedures are maintained throughout the project.
 - .3 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.
 - .4 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction.
 - .5 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .2 Take over spaces to be demolished based on their condition on date that tender is accepted.
- .3 Inspect adjacent spaces and ensure that its condition and stability are recorded in a suitable manner for evaluation of possible damage caused by Work of this Section.
- .4 Photograph existing spaces in sufficient detail to record conditions and stability before work of this Section commences. These photographs will be used to compare to condition of adjacent construction before and after performance of work of this Section should any damage to the adjacent construction occur. Submit all photographs to the Consultant prior to the commencement of any

work.

1.9 SCHEDULING

- .1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.
 - .1 Notify Ministry and Consultant representative in writing should unforeseen delay(s) occur.
- .2 Coordinate with the Owner for phasing and hours of day for any and all demolition activities. The existing adjacent building will be occupied during the course of demolition and construction activities. Coordinate with the general contractor to maintain access thru and around the site as described in the Scope of The Work.
 - .1 Schedule any disruption to the existing college, or noisy operations closely with the Owner and Consultant representatives.
 - .1 Schedule work to be done after normal business hours and when the college is not in operation as required to meet the Owners needs

PART 2 - PRODUCTS

2.1 EQUIPMENT

- .1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Inspect site with Owner and Consultant and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
- .3 Remove existing equipment, services and obstacles where required for refinishing or making good of existing surfaces, and replace same as work progresses.
- .4 At end of each day's work, leave work in safe condition so that no part is in danger of toppling or falling.
- .5 Selling or burning materials on site is not permitted.

3.2 PROTECTION

- .1 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, adjacent grades, parts of existing building to remain. Provide bracing, shoring and underpinning required. Make good damage and be liable for injury caused by demolition
- .2 Take precautions to support structures and, if safety of building being demolished or adjacent structures or services appears to be

endangered, cease operations and notify the Consultant

- .3 Prevent debris from blocking surface drainage inlets and system and mechanical and electrical systems which must remain in operation
- .4 Barricade all access by unauthorized persons to areas in which demolition is in progress
- .5 Do not disrupt active or energized utilities traversing premises.
- .6 Access: Create controlled access to the demolition site and all demolition activities.
 - .1 Provide for safe, controlled access to and from demolition/construction areas within the site, for construction workers, material delivery and demolition waste removal.
 - .2 Provide for safe access around the demolition/construction areas within the site for use by the public.

3.3 REMOVAL OPERATIONS

- .1 Perform all demolition under direction of a foreman experienced in similar work at all time.
- .2 Remove items as indicated. Do not disturb items designated to remain in place. Confine demolition and associated work only to the area where demolition is required.
- .3 Water down debris as often as required to stop the spread of dust. Provide water connections and supply for this purpose.
 - .1 Control flow or demolition water to avoid storm and sanitary drainage systems.
 - .2 Where water is used inside the existing building, collect and pump and dispose of all demolition water off site. Temporarily block off all floor and storm drains, do not allow demolition water to down building drains.
- .4 Removal of Pavements, Curbs and Gutters:
 - .1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Consultant.
 - .2 Protect adjacent joints and load transfer devices.
 - .3 Protect underlying and adjacent granular materials.
- .5 Prevent contamination with base course aggregates, when removing asphalt pavement for subsequent incorporation into hot mix asphalt concrete paving,
- .6 Salvage, from the facility the following items.
 - .1 None.
 - .2 Owner Item(s) to be salvaged: Other than the items as listed above, the owner will have salvaged what they wish to retain from the existing facility by the time of the Mandatory Site Meeting. The contractor shall assume the responsibility of the demolition and disposal of any remaining items, including furniture and the like, in the construction zone, unless otherwise directed.
- .7 Disposal of Material.

- .1 Dispose of materials not designated for salvage or reuse off site at authorized facilities.

3.4 STOCKPILING

- .1 Do not stockpile demolished materials on site without the approval from the Owner and Consultant.

3.5 REMOVAL FROM SITE

- .1 Transport material designated for alternate disposal using approved haulers, facilities, receiving organizations listed in Waste Reduction Workplan and in accordance with applicable regulations.
 - .1 Written authorization from Ministry Representative is required to deviate from haulers, facilities or receiving organizations listed in Waste Reduction Workplan.
- .2 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.
 - .1 Disposal Facilities: approved and listed in Waste Reduction Workplan.
 - .2 Written authorization from Ministry Representative is required to deviate from disposal facilities listed in Waste Reduction Workplan.

3.6 RESTORATION

- .1 Restore areas and existing works outside areas of demolition to conditions that existed prior to beginning the Work.
- .2 Use soil treatments and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

3.7 CLEANING

- .1 Remove debris, trim surfaces and leave work site clean, upon completion of Work.
- .2 Remove debris daily as it accumulates.
- .3 Use cleaning solutions and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.
- .4 Clean: Prior to request for substantial performance, thoroughly clean the demolition zone.
 - .1 Blow down the dust from the structure.
 - .2 Broom clean, then vacuum clean the entire demolition zone

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

- .1 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, 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.

- .2 Canadian Standards Association (CSA International)
 - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
 - .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA O112 Series-M1977(R2006), CSA Standards for Wood Adhesives.
 - .4 CSA O121-M1978(R2003), Douglas Fir Plywood.
 - .5 CSA O141-05, Softwood Lumber.
 - .6 CSA O151-04, Canadian Softwood Plywood.
 - .7 CSA O153-M1980(R2003), Poplar Plywood.
 - .8 CAN/CSA-O325.0-92(R2003), Construction Sheathing.
 - .9 CSA O437 Series-93(R2006), Standards on OSB and Waferboard.

- .3 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2005.

1.2 SUBMITTALS

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

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 in accordance with CSA and ANSI standards.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 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 FRAMING AND STRUCTURAL MATERIALS

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
 - .1 CSA O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.

- .2 Glued end-jointed (finger-jointed) lumber NLGA Special Products Standard SPS.
- .3 Structural Composite Lumber (SCL) in accordance with ASTM D 5456.
- .4 Framing and board lumber: in accordance with NBC.
- .5 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
 - .1 Board sizes: "Standard" or better grade.
 - .2 Dimension sizes: "Standard" light framing or better grade.
 - .3 Post and timbers sizes: "Standard" or better grade.

2.2 PANEL MATERIALS

- .1 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.0.
- .2 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .3 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .4 Poplar plywood (PP): to CSA O153, standard construction.
- .5 Interior mat-formed wood particleboard: to ANSI 208.1.
- .6 Mat-formed structural panelboards (OSB wafer): to CAN3-O437.0.
- .7 Insulating fiberboard sheathing: to CAN/CSA-A247 CAN/ULC-S706.
- .8 Glass fibre board sheathing: non-structural, rigid, faced, fiberglass, insulating exterior sheathing board.
- .9 Gypsum sheathing: to ASTM C 36/C 36M.

2.3 ACCESSORIES

- .1 Polyethylene film: to CAN/CGSB-51.34, Type 1, 0.15 mm thick.
 - .1 Air seal: closed cell polyurethane or polyethylene.
- .2 General purpose adhesive: to CSA O112 Series.
 - .1 Maximum allowable VOC limit 140 g/L.
- .3 Nails, spikes and staples: to CSA B111.
- .4 Bolts: 12.5 min. mm diameter unless indicated otherwise, complete with nuts and washers.
- .5 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
- .6 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, formed to prevent dishing. Bell or cup shapes not acceptable.

- 2.4 FASTENER FINISHES
- .1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior work interior highly humid areas pressure-preservative fire-retardant treated lumber.
 - .2 Stainless steel: use stainless steel for locations noted on drawings, or as recommended by manufacturer's installation procedures

- 2.5 WOOD PRESERVATIVE
- .1 SCAQMD Rule #1113 - Architectural Coatings.
 - .2 Maximum allowable VOC limit 350 g/L.

PART 3 - EXECUTION

- 3.1 PREPARATION
- .1 Store wood products.

- 3.2 INSTALLATION
- .1 Comply with requirements of NBC 2005 Part 9 supplemented by following paragraphs.
 - .2 Install members true to line, levels and elevations, square and plumb.
 - .3 Construct continuous members from pieces of longest practical length.
 - .4 Install spanning members with "crown-edge" up.
 - .5 Install wall sheathing in accordance with manufacturer's printed instructions.
 - .6 Install roof sheathing in accordance with requirements of NBC.
 - .7 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding electrical equipment mounting boards, specialties, Owner supplied ceiling or wall mounted fixtures and equipment (see Details and Schedules), and other work as required.
 - .8 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
 - .9 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized fasteners.
 - .10 Install sleepers as indicated.
 - .11 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

- 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.

3.4 CANTS, CURBS, PARAPET,
AND FASCIA BACKING

- .1 Install wood cants, parapets, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized fasteners
- .2 PVC membrane roof parapets: Construct parapet with standard (non-pressure treat) lumber.
- .3 Asphaltic based roof parapets: Construct parapet with pressure treated (PT) lumber. (PT plywood and PT framing)
- .4 Refer to drawings and details for fabrication sizes and locations
- .5 Construct with built in 15mil poly air-vapour barrier transitions strip as indicated. Tape joints in poly. Wall and roof vapour barrier will be sealed to this membrane.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C 36-[97], Standard Specification for Gypsum Board.
 - .2 ASTM C 1002-[98], Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases.
- .2 Canadian General Standards Board (CGSB)
 - .1 CGSB 37-GP-54M-[1979], Roofing and Waterproofing Membrane, Sheet-Applied, Flexible, Polyvinyl Chloride.
 - .2 CGSB 37-GP-55M-[1979], Application of Sheet Applied Flexible Polyvinyl Chloride Roofing Membrane.
 - .3 CAN/CGSB-51.25-[M87], Thermal Insulation, Phenolic, Faced.
 - .4 CAN/CGSB-51.26-[M86], Thermal Insulation, Urethane and Isocyanurate, Boards, Faced.
 - .5 CAN/CGSB-51.34-[M86], Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .6 CGSB 51-GP-38M-[76], Thermal Insulation, Cellular Glass, Pipe Covering, Block and Board.
- .3 Canadian Standards Association (CSA)
 - .1 CSA A231.1-[1972], Precast Concrete Paving Slabs.
 - .2 CAN/CSA-A247-[M86], Insulating Fibreboard.
 - .3 CSA A284-[1976], Mineral Aggregate Thermal Roof Insulation.
 - .4 CSA O121-[M1978], Douglas Fir Plywood.
 - .5 CSA O151-[M1978], Canadian Softwood Plywood.
 - .6 CAN/CSA-IS0[9001] [9002] [9003], Requirements for Quality Assurance, Parts 1, 2 and 3.
 - .7 CAN/CSA-IS0 14001-[96], Environmental Management Systems - Specifications with Guidance for Use.
- .4 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S701-[97], Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
 - .2 CAN/ULC-S702-[97], Standard for Mineral Fibre Thermal Insulation for Buildings.
 - .3 CAN/ULC-S704-[98], Thermal Insulation, Urethane and Isocyanurate, Boards, Faced.
 - .4 CAN/ULC-S706-[98], Insulated Fiberboard.

1.2 SUBMITTALS

- .1 Provide project specific submittals.
- .2 Shop Drawings
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate all PVC and metal flashing, control joints, tapered insulation, penetrations, field fabricated seams, fastening bars and typical and job specific details.
 - .3 Provide layout for tapered insulation.

- .3 Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, and cleaning procedures.
- .4 Compatibility declaration. See below
- .5 Wind Uplift declaration. See below
- .6 Product Data:
 - .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. WHMIS acceptable to Labour Canada, and Health and Welfare Canada.
 - .3 Submit product data sheets for Deck board, Vapour Barrier, Roof Insulation, Tapered Insulation and PVC membrane, Include:
 - .1 Product characteristics.
 - .2 Performance criteria.
 - .3 Limitations.
- .7 Provide proof that the applicator is in good standing and is a member of Canadian Roofers Contractors Association (CRCA)

1.3 SUBMITTALS (ALTERNATES) .1

- .1 Alternate roofing systems: (i.e. TPO, EPDM, Mod Bid etc.) will not be accepted, or reviewed, as an equal to the specified PVC roofing system. These roof systems may be entertained as an Unsolicited Alternates, refer to other sections of this specification for further information.
- .2 Alternate PVC membrane roofing systems may be submitted for evaluation during the tender period. The following information must be submitted to the Consultant a minimum of 5 working days prior to tender closing. If the alternate product is accepted, notification will be provided via addenda.
 - .1 Sample copy of the **Roofing Membrane Manufacturer's warrantee**
 - .2 Provide a list of 5 projects installed in Northern Ontario with the proposed product which have exceeded a minimum of 10 years in place service life. List should include project name, location, installed date, and contact person with contact number.
 - .3 Applicators information including: Company name, contact information, number of years installing proposed membrane (verified by manufacturer).
 - .4 A letter from the **Roofing Membrane Manufacturer** stating their ability to recycle the roofing membrane and their commitment to provide this service once the membrane has reached its service life as per section.
 - .5 A letter from the Roofing Membrane Manufacturer indicating their commitment to provide site installation reviews as stated in this section.
 - .6 A document stating the membrane thickness as well as

thickness of waterproofing layer over the scrim as per ASTM testing. For the purpose of this specification the waterproofing thickness above the scrim shall be a **minimum** of 29 mils +/- 2 mils

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Provide and maintain dry, off-ground weatherproof storage.
- .3 Store rolls of PVC flat on cross supports.
- .4 Remove only in quantities required for same day use.
- .5 Store materials in accordance with manufacturer's written instructions.
- .6 Store insulation protected from [sunlight] [and] [weather] and deleterious materials.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal, and with the Waste Reduction Work-plan.
- .2 Place materials defined as hazardous or toxic waste in designated containers.
- .3 Ensure emptied containers are sealed and stored safely for disposal away from children.
- .4 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.
- .5 Fold up metal banding, flatten and place in designated area for recycling.
- .6 Plan and coordinate insulation work to minimize generation waste.
- .7 Collect and separate plastic and/or paper packaging for recycling.
- .8 Give preference to suppliers who take back mineral fibre insulation waste for reuse or recycling.
- .9 Use the least toxic sealants and adhesives necessary to comply with requirements of this section.
- .10 Close and seal, tightly, all partly used sealant and adhesive containers and store protected in well ventilated, fire-safe area at moderate temperature.
- .11 Place used hazardous sealant tubes and adhesive containers in areas designated for hazardous materials.
- .12 Collect, package and store PVC membrane cut-offs and waste

material for recycling and return to recycler in accordance with Waste Management Plan.

1.6 PROJECT/SITE ENVIRONMENTAL REQUIREMENTS

- .1 Temperature, relative humidity, moisture content.
 - .1 Apply PVC membrane only when surfaces and ambient temperatures are within manufacturers' prescribed limits.
 - .2 Do not install PVC membrane when temperature remains below 5°C, or when wind chill gives equivalent cooling effect.
 - .3 Install PVC membrane on dry substrate, free of snow and ice. Use only dry materials and apply only during weather that will not introduce moisture into system.
- .2 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of asphalt, sealing compounds, primers and caulking materials.

1.7 WARRANTY

- .1 Roofing Contractor Warranty – shall provide a written warrantee that the Polyvinyl Chloride Roofing and membrane flashings will stay in place and remain leak proof in accordance with G.C.24, but for a period of **Twenty-Four (24) months** from the date of Substantial Performance of the project Contract.
 - .1 Warrantee repair work shall provide repairs within 24 hours of notification.
- .2 Roofing Membrane Supplier - shall provide a written guarantee stating that the manufacturer will guarantee to repair at its own expense any actual leaks in the roofing membrane or flashing membrane resulting from defects in the manufacture of the roofing membrane or from faulty workmanship for a period of **Fifteen [15] years** from the date of Substantial Performance of the project Contract.
 - .1 Roofing Membrane Supplier warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, substrate board, roofing accessories, roof pavers, and all other components of membrane roofing system.

1.8 QUALITY ASSURANCE

- .1 A minimum of two members of Roofing Contractor's crew "MUST" have proof of completion (Certificate of Training) of Membrane Manufacturer's contractor training course.
 - .1 There "MUST" be a minimum of two certified men on the project at all times during the installation.
- .2 Manufacturer's Technical Service Representative
 - .1 A manufactures technical representative is required to provide periodic inspections of the roofing installation. This to ensure that all materials installed meet the manufactures requirements, that the installers are properly certified and the installation meets the manufacturer's requirements.
 - .2 Rep shall provide copies of written reports for each visit to General Contractor and Consultant.
 - .3 Roofing contractor to coordinate with manufacturers rep and

coordinate for the following meetings

- .1 Roofing start up meeting prior to installation
- .2 Periodic review meetings at every 2,000 to 2,500 m2 of roof installation
- .3 Final installation/flood test/deficiency review.
- .4 Deficiency completion sign off.

- 1.9 CONDITION OF SURFACE
- .1 Before commencing work, ensure environmental and site conditions are suitable for installation of material in accordance with manufacturer's recommendations
 - .2 Assure that substrates are free of bituminous substances, smooth, clean and dry and of sufficient strength to withstand construction traffic and equipment
 - .3 Notify the Architect in writing of unsuitable surfaces and conditions
 - .4 Commencement of work shall imply acceptance of surfaces and conditions

- 1.10 RECYCLING
- .1 Manufacture of roofing membrane shall provide written confirmation that they will take back the membrane once it has completed its service life. The cost to remove the membrane, package and ship it back to the manufacturers facility shall be the responsibility of the Owner.

PART 2 - PRODUCTS

- 2.1 COMPATIBILITY
- .1 Compatibility between components of this roofing system and adjacent materials is essential. Review contract documents (drawing and specifications) for tie-ins to any and all adjacent materials and provide appropriate and compatible flashing materials. Provide a written declaration to Consultant stating that materials and components, as assembled in proposed roofing system, meet this requirement.

- 2.2 SYSTEM DESCRIPTION
- .1 Roofing System: Polyvinyl-Chloride (PVC) membrane roofing. Mechanically fastened system. System shall come complete with roof deck board, roof vapor barrier, roof insulation, tapered insulation, flashings, trims and accessories necessary and required for a complete installation.
 - .2 Wind Uplift: Roofing system must be designed to meet or exceed the Factory Mutual **FM-160** rating. Manufacturer shall provide a letter attesting to the fact the design provided will meet or exceed these requirements. This letter shall bear the stamp of a Professional Engineer licensed in the province of Ontario.

- .3 The following specification is based on a complete Sarnafil membrane roof. Other manufactures matching or exceeding the requirements as prescribed below may be utilized pending approval of the Consultant.
- .1 **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- .1 Sarnafil
 - .2 ProSeal Roofing
 - .3 Carlisle Roofing
 - .4 JM PVC Roofing
 - .5 Alternate(s) approved by the Consultant

2.3 DECK SHEATHING

- .1 DensDeck. Non-structural, fiberglass-embedded, specially-treated gypsum core panel, to ASTM C-1177
- .1 Thickness: 13 mm (1/2")
 - .2 Compression: 500 psi
 - .3 Size: 1220 x 2440 mm (4' x 8')

2.4 VAPOUR RETARDER

- .1 Vapour retarder shall be, polyethylene LD, Permeance 1.1 Ng/Pa.S.m2 (0.02 Perms), CAN/CGSB 51.34-M86.

2.5 ROOF INSULATION

- .1 Polyisocyanurate foam insulation, black organic/ inorganic facers on both sides, manufactured with HCFC blowing agents, as manufactured by Atlas Roofing Corporation. Thicknesses and layers see details
- .1 Compliance: CAN/ULC-S704
 - .2 Insulation Type: 2
 - .3 Facer Type: 4
 - .4 Board Dimensions: 1220 x2440 mm (48x96 in.)
 - .5 Compressive Strength ASTM D1621: 140kPa (20.0 psi) nominal
 - .6 Tensile Strength ASTM D1623: 600 kPa (72.5 psi)
 - .7 Water Vapour Permeance ASTM E96: 0.0 Ng/Pa.S.m2
 - .8 Dimensional Stability ASTM D2126: 0.71% max
 - .9 Water Absorption ASTM D2842: 1.2% max
 - .10 Thermal Resistance to: CAN/ULC-S770

2.6 TAPERED INSULATION

- .1 Tapered insulation. Polyisocyanurate foam insulation, black organic/ inorganic facers on both sides, manufactured with HCFC blowing agents, as manufactured by Atlas Roofing Corporation, or approved equal
- .1 Compliance: CAN/ULC-S704
 - .2 Insulation Type: 2
 - .3 Facer Type: 4
 - .4 Board Dimensions: 1220 x1220 mm (48x48 in.)

- .5 Compressive Strength ASTM D1621: 140kPa (20.0 psi) nominal
 - .6 Tensile Strength ASTM D1623: 600 kPa (72.5 psi)
 - .7 Water Vapour Permeance ASTM E96: 0.0 Ng/Pa.S.m2
 - .8 Dimensional Stability ASTM D2126: 0.71% max
 - .9 Water Absorption ASTM D2842: 1.2% max.
 - .10 Slope: 4% taper across width of board unless noted or indicated otherwise.
- .2 Tapered Perimeter: Location and slope as indicated on drawings
 - .3 Crickets and diverters: Provide tapered insulation to provide crickets to high side of all curbs on roof to divert roof water around 'high' side of roof curb and slope water to drain. Provide back to back tapered insulation to provide crown in valleys to slope water to drain. See drawings for locations.
 - .4 Roof Drain to be provided at all roof drains: refer to drawings for size and slope requirements.

2.7 MEMBRANE

- .1 PVC. Flexible polyvinyl chloride PVC sheet membrane: to CGSB 37-GP-54M.
 - .1 Colour (Top / Bottom): White / Dark Grey
 - .1 Typical to all flat roof areas.
 - .2 Class A, Type 2-reinforced,
 - .3 Thickness ASTM D3083: 1.5 mm (60 mil)
 - .4 Breaking Strength ASTM D751: 40.25 KN/m.
 - .5 Elongation at Break ASTM D751: 20% XMD
 - .6 Impact Resistance SIA 289/14: 450 mm
 - .7 Low Temperature Flexibility CGSB 5.7.1: Pass at -30 deg. C
 - .8 Accelerated Weathering ASTM D2565: 10,000 hr., no cracks
 - .9 Linear Dimensional Change ASTM D1204: 0.1%
- .2 PVC. Flashing membrane shall be, polyvinyl chloride (PVC) membrane, non-woven glass fiber reinforced, UV resistant, and dirt repellent acrylic top coating
 - .1 Colour (Top / Bottom): White / Dark Grey
 - .2 Thickness ASTM D3083: 1.5 mm (60 mils)
 - .3 Tensile Strength ASTM D412: 11.0 MPa
 - .4 Elongation at Break ASTM D412: 250% XMD
 - .5 Impact Resistance SIA 280/14: 450 mm
 - .6 Low Temperature Flexibility CGSB 5.7.1: Pass at -30 deg. C.
 - .7 Accelerated Weathering ASTM D2565: 10,000 hr., no cracks
 - .8 Linear Dimensional Change ASTM D1204: 0.0%
 - .9 Compliance: CGSB 37-GP-54M79 Type 2, Class B ASTM D4434 Type 2, Grade 1
- .3 PVC resin, asphalt, rubberized asphalt, rubber and Butly compatible flexible membrane transition flashings. For use where PVC flashing is indicated to sealed to materials indicated above, or other incompatible materials.
 - .1 Colour (Top / Bottom): White / Tan

- .2 Thickness ASTM D3083: 1.5 mm (60 mils)
- .4 Pre-Manufactured PVC flashings. 60 mil (1.5mm) thick pre-manufactured, prefabricated PVC Membrane flashings, including but not limited to the following:
 - .1 Circles
 - .2 Inside Corners
 - .3 Outside Corners
 - .4 Stack Cones
 - .5 Etc.

2.8 FASTENING/PLATES/BARS

- .1 Fasteners, No. 15, steel, Climaseal coated, (3/4") 19mm deck penetration", for membrane securement.
- .2 Fasteners, No. 12, steel, Climaseal coated, (3/4") 19mm deck penetration", for insulation securement.
- .3 Metal insulation Plate, 3 inch (75 mm) square or round, 26 gauge stamping of SAE 1010 steel with an AZ 55 Galvalume coating.
- .4 Disk washer - , high strength linear plate used with a fastener to attach roof membrane to steel, wood or concrete roof decks. Disc washer is an 18 gauge (1.2 mm), 1 1/2" (38mm) by 3 3/4" (95mm) corrosion resistant steel plate.
- .5 Securing Bar, heavy-duty, 14 gauge, galvanized or stainless, roll-formed steel bar used to attach membrane to roof decks. The formed steel is pre-punched with holes every 1 inch (25 mm) on center to allow various fastener spacing options.

2.9 SEPARATION SHEET

- .1 Woven polyolefin fabric, 100 g/m².
- .2 Unsaturated non woven polyester felt, 400 g/m².

2.10 ADHESIVE AND SOLVENTS

- .1 Solvent-based adhesive: as recommended by membrane manufacturer.
- .2 Solvent: as recommended by membrane manufacturer.

2.11 TAPE

- .1 Tape, isobutyl, colour grey, 3 x 25 mm (1/8 x 1 in.), as supplied by Sarnafil Ltd

2.12 SEALERS

- .1 Sealant: To section 07 92 00 - Joint Sealing not contain a total of volatile organic compounds in excess of 5 % by weight, asbestos-free sealant, compatible with systems materials, recommended by system manufacturer.

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- 2.13 WALKWAYS
- .1 Membrane Walkway – Crossgrip Walkway grid manufactured of PVC. 3'-0" (915mm) wide in 30'-0" (9144mm) lengths secured to roof deck as recommended by the manufacturer. Crossgrid is a walkway that allows for water to flow under and thru the walkway and not over. Refer to drawings for extent.
 - .2 Concrete Pavers Pads/Walkway: 610x610x50 (24"x24"x2") and 610x762x50 (24"x30"x2") precast, normal weight, concrete pavers. Specifically designed and produced for rooftop application. Place concrete pavers on 2" (51mm) thick layer of Styrofoam SM rigid insulation on 60mil PVC roofing membrane separation sheet on roof membrane. Cut pavers to create finished patterns as indicted on the drawings, refer to drawings for extent.
- 2.14 METAL FLASHINGS
- .1 Refer to section 07 62 00 – Sheet metal Flashings and Trim.
- 2.15 ROOF DRAIN
- .1 Roof Drain – A seamless heavy-duty aluminum drain, featuring a PVC coated flange for hot air welding of PVC membranes.
 - .1 Drain consists of a one-piece spun, 0.125 in.(3.175 mm), 11 gauge thick aluminum body, a 17.5" (445 mm) diameter, and a 12" (305 mm) long drain stem.
 - .2 PVC coated flange drain, pre-punched 0.80" thick aluminum, PVC coated, diameter as indicated on Drawings.
 - .3 The drain comes with a cast aluminum strainer dome.
 - .4 M-J clamp
 - .2 Provided and installed by this division where indicated on drawings, size indicated on plumbing roof plans. Connected to storm drainage system.
- 2.16 FASTENERS
- .1 Covering to steel deck: No.10 flat head, self tapping, Type S, cadmium plated screws to ASTM C 1002.
 - .2 Insulation to substrate: fasteners and disks must meet Factory Mutual Standard for wind uplift and corrosion resistance.
 - .3 Membrane to substrate: fasteners and spacing as recommended by manufacturer.
- 2.17 ACCESSORIES
- .1 Various pre-manufactured PVC flashings and trims for mechanical and electrical penetrations thru roof.
 - .2 Steel termination strips, "U" shaped steel channels, PVC cord, distribution plates as recommended by membrane manufacturer.
- 2.18 SOURCE QUALITY CONTROL
- .1 Submit laboratory test reports in accordance with Section 01 45 00 - Quality Control.

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION CONFERENCE

- .1 The Applicator shall coordinate with the contractor, convene and attend a pre-construction conference. Attendees for the meeting shall include Owner's Representative, General Contractor, Consultant/Designer, Applicator and PVC Manufacturer(s) Representative.
- .2 The meeting shall discuss all aspects of the project including but not limited to:
 - .1 Safety
 - .2 Set up
 - .3 Construction schedule
 - .4 Contract conditions
 - .5 Coordination of the work

3.2 SUBSTRATE EXAMINATION

- .1 Examine and immediately inform Consultant in writing of defects.
- .2 Prior to commencement of work ensure:
 - .1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris.
 - .2 Curbs have been built.
- .3 Drains have been installed at proper elevations relative to finished surface.
- .4 Plywood and lumber nailer plates have been installed to walls and parapets as indicated.

3.3 PROTECTION

- .1 Cover walls and adjacent work where materials hoisted or used.
- .2 Use warning signs and barriers. Maintain in good order until completion of work.
- .3 Dispose of rain water away from face of building until drains or hoppers installed and connected.
- .4 Protect from traffic and damage. Comply with precautions deemed necessary by Consultant.
- .5 Place plywood runways over work to enable movement of material and other traffic.
- .6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed work and materials out of storage.

3.4 DECK SHEATHING

- .1 Place gypsum sheathing board with long axis of each sheet

transverse to steel deck ribs, with end joints staggered and fully supported on ribs.

- .2 Lay deck boards in parallel courses, butted together in moderate contact without gaps, with staggered end joints. Deck boards may require "positioning" fastening to insure no movement of board prior to application of vapour barrier.

3.5 VAPOUR RETARDER

- .1 Install vapour barrier loosely over deck board. Overlap all edges and seal with Tape.
- .2 Extend vapour barrier to and up all parapets. Tape and seal to transition vapour barrier on face of parapet.
- .3 Seal and tape around all penetrations through vapour retarder with approved tape and sealant.

3.6 EXPOSED MEMBRANE MECHANICALLY FASTENED APPLICATION

- .1 Install first layer of roof insulation board. Cut and trim insulation boards to provide plan butt joints at perimeter, parapet, curbs, etc. Lay insulation boards in parallel courses, butted together in moderate contact without gaps, with staggered end joints.
- .2 Install second layer of roof insulation boards over first layer of insulation with joints off set from underlying layer. Cut and trim insulation boards to provide plain butt joints at perimeter, parapet, curbs, etc. Lay insulation boards in parallel courses, butted together in moderate contact without gaps, with staggered end joints
- .3 Install tapered back-slope and roof sumps in locations as indicated on roof plan
- .4 Mechanically fasten insulation boards with fasteners and plates at a rate of 5 fasteners per 1200 x 1200 mm (4 x 4 ft.) board size, and 8 fasteners per 1200 x 2400 (4 x 8 ft.) board size
- .5 Unroll PVC membrane half sheets parallel with perimeter edge as per layout provided by manufacturer. Draw tight to minimize wrinkles. Overlap membrane a minimum of 150 mm (6 in.) overlap line provided on membrane. Install fasteners and membrane discs midway between 25 mm (1 in.) and 75 mm (3 in.) lines provided along edge of membrane at spacing's provided by roofing manufacturer design. Install additional rows of fasteners and membrane discs at building corners where required. Set self-drilling fasteners with torque controlled or depth locator equipment only. Hot-air weld overlaps according to manufacturers recommendation. Unroll membrane and draw tight to minimize wrinkles. Interior (field) sheets shall run perpendicular to the direction of the steel or wood plank decks. Overlap membrane a minimum of 150 mm (6 in.) noting overlap lines provided on membrane. Install fasteners and membrane discs midway between 25 mm (1 in.) and 75 mm (3 in.) lines provided along edge of membrane at spacing provided by manufacturer. Set self-drilling fasteners with torque controlled or depth locator equipment only. Hot-air overlaps according to manufacturers' recommendation.

- .6 General: Hot-air weld all seams in strict accordance with manufacturer's printed instructions and as per instruction provided in manufacturers welding seminar
 - .1 Only manufacturer approved welding equipment is accepted for performing welds
 - .2 Welding surface must be clean and dry and free of any foreign particles. If necessary, clean welding surface with a damp cloth or white naphtha and allow 30 minutes drying time
 - .3 Prior to commencement of welding process, determine correct temperature setting and welding speed of equipment using test samples
 - .4 Machine Welding: Perform machine welding as per welding machine instructions.
 - .1 Continuously guide and supervise welding machine during entire welding process.
 - .2 Joint Overlap: Lap side and end joints minimum 75 mm (3 in.) for machine welding
 - .3 Remove membrane residue collected at nozzle with steel wire brush at least every 20 m (65 ft.) and prior to start of new seam.
 - .4 Welding speed ranges from 2.4 mm to 3 mm (8 to 10 ft.) per minute
 - .5 Hand Welding: Perform hand welding in three stages
 - .1 Tack weld overlap at 1 m (3 ft.) o.c.
 - .2 Joint Overlap: Lap side and end joints minimum 50 mm (2 in.) for hand welding
 - .3 Pre-weld back edge with continuous seam of approx. 12 mm (1/2 in.) width
 - .4 Final weld outside edge with continuous seam of approx. 25 mm (1 in.) width
 - .5 For straight laps, use a 40 mm (1-1/2 in.) wide nozzle. For corners and compound connections, use a 20 mm wide nozzle.
 - .6 Remove membrane residue collected at nozzle with steel wire brush prior to start of new seam. Welding speed ranges from 0.30 m to 0.60 m (1 to 2 ft.) per minute
- .7 Testing Welds: Check all seams for continuity after completion by use of a screwdriver. Visible evidence of good welding is smoke development during the welding process, shiny membrane surface and an uninterrupted extrusion bead of melted material from the joint
- .8 Flashing membrane: Adhere flashing membrane with adhesive to all vertical areas and flashings. Using a solvent-resistant paint roller, coat substrate with adhesive at a rate of 0.25 l/m² (0.5 gal./100 ft.²) and allow to dry minimum 1 hour. Do not apply under excessively humid conditions or at temperatures below -10 deg C (14 deg. F). Do not coat more substrate than can be covered with membrane in one day. Unroll flashing membrane in position. Coat underside of membrane with adhesive at a rate of 0.25 l/m² (0.50 gal./100 ft.²) and allow to dry just sufficiently to produce "strings" when touched with a finger. Install membrane carefully onto the coated surfaces,

press and roll solidly in. Avoid stripping lengths greater than 2m (6'-6"). Avoid any adhesive at lap area. Clean excess adhesive off with solvent.

- .9 Drain: Install drain to manufacturer's specification and requirements. Mechanically fasten drain to deck with 4 fasteners. Install low profile vandal proof strainer. Extend flashing membrane to drain opening and weld to drain flange at width of 50 mm (2 in.). Use M-J coupling for connection of drainpipe to piping system
- .10 Flashings.
 - .1 Install PVC membrane flashings in accordance with manufacturer's written instructions.
 - .2 Prefinished: Fabricate and install flashings in accordance with CRCA specifications and details.
- .11 Penetrations.
 - .1 Install drain pans, vent stack covers and other penetration flashings and seal to membrane in accordance with manufacturer's recommendations and details.
- .12 PVC Walkway: Adhere PVC grid membrane walkway to roofing membrane as recommended by manufacturer. Refer to drawings for configuration
- .13 Concrete Paver Walkway: Loose-lay PVC wear sheet down over roofing membrane. Cut supporting SM rigid insulation as per detail and lay over PVC wear sheet. Lay concrete pavers over insulation. Refer to drawings for configuration. Cut concrete pavers as required to complete patterning as indicated on drawings.

3.7 INSPECTION AND REPAIR

- .1 Inspect completed membrane and flashings for punctures, tears and discontinuous welding seams. Apply additional layer of membrane over punctures and tears, extending min. 50 mm (2 in.) beyond damaged area in all directions and heat weld. Re-weld where necessary.

3.8 FIELD QUALITY CONTROL

- .1 Inspection and testing of PVC membrane application may be carried out by testing laboratory designated by Consultant.
- .2 Owner will pay for tests as specified in Section 01 29 83 - Payment Procedures: Testing Laboratory Services.
- .3 Inspection and testing of membrane application will be carried out by testing laboratory designated by Consultant.
- .4 Costs of tests will be paid under cash allowance by Owner.
- .5 Manufacturer's field Technical Representative must be present for the commencement of the installation of the roofing system. The roofing contractor must give manufacturer's representative appropriate notification of the startup date. Manufacturer's representative will conduct additional in-progress reviews at a rate of 1 per every 10,000-15,000 sq.ft of installed roof. Upon completion of the

installation and the delivery to manufacturer's representative by the Applicator of a certification that all work has been done in strict accordance with the contract specifications and manufacturer's requirements, an inspection shall be made by a Technical Representative of manufacturer to review the installed roof system. All review reports conducted by manufacturers representative will be signed by the Approved Applicator and submitted to the General Contractor and Prime Consultant

- .1 The Manufacturer's representative must perform inspections and provide written reports as required above and as listed below:
 - .1 Inspection prior to roofing commencement
 - .2 Periodic inspections throughout the course of the roofing installation but not less than once a month
 - .3 Deficiency inspection of complete roofing for deficiencies
 - .4 Final inspection to confirm all deficiencies are complete

3.9 FLOOD TESTING

- .1 Do not conceal waterproofing until inspection and testing are completed to satisfaction of Consultant.
- .2 Temporarily plug drains and dam horizontal surface areas to be tested and flood with water to minimum depth of 80 mm.
- .3 Maintain flooded depth for 24 hours.
- .4 If leaks occur repair and retest.
- .5 Remove water at end of test.

3.10 PROTECTION OF COMPLETED WORK

- .1 Ensure membrane is undamaged before application of protection board.
- .2 Apply protection board to cover membrane as required

3.11 CLEANING

- .1 Clean work in accordance with Section 01 74 11 - Cleaning.
- .2 Clean to Consultant's approval, soiled surfaces, spatters, and damage caused by work of this Section.
- .3 Check drains to ensure cleanliness and proper function, and remove debris, equipment and excess material from site.

END OF SECTION

PART 1- GENERAL

1.1 RELATED SECTIONS

- .1 Division 1 – General Requirements
- .2 Section 06 10 00 – Rough Carpentry
- .3 Section 07 54 19 – PVC Membrane Roofing

1.2 REFERENCES

- .1 The Aluminum Association Inc. (AAI)
 - .1 AAI-Aluminum Sheet Metal Work in Building Construction-[2002].
 - .2 AAI DAF45-[03], Designation System for Aluminum Finishes.
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A 167-[99(2004)], Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM A 240/A 240M-[07e1], Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - .3 ASTM A 606-[04], Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
 - .4 ASTM A 653/A 653M-[07], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .5 ASTM A 792/A 792M-[06a], Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - .6 ASTM B 32-[04], Standard Specification for Solder Metal.
 - .7 ASTM B 370-[03], Standard Specification for Copper Sheet and Strip for Building Construction.
 - .8 ASTM D 523-[89(1999)], Standard Test Method for Specular Gloss.
 - .9 ASTM D 822-[01(2006)], Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- .3 Canadian Roofing Contractors Association (CRCA)
 - .1 Roofing Specifications Manual [1997].
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.32-[M77], Sheathing, Membrane, Breather Type.
 - .2 CAN/CGSB-93.1-[M85], Sheet Aluminum Alloy, Prefinished, Residential.
- .5 Canadian Standards Association (CSA International)
 - .1 CSA A123.3-[05], Asphalt Saturated Organic Roofing Felt.
 - .2 AAMA/WDMA/CSA 101/I.S.2/A440-[2008], Standard/Specification for Windows, Doors, and Unit Skylights.

- .3 CSA B111-[1974(R2003)], Wire Nails, Spikes and Staples.
- .6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature for sheet metal flashing systems materials, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit two copies WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate each profile complete with dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, fascia, metal furring, and related work
- .4 Samples:
 - .1 Submit duplicate 300mm x 300mm samples of each type of sheet metal material, finishes and colours.
- .5 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 - .1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures..

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

- .1 Aluminum-zinc alloy coated steel sheet: to ASTM A 792/A 792M, commercial quality, grade 37 with AZ180 coating, extra smooth surface, with anodized finish, 3 mm base metal thickness.
- .2 Weathering steel sheet: to ASTM A 606 high strength low alloy cold rolled architectural use grade, 1.2 mm minimum thickness.
- .3 Aluminum sheet: proprietary utility sheet plain, Clear anodized 3 mm

minimum thickness. For forming of specially shapes and sills.

2.2 PREFINISHED ALUMINUM SHEET

- .1 Finish: factory applied coating to CAN/CGSB-93.1 supplemented and amended as follows:
 - .1 Type 1.
 - .2 Class F1S.
 - .3 Colour: Provide sufficient colours to match each different exterior cladding material as indicated on the building elevations. Colours to be selected from manufacturers full range including premium ranges.
 - .4 Specular gloss: 30 units.
 - .5 Coating thickness: not less than 51 micrometres.
 - .6 Outdoor exposure period: 8 years.
 - .7 Exposure period for humidity resistance: 5000 hours.
 - .8 Exposure period for salt spray resistance: 5000 hours.
- .2 Thickness specified for prefinished aluminum sheet applies to base metal.

2.3 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB 37.5.
- .3 Sealants: Refer to Section 079200.
- .4 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.
- .5 Fasteners: of same material as sheet metal, to CSA B111, stainless steel, hex head, self drilling - self tapping complete with cup washer and rubber seal. Fastener length shall be suitable for metal flashing applications.
- .6 Washers: of same material as sheet metal, 1 mm thick with rubber packings.
- .7 Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
- .8 Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- .9 Touch-up paint: as recommended by prefinished material manufacturer.

2.4 FABRICATION

- .1 Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.

- .1 Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal
 - .2 Obtain field measurements for accurate fit before shop fabrication
 - .3 Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 - .4 Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.
-
- .2 Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.
 - .3 Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant
 - .4 Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints
 - .5 Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal
 - .6 Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" and by FMG Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.
 - .7 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.
 - .8 Seams:
 - .1 Form standard seams with flat-lock seams
 - .2 Form corner seams with standing vertical lock seams.

2.5 METAL FLASHINGS

- .1 Form flashings, copings and fascias to profiles indicated of 0.61mm (24 Ga) thick prefinished metal.

2.6 ALUMINUM FINISHES

- .1 Finish exposed surfaces of aluminum components in accordance with AA DAF45.
 - .1 Clear anodic finish
- .2 Appearance and properties of anodized finishes designated by Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative: to AAMA/WDMA/CSA-101/I.S.2/A440, for coating Classes 1, 2 and 3 respectively.

PART 3 - EXECUTION

3.1 INSTALLATION GENERAL

- .1 General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system
 - .1 Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant
 - .2 Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal
 - .3 Space cleats not more than 12 inches (300 mm) apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
 - .4 Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks
 - .5 Install sealant tape where indicated
 - .6 Torch cutting of sheet metal flashing and trim is not permitted.
- .2 Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA
- .3 Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant concealed within joints

3.2 ROOF FLASHING INSTALLATION

- .1 General: Install sheet metal flashing and trim to comply with performance requirements and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant
- .2 Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3-inch (75-mm) centers
- .3 Copings: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated
 - .1 Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 24-inch (600-mm) centers

- .4 Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches (100 mm) over base flashing. Lap counterflashing joints a minimum of 4 inches (100 mm) and bed with sealant. Secure in a waterproof manner by means of snap-in installation and sealant or lead wedges and sealant interlocking folded seam or blind rivets and sealant
- .5 Reglets
 - .1 Install surface mounted reglets true and level, and caulk top of reglet with sealant.
 - .2 Insert metal flashing into reglets to form weather tight junction.
 - .3 Turn top edge of flashing into recessed reglet or mortar joint minimum of 25 mm. Lead wedge flashing securely into joint.
 - .4 Caulk flashing at reglet with sealant.
- .6 Concealed all fastenings except where approved before installation.
- .7 Lock end joints and caulk with sealant.

3.3 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction
- .3 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .4 Leave work areas clean, free from grease, finger marks and stains.
- .5 Replace sheet metal flashing and trim that have been damaged or scratched prior to final inspection.

END OF SECTION