# PUBLIC HEALTH SUDBURY AND DISTRICTS
# WALL REMEDIATION AT WEST STAIRWELL

1300 PARIS, SUDBURY, ONTARIO

ISSUED FOR TENDER, PERMIT AND CONSTRUCTION

2020 04 15
Project No. 2047

**ARCHITECTS**
3RDLINE.STUDIO

**CONSTRUCTION MANAGEMENT**
Polestar CM INC.

**ELECTRICAL ENGINEER**
PIOTROWSKI CONSULTANTS LTD.

**PUBLIC HEALTH SUDBURY AND DISTRICTS - WALL REMEDIATION AT WEST STAIRWELL**
**Project No. 2047, Revised 2020.04.15**

**3rdLine.Studio Inc.** have prepared the following specification except where noted.


**SPECIFICATIONS / DRAWINGS INDEX**



***Drawings Index***

***Architectural***



**Structural**



**Mechanical + Electrical**

# TENDER FORM

**To: Public Health Sudbury and Districts – Wall Remediation at West Stairwell**
**1300 Paris Street, Sudbury, Ontario**

Herein referred to as the "OWNER".
The UNDERSIGNED, herein referred to as the "TRADE CONTRACTOR"

With the legal company name of _____

A company duly incorporated under the laws of _____

And having its Head Office at _____

1. HEREBY UNDERTAKES AND AGREES WITH THE OWNER AS FOLLOWS:
Having examined all the Tender Documents, entitled **Public Health Sudbury and Districts – Wall Remediation at West Stairwell, 1300 Paris Street, Sudbury, Ontario,** and including:
.1 All Drawings dated: **2021.04.15**
.2 Specifications dated: **2021.04.15**
.3 Addenda Numbers _____
Issued _____
And having visited the site, and having examined and become familiar with all conditions affecting the proposed work,

WE UNDERTAKE TO DO ALL WORK, AND SUPPLY ALL MATERIALS AND SERVICES IN ACCORDANCE WITH THE TENDER DOCUMENTS LISTED ABOVE RELATED TO PACKAGE _____, FOR THE **CONTRACT PRICE**, WHICH ***EXCLUDES*** HARMONIZED SALES TAX (HST),

OF _____

_____**and**_____**/100 DOLLARS ($**_____**).**

VALUE ADDED TAXES (HST) OF 13% PAYABLE BY THE OWNER TO THE TRADE CONTRACTOR IS:

_____

_____**and**_____**/100 DOLLARS ($**_____**).**

TOTAL AMOUNT PAYABLE BY THE OWNER TO THE TRADE CONTRACTOR FOR THE CONSTRUCTION OF THE WORK

IS: _____

_____**and**_____**/100 DOLLARS ($**_____**).**

2. The UNDERSIGNED hereby submits that all amounts are in Canadian funds and that these amounts shall be subject to adjustments as provided in the Construction documents.
3. The UNDERSIGNED further submits that all costs for supervision, administration, co-ordination, handling, management, expediting, scheduling, overhead and profit and assuming full responsibility and warranty for the assigned work are included in the Contract Price Tendered.
4. That the UNDERSIGNED, if notified of tender acceptance within **SIXTY (60) DAYS** of Tender Closing Date agrees to enter into a formal Contract with the Owner for the work, in the form of the Canadian Standard Construction Document, CCDC 17-2010, Stipulated Price Contract.
5. **The UNDERSIGNED agrees to complete the work prior to *November 26, 2021*.**
6. The UNDERSIGNED undertakes to commence the work under the Contract forthwith after execution of the formal Contract and when notified so to do by the Owner and to carry out work without interruption to completion of the Contract.
7. The UNDERSIGNED will include the following unit cost. All unit costs include profit and overhead and shall not fluctuate for the duration of this Contract.
8. All rates are firm and shall not fluctuate for the duration of this Contract. There shall be no additional charges for overhead and profit.

| Item | Standard Rate/Hour | Overtime Rate/Hour |
|---|---|---|
| Foreman | | |
| Tradesman | | |
| Labourer | | |

9. **Unit Prices:**
The UNDERSIGNED agrees to provide additional labour, equipment and materials required to complete the following tasks for the stated unit prices;

| Item (All unit prices to exclude HST) | Unit Rate |
|---|---|
| Metal Wall Panel System incl. 1" Z-Girts | $ft^2$ |
| 2" Mineral Fiber Insulation (Roxul - Comfortboard 80) | $ft^2$ |

10. **I/WE DECLARE** that this tender is made without collusion, knowledge, comparison of figures or arrangement with any other company, firm or person submitting a tender for the same work and is in all respects fair and without collusion or fraud.
11. The UNDERSIGNED estimates the time required to Substantially Perform the work included in the tender documents for the specific Trade Contractor Package will be _____ weeks from the time Trade Contractor mobilizes to site. Trade Contractor expects to mobilize as early as, and required to submit a detailed schedule as requested by Polestar CM Inc. outlining deliverables and milestones before tender award.

12. IN WITNESS WHEREOF THE UNDERSIGNED TRADE CONTRACTOR HAS HERETO set its Corporate Seal and the hands of its' proper officers in that behalf at

_____ (Province),
(City)

This _____DAY OF_____ (Month), 20____ (Year).

_____
COMPANY NAME

_____
ADDRESS, POSTAL CODE, PHONE

Corporate
Seal (or)

_____
SIGNATURE

_____
WITNESS

_____
PRINTED NAME AND TITLE

## (APPENDIX A) SUB-CONTRACTOR AND MAJOR SUPPLIER LIST / COST BREAKDOWN

13. The UNDERSIGNED lists herein the individual sub-contractors and major suppliers for the referenced WORK PACKAGE identified in the tender form.
14. Provide only <u>one</u> name for each.

15. The UNDERSIGNED lists herein the individual sub-contractors and major suppliers that will be employed on the Project, and upon whose sub-trade or supply quotation he has based the Contract Price quoted herein, and agrees that no change shall be made in the list, as regards such sub-contractor or supplier actually employed on the Work, except under conditions set out in section 00 – Procurement and Contracting, in the item entitled 'Subcontractors'.

16. The UNDERSIGNED lists herein the costs associated with each part of the work as described below. Please note that all costs must add up to match the CONTRACT PRICE.

| ***subtrade scope or supply scope applicable to the WORK PACKAGE A Demolition*** | ***Sub-contractor or Major Supplier*** | ***Cost*** |
|---|---|---|
| Demolition Work | | |
| | Contract Price | |
| | HST | |
| | Total Amount Payable to the Contractor | |
| | | |

| ***subtrade scope or supply scope applicable to the WORK PACKAGE B Metal Panel Re-Cladding System*** | ***Sub-contractor or Major Supplier*** | ***Cost*** |
|---|---|---|
| Cladding (Girts, insulation, metal panel system, wood framing, etc.) | | |
| Electrical Work | | |
| | Contract Price | |
| | HST | |
| | Total Amount Payable to the Contractor | |

# DIVISION 00 - PROCUREMENT + CONTRACTING

## 1.0 GENERAL

17. Polestar CM Inc. has been appointed the Construction Manager by the Owner and, as such, any successful Bidder will be required to enter a direct Trade Contract with the Owner. within five (5) working days of notice to do so by Polestar CM Inc.
18. Polestar CM Inc. is seeking the services of qualified Trade Contractors to supply all labour, materials and equipment to complete the re-cladding work of the west stairwell **Public Health Sudbury and Districts – Wall Remediation at West Stairwell, 1300 Paris Street, Sudbury, Ontario.**
19. Bidders are requested to submit Tenders specific to their discipline of work. Bids shall include all work as described in the work package(s). Work packages shall be bid separately and completely.

## 2.0 CONTRACT DOCUMENTS

20. Bidders to consult the Contract Documents. Contract Documents to be determined by the Owner:
    - .1 Agreement between Owner and Trade Contractor
    - .2 Definitions
    - .3 General Conditions of the Contract
    - .4 Supplemental General Conditions
    - .5 Bid Form
    - .6 Specifications and Drawings
    - .7 Any addenda issued prior to the close of the bid
21. Bidders must familiarize themselves with the requirements of the contract documents **prior** to tender submission. No consideration will be given to a Bidder's failure to comply with the requirements of the contract documents.
22. Examine the Tender Documents upon receipt thereof, and should you discover any errors, contradictions, or omissions therein, immediately notify the Consultant so that further instructions in writing may be issued to Bidders before the Tender Closing Date.
23. If there is a conflict within the Contract Documents:
    - .1 The order of priority of documents, from highest to lowest, to be;
        - .1 *The Agreement between the Owner and the Contractor*
        - .2 *The Definitions*
        - .3 *Supplementary General Conditions*
        - .4 *The General Conditions*
        - .5 *Divisions 00/01 of the Specifications*
        - .6 *Divisions 02 to 32 of the Specifications*
        - .7 *Material, Room Finish, Door and Window Schedules*
        - .8 *The Drawings*
    - .2 Drawings of larger scale to govern over those of smaller scale of the same date.
    - .3 Dimensions shown on Drawings to govern over dimensions scaled from Drawings.
    - .4 Later dated documents to govern over earlier documents of the same type.

## 2.0 EXAMINATION OF THE SITE

24. Bidders are required to submit their bids upon the following express conditions:
    - .1 The bidder and trade contractors to examine the bid documents and make personal examination of the site(s) in order to become acquainted with the conditions under which the bidder will be obliged to work.
    - .2 The bidder to make the investigations necessary to become thoroughly informed regarding facilities for access to the site(s) such as may be required to execute the work.
    - .3 The bidder to be wholly responsible for the completeness and accuracy of the information obtained by the bidder's personal examination and study. No plea for ignorance of conditions that exist, or that may exist hereafter, or of conditions, or difficulties that may be encountered in the execution of the work under the resulting contract as a result of failure to make the necessary examinations and investigation, or ascertaining the required information will be accepted as an excuse for any failure or omission on the part of the bidder to fulfill in every detail the requirements of the said contract documents, or will be accepted as a basis for any claims whatsoever for extra compensation, or for an extension of time.

## 3.0 QUESTIONS

25. Matters and inquiries relating to the execution of this Contract to be directed to the Construction Manager:
    - .1 ***Vanessa Vachon [c: (705) 626 6374 e: vvachon@polestarcm.com].***

## 4.0 COPIES OF CONTRACT DOCUMENTS

26. Electronic copies (pdf format only) of drawings and specifications will be provided to each bidder.

## 5.0 ADDENDA / AMENDMENTS

27. If necessary, written instructions or explanations in the form of Addenda or Amendments will be sent to bidders.
28. Bidders to state on the Tender Form in the space provided, the numbers of Addenda and/or Amendments received and included by Bidders in the preparation of their Tender.

## 6.0 PRETENDER SITE MEETING

29. *A pre-tender site tour and meeting will be conducted by the Construction Manager and Consultant, Bidders are requested to attend. The date and time is established as follows:* ***Wednesday April 28th, 2021 at 2pm****. Pre-tender Site Meeting shall be located at:*
    ***1300 Paris Street, Sudbury, Ontario***

30. ***ALL CONTRACTORS MUST CONFIRM THEIR ATTENDANCE TO THE PRE-TENDER SITE MEETING BEFORE TUESDAY, APRIL 27, AT 1PM, AS WELL AS CONFIRM THE NUMBER OF ATTENDEES. CONTRACTOR TO CONFIRM ATTENDANCE VIA EMAIL TO*** *vvachon@polestarcm.com. If more than 10 persons confirm attendance, a designated time will be issued to separate groups in order to conform to the Ontario COVID-19 restrictions.*

31. ***Contractors to refer to the enclosed COVID-19 Site Protocols, prepared by Polestar CM Inc., revised April 21, 2020. Contractors must read through and follow proper protocols prior to attending the site visit.***

## 7.0 TRADE CONTRACTORS (SCOPES OF WORK)

### Package A: Demolition

Scope of this package shall include the following (to be read in conjunction with drawings and specifications);

- Scope of this package shall include the following (to be read in conjunction with drawings and specifications);
- Remove all loose material from the existing EIFS cladding in preparation for new finishes
- Make good existing all existing surfaces in preparation to receive new finishes.
- Remove existing signage,make good all surfaces affected by removals.
- Remove existing cement board as per drawings and specs.
- Remove / scrape existing sprayfoam down to face of existing masonry wall in one (1) bay of Z-Girts for min. height of 48" for review by Consultant.
- Remove existing Pre-finished metal parapet flashing
- Remove existing boiler venting and air intake + infill with insulation and sheathing to make weather tight in preparation for new cladding.
- Protect all existing finishes from potential damage related to respective Trade Contractors scope of work.
- At the end of each shift, ensure that the work area is left in a clean and safe environment to the satisfaction of Polestar's Construction Manager.
- All tools, equipment and materials are stored safely and are the responsibility of the respective Trade Contractor.
- Coordinate work with all related Trade Contractors and the Polestar CM Inc. Site Superintendent.
- Protect all existing finishes from potential damage related to respective Trade Contractors scope of work.
- Report and make good any areas that have been damaged during demolition.
- Supply and install construction fencing and hoarding as required to protect the site from the work and supply safety signage as required.
- Coordinate work with all related Trade Contractors and the Polestar CM Inc. Site Superintendent.
- Cleanup and haul away any job material produced by the installation of work Package.

### Package B: Metal Panel Re-Cladding System

Scope of this package shall include the following (to be read in conjunction with drawings and specifications);

- Scope of this package shall include the following (to be read in conjunction with drawings and specifications);
- Supply and Install metal wall panel system as per drawings and specs.
- Supply and install Z-girts and channels as per drawings and specs.
- Supply and install air barrier and transition membranes as per drawings and specs.
- Supply and install mineral fiber insulation (Roxul Comfortboard 80) as per drawings and specs.
- Supply and install sprayfoam insulation as per drawings and specs.
- Supply and install new wood framing as per drawings and specs.
- Supply and install new sheathing as per drawings and specs.
- Supply and install new Z-girts as per drawings and specs.
- Supply and install new structural framing, simpson angles, fasteners, connectors, etc., as per drawings and specs.
- Remove existing parapet blocking in preparation for new.
- Remove and scrape back existing pea gravel at roof in preparation for new roof membrane tie-in.
- Supply and install new pressure treated plywood blocking at top of parapet as per drawings and specs.

- Supply and install EPDM membrane onto existing roof membrane and up and over parapet as per drawings and specs.
- Supply and Install prefinished metal parapet flashing
- Re-install existing pea gravel and supply and install new pea gravel as required, as per drawings and specs.
- Supply and install metal trim flashing where required, as per drawings and specs.
- Supply and Install prefinished metal flashing complete with drip above all openings, at foundations, at roof, etc., as per drawings and specs.
- Provide finish caulking where required as per drawings and specs.
- Coordinate with signage contractor for location and support required for signage.
- Supply and Install additional backing where required in coordination with signage contractor.
- Supply and Install wood blocking where required to support prefinished metal flashings.
- Supply and install prefinished metal flashing door heads, jamb returns at all openings
- Cut back existing flashings where required, and as per drawings and specs.
- Install electrical supplied by electrical division as per drawings and specs.
- All electrical work identified in Division 16 electrical specification and Electrical Drawing.
- Protect all existing finishes from potential damage related to respective Trade Contractors scope of work.
- Supply and install construction fencing and hoarding as required to protect the site from the work and supply safety signage as required.
- At the end of each shift, ensure that the work area is left in a clean and safe environment to the satisfaction of Polestar's Construction Manager.
- All tools, equipment and materials are stored safely and are the responsibility of the respective Trade Contractor.
- Coordinate work with all related Trade Contractors and the Polestar's Construction Manager
- Cleanup and haul away any job material produced by the installation of work Package.

**8.0 TENDERS**

32. All bids to be submitted on the tender form provided by Polestar CM Inc. The tender form to be provided by Polestar CM Inc. in a 'pdf' format that can be printed by the Contractor on letter sized paper.
33. All bids to be Stipulated Lump Sum in Canadian currency, and to reflect the bidder's total proposed price for the work including, without limitation, labour, materials, coordination, management, supervision, expediting, administration of work of the Contract, work of trades and subcontracts, taxes (including HST), assessments, levies and custom duties, overhead and profit. Bids to be without qualification and in complete compliance with the Contract Documents.
34. Emailed (information@polestarcm.com) bids shall be accepted.
35. Enclose the Tender Forms in a sealed envelope clearly marked:

    **Public Health Sudbury and Districts – Wall Remediation at West Stairwell, 1300 Paris Street, Sudbury, Ontario,** and marked with the Bidder's Company Name, deliver this hardcopy quotation to the office of:

    **Polestar CM Inc.**
    289 Cedar Street, suite 300
    Sudbury, On P3B 1M8
    Attn: Vanessa Vachon
    ***No later than 2pm (local time) Wednesday May 12th, 2021***

36. Bidders finding any discrepancies in, or omissions from the Tender Documents, or having any doubt as to the meaning or intent of any part thereof, to at once notify Polestar CM Inc. Neither the Owner, Consultants, nor Polestar CM Inc. will be responsible for verbal instructions. A discrepancy in the contract documents to not limit the obligation of the Bidder to perform the aggregate of work described by the contract documents.
37. All Tenders will be opened and reviewed privately by the Owner and Polestar CM Inc.
38. It is agreed and understood by each bidder that the Owner and/or Polestar CM Inc. reserve the right to reject any or bids, to waive informalities or to accept any proposal that is deemed desirable without regard to whether such bid is the low bid. Of particular importance to the Owner and the Polestar CM Inc. will be a Bidder's reputation for quality workmanship and proven ability to perform work on schedule.
39. Alternate, itemized, separate and unit prices, where required by the Tender Documents, must include, without limitation, taxes (except HST) assessments, levies and custom duties, overhead and profit.
40. In the case of a Provincial Sales Tax, levy or custom duty revision effective prior to the acceptance of this proposal, it is assumed that Contractors have taken into account any notice of such revision and have included for any such revision in their contract price.

**9.0 TENDER VALIDITY**

41. Tenders to remain valid and open for acceptance for a period of **THIRTY (30) DAYS** from the Tender Closing Date. General Contractors to ensure that sub-trade and supply quotations are valid for a sufficient length of time to accommodate the above validity period for General Contract Tenders.

**10.0 SUBCONTRACTORS**

42. Each bidding Trade Contractor is encouraged to maximize the utilization of qualified local labour and suppliers for the execution of this project.
43. Each Bidding Trade Contractor shall list, the name of the individual subcontractor or major supplier they propose to use in the execution of the Contract, and whose sub-trade or supply quotation he has used in compiling the Stipulated Sum quoted in their Tender in Appendix A of the Tender Form.
44. Should Polestar CM Inc. be unable to approve of a subcontractor / major supplier recommended by a Tenderer, then another subcontractor may be selected by the Polestar CM Inc, and the Stipulated Sum Tender Figure adjusted accordingly. If no changes are required by the Polestar CM Inc. to the list of subcontractors proposed by the Successful Tenderer then those subcontractors / major suppliers named by the successful Tenderer in their subcontractors / major suppliers list shall be employed on the work, unless express written approval is received from the Polestar CM Inc. for a proposed change.

**11.0 INSURANCES**

45. The Owner shall provide, maintain and pay for Property and Boiler and Machinery in accordance with Canadian Standard Construction Document, CCDC 17-2010, Stipulated Price Contract, as amended by the Supplementary General Conditions.
46. The Trade Contractor shall provide, maintain and pay for all other insurances as specified in the Canadian Standard Construction Document, CCDC 17-2010, Stipulated Price Contract.
47. The Trade Contractor are responsible for paying insurance deductible and uninsured losses as applicable to their operations.
48. The Owner and all members of the Consultant Team shall be named as additional named insured under the Trade Contractor's insurance policies. Each insurance policy shall be endorsed to waive rights of subrogation or cross-claim against the Owner and the Consultant. Each policy shall state that it cannot be cancelled, lapsed or materially altered without at least thirty (30) days prior written notice to the Owner.
49. Prior to commencing work on site, the Trade Contractor shall submit to Owner / Polestar CM, a letter of good standing from the Workplace Safety & Insurance Board (WSIB), a form 1000, and a current Health and Safety Policy and Procedures document.

**12.0 PERMITS**

50. The Building Permit will be obtained and paid for by the Owner.
51. The Contractor to obtain and pay for other permits required to complete the work of this Contract.

**13.0 ACCEPTANCE PERIOD**

52. The Tender to be valid and subject to acceptance by the Owner for a period of **THIRTY (30) DAYS** from the date of closing Tenders.

**14.0 CONSTRUCTION SCHEDULE + COMPLETION OF THE WORK**

53. Work under this Contract for submittals and shop drawings are to commence immediately upon receipt of written acceptance of tender. Construction work shall begin no earlier than **August 1st, 2021** and to be continued to completion without interruption to completion no later than ***November 26th, 2021.*** The completion date assumes that the Owner to award the contract within 30 days of the close of the tender. Should the award of the tender occur after this time frame the completion date with be extended to match the delay in award of the tender.

**15.0 COMMENCEMENT OF THE WORK**

54. The submission of a Tender constitutes the bidder's agreement to commence work promptly and to execute the work without interruption until completion, in accordance with the schedule prepared by Owner.
55. As time is of the essence, the successful Contractor to immediately upon receipt of a letter of acceptance proceed with the preparation of shop drawings and/or samples and procurement of major component materials and equipment to avoid delay to the work.

**16.0 ASSIGNMENT OF THE CONTRACT**

56. The successful bidder to not assign the whole or any part of the resulting contract without the prior written consent of the Owner, which consent may be withheld by the Owner in its sole discretion or may be given subject to such terms and conditions that the Owner may impose.

**1.0 DISCREPANCIES AND / OR OMISSIONS**

57. If the Contractor finds discrepancies in, or omissions from the Drawings, Specifications or other Contract Documents or has any doubt as to the meaning or intent of any part thereof the Consultant to be notified at once. The Consultant will send written instructions or explanations. Neither the Owner nor the Consultant will be responsible for oral instructions.

**19.0 EXAMINATION**

58. Make a careful examination of the site of the project, and investigate and be satisfied as to matters relating to the nature of the work to be undertaken, as to the means of access and egress thereto and there from, as to the obstacles to be met with, as to the rights and interests which may be interfered with during the construction of the work, as to the extent of the work to be performed and any and matters which are referred to in the Drawings, Specifications and other Contract Documents, or which are necessary for the full and proper understanding of the work and the conditions under which it will be performed. No allowance to be made subsequently in this connection on behalf of the Contractor for any error or negligence on its part. Before commencing the work of any Section, the work of other Sections upon which it may depend, to be carefully examined. Report any defects which might affect the new work in writing to the Consultant. Commencement of new work to imply acceptance of work by other Sections upon which the new work depends. Verify dimensions of prepared work before fabrication of that work which is dependent on the prepared work.

**20.0 EXISTING CONDITIONS**

59. Make good surfaces and finishes damaged or disturbed due to Work of this Contract to match existing. Ensure that material used to repair damage is compatible with existing work. Term "make good" to mean repairing or filling operations performed on existing floors, walls, ceiling or any other exposed surfaces. Perform cutting and patching where applicable as specified herein. It is intended that finished surfaces match and line with existing adjoining surfaces. Restore Site to condition equal to or, if specified elsewhere, to condition better than existing conditions. Restore lands outside of limits of Work which are disturbed due to Work to original condition in addition to complying with requirements of General Conditions of the Contract.

# SUPPLEMENTAL GENERAL CONDITIONS

**GENERAL**

0.1 The General Conditions of the Stipulated Price Contract Canadian Standard Construction Document - **CCDC 17 - 2010**, Articles GC1 through GC12 inclusive, form part of this Contract.

0.2 The following Supplementary Conditions modify, change, delete from and/or add to the Articles of Agreement, the Definitions, and the General Conditions of the Stipulated Price Contract, Standard Construction Document **CCDC 17 - 2010**.

0.3 Where any Article, Paragraph or Sub-paragraph in the Agreement and/or General Conditions is supplemented by one of the following paragraphs, the provisions of such Article, Paragraph or Sub-paragraph shall remain in effect and the supplemental provisions shall be considered as added thereto.

1.4 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.

0.5 Where any article, paragraph, or sub-paragraph in the Agreement and/or General Conditions is amended, voided, or superseded by any of the following paragraphs, the provisions of such article, paragraph, or sub-paragraph not so amended, voided, or superseded shall remain in effect.

0.6 The term "provide" as used in the Contract Documents, shall mean the furnishing of all labour, materials, equipment, transportation and all other services required, including all costs in connection therewith, to complete the Work.

0.7 Wherein the word "submit" is used in the Contract Documents, it shall be followed by the words "to the Consultant" unless the context provides otherwise. Wherein the words "approved", "designated", "directed", "inspected", "instructed", "permitted", "required", "satisfactory", and "selected" are used in the Contract Documents, they shall be followed by the words "by the Consultant" unless the context provides otherwise.

0.8 Throughout the Contract Documents, wherein the term "**Value Added Taxes"** is used, amend to read **"Harmonized Sales Tax" (i.e. HST).**

0.9 Throughout the Contract Documents, wherein the term "Certificate of Total Performance of the Work" is used, amend to read: "Statement of Completion of the Contract", and any other reference to the word "Certificate" then referring to "Certificate of Total Performance" shall be amended to read "Statement".

1.10 Articles, Definitions, General Conditions, paragraphs, subparagraphs or clauses thereof have been modified in these Supplementary General Conditions as described in this section

**2. MODIFICATIONS TO AGREEMENT BETWEEN OWNER AND CONTRACTOR**

**1.1 <u>ARTICLE A-5 PAYMENT</u>**

.1 Insert the following values in the blanks of Paragraph 5.1: "ten" AND "10".

.2 Add the following Paragraph:

"5.4 The Construction Manager may withhold or nullify, in whole or in part, any application for payment represented by the Contractor's estimate or any Certificate for Payment to such extent as may be necessary to protect the Owner from loss because of the following:

.1 defective work not remedied
.2 claims filed or reasonable evidence indicating probably filing of claims
.3 failure of Contractor to make payment properly to Subcontractor or suppliers for materials and/or labour
.4 reasonable doubt that the contract can be completed, and all unpaid claims, charges, liens and encumbrances satisfied, for balance then unpaid
.5 damage to the work of another Contractor
.6 erroneous or inflated estimates by the Contractor of value of work performed
.7 unauthorized deviations by Contractor from Contract Documents
.8 unsatisfactory progress of project work by Contractor
.9 record drawings not current and up-to-date with changes
.10 incomplete and/or unacceptable LBC/ILBI submissions
.11 legal costs related to lien action(s)

When the above noted grounds are resolved, payments will be made for amounts withheld because of them. No interest will be paid on payments withheld. The Construction Manager's determination as to issuance or withholding of, or amount of payment reflected by Certificates for Payment, shall be final and binding, and shall not subject the Construction Manager to any liability whatsoever to the Owner, Contractor, Surety, or any other person."

**3. MODIFICATIONS TO DEFINITIONS**

**3.1** Add the following:

Submittals

*Submittals* are documents or items required by the *Contract Documents* to be provided by the *Contractor*, such as:
- *Shop Drawings*, samples, models, mock-ups to indicate details or characteristics, before the portion of the *Work* that they represent can be incorporated into the *Work*; and
- As-built drawings and manuals to provide instructions to the operation and maintenance of the *Work*.

**3.2** Delete "Value Added Taxes" in its entirety and replace with **"Harmonized Sales Tax"** to read:

"Value Added Taxes shall be as levied by the Federal Government and is computed at **Thirteen (13)** percent of the Contract Price. The payment or collection of which is by the legislation imposing such tax an obligation of the Contractor".

**3.3** Add the following:

"Indirect and Direct Costs

.1 Indirect Costs

Indirect costs include but are not limited to such soft cost items as:

(a) Head office overhead
(b) Off-site supervision (including non-working foremen)
(c) Change order preparation, research, negotiation, and associated travel
(d) Site supervision (including working foremen)

.2 Direct Costs

Direct costs include but are not limited to such hard cost items as:

(a) Labour
(b) Material
(c) Off-site material carrying costs
(d) Shipping costs
(e) Restocking charges
(f) Additional performance and payment bond premiums
(g) Temporary protection
(h) Temporary heat, light, and power
(i) Material re-handling costs
(j) Safety equipment, staging, scaffolding, and lights".

## 4. MODIFICATIONS TO GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT

## PART 1 GENERAL PROVISIONS

### 4.1 GC 1.1 CONTRACT DOCUMENTS

.1 Add the following items to end of end of sentence 1.1.6.1:
- "All other information provided such as appended documents, specifications, reports, etc."

.2 Paragraph 1.1.7.1 is amended by adding new subparagraphs .6, .7, and .8.

".6 Architectural drawings shall have precedence over structural, plumbing, mechanical, electrical and landscape drawings insofar as outlining, determining and interpreting conflicts over the required design intent of all architectural layouts and architectural elements of construction. It shall be understood that the integrity and installation of the engineered systems are to remain with each of the applicable engineering disciplines.

.7 In the case of conflict, other documents shall govern over the colour schedule and colour schedule drawings.

.8 Addenda shall have priority over the documents they refer to or amend and addenda of a later date shall have priority over earlier documents of the same type."

.3 Add the following paragraphs:

1.1.10 The Trade Contractor shall be provided with an electronic copy of Base AutoCAD Architectural, Structural, Mechanical and Electrical Drawings from the Consultant for the purpose of preparing shop drawings and as-built drawings. A service charge of $250.00 (Two Hundred and Fifty-Five and xx/100 Dollars) will apply for each electronic drawing file requested. The Trade Contractor is responsible for distribution of files and recovery of costs from subcontractors.

1.1.11 The digital data supplied by the Consultant will be provided to the Contractor as a matter of courtesy and convenience and is in no way to be taken as appurtenant to, associated with, or in placement of the officially signed and sealed contract documents. The data contained will be provided "as is" without warranty of any kind either expressed or implied and shall be relied upon as such. Although every care and diligence is taken to ensure the accuracy and correctness of all supplied data, any and all liabilities for damage, direct or indirect, however caused and resulting in any from the use of the supplied digital data will be the full responsibility of the Contractor. The Contractor accepts these conditions upon acceptance of the digital data.

## PART 2 ADMINISTRATION OF THE CONTRACT

### 5.1 GC 2.2 ROLE OF THE CONSTRUCTION MANAGER AND CONSULTANT

.1 **Add the following item;**
'2.2.2.3 The *Owner* and the *Trade Contractor* shall waive any claims against the *Construction Manager* or the *Consultant* arising out of the making of such interpretations and findings made in accordance with paragraphs 2.2.2.2 unless such interpretations and findings are the result of negligent actions or willful misconduct.

.2 The consultants obligation to make findings on a large claim or large numbers of claims is subject to the terms and conditions of the Owner/Consultant Agreement.

### 5.2 GC 2.4 DEFECTIVE WORK

.1 Add new subparagraphs 2.4.1.1 and 2.4.1.2:
"2.4.1.1 The Trade Contractor shall rectify, in a manner acceptable to the *Owner,* the *Construction Manager*, all defective work and deficiencies throughout the Work, whether or not they are specifically identified by the Construction Manager."
"2.4.1.2 The Trade Contractor shall prioritize the correction of any defective work which, in the sole discretion of the Owner, adversely affects the day to day operation of the Owner."

## PART 3 EXECUTION OF THE WORK

### 6.1 GC 3.1 CONTROL OF THE WORK

.1 Add the following to Paragraph 3.1.2:
.1 add the word "schedules" after the word "techniques"

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

### 6.2 GC 3.4 DOCUMENT REVIEW

.1 Delete paragraph 3.4.1 in its entirety and substitute new paragraphs 3.4.1 and 3.4.2:
"3.4.1 The Trade Contractor shall review the Contract Documents and shall report promptly to the Construction Manager any error, inconsistency or omission the Trade Contractor may discover and which may be reasonable determined by comparing the various Drawings and Specification documents. Such review by the Trade 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 Trade Contractor does not assume any responsibility to the Owner or to the Construction Manager for the accuracy of the Contract Documents. The Trade Contractor shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the Contract Documents, which the Trade Contractor could not reasonably have discovered. If the Trade Contractor does discover any error, inconsistency or omission in the Contract Documents, the Trade Contractor shall not proceed with the work affected until the Trade Contractor has received corrected or missing information from the Consultant."
3.4.2 Notwithstanding the foregoing, inconsistencies and /or omissions shall not include lack of reference on Drawings or in Specifications or in the specifications to labour and or products that are required or normally recognized within respective trade practices as being necessary for the complete execution of the Work.

### 6.3 GC 3.5 CONSTRUCTION SCHEDULE

.1 Add sentence .4 to paragraph 3.5.3:
.4 "clearly indicate and communicate materials/products procurement and delivery dates paying particular attention to schedule"

### 6.4 GC 3.6 SUPERVISION

.1 Add the following paragraphs:

3.6.3 The Owner may, with reasonable cause, at any time during the course of the Work, request the replacement of the supervisor or the representative. Upon receipt of such request, the Trade Contractor will immediately make arrangements to appoint an acceptable replacement. Costs associated with any removal(s) or replacement(s) of these individuals shall be the responsibility of the Trade Contractor.

3.6.4 The Trade Contractor shall employ an "Office Representative/Manager of the Work", in addition to the Superintendent of the Work, for the entire duration of the project.

.1 coordinating, managing and expediting control of the project relating to all matters of the project including ,but not limited to authorities having jurisdiction, product suppliers, subtrades, Owner and Consultant etc.

.2 Project scheduling and management (i.e. trades, products, etc.)

.3 Work with the Site Superintendent of the Work as required to ensure compliance of the Work with the intent of the Construction Documents including but not limited to projects scheduling, coordination of subtrades, quality control and performance of the Work.

3.6.5 The Site Superintendent of the Work shall perform duties and responsibilities at the Place of Work until Total Performance of the Work has been achieved and as issued by the Consultant / Construction Manager.

3.6.6 Both the Site Superintendent of the Work and the Office Representative/Manager of the Work shall have relevant and verifiable experience with undertaking and completing projects of this nature.

## 6.5 GC 3.7 TRADE SUBCONTRACTORS AND SUPPLIERS

.1 Revise Paragraph 3.7.2 as follows:
After the word "if requested by the Construction Manager," in the first line add "when requested at the time of tender and within five (5) working days".

.2 Add the following paragraph 3.7.7:

"3.7.7 The Trade Contractor shall not change subcontractors and/or suppliers and agrees not to do so without the prior written consent of the Owner and the Consultant. The Trade Contractor must substantiate cause for change.

## 6.6 GC 3.8 LABOUR AND PRODUCTS

.1 Add to sentence 3.8.3:
Where the Contract Documents permit the use of salvaged materials and /or where those salvaged materials are provided by the Owner it shall be the responsibility of the Trade Contractor to be responsible for transportation to the project site, any taxes, handling, on-site storage and protection.

.2 Add new paragraph 3.8.4:

"3.8.4 The Trade 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 Construction Manager. The Owner shall provide all relevant information on the Products to be supplied by the Owner."

.3 Add new paragraph 3.8.5:

"3.8.5 The responsibility as to which Trade Subcontractor provides labour, products and services rests solely with the Trade Contractor".

## 6.8 GC 3.10 SHOP DRAWINGS

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

.2 Add "and Submittals" after the words "Shop Drawings in all paragraphs of this section GC 3.10.

.3 Delete 3.10.3 in its entirety and substitute new paragraph 3.10.3
GC.3.10.3 Prior to the first application for payment, the Trade Contractor and the Construction Manager shall together prepare a schedule of the dates for submission and return of Shop Drawings and any Submittals.

.4 In item 3.10.2, and item 3.10.13, delete the words "with reasonable promptness so as to cause no delay in the performance of the Work" and replace with "within 10 working days for Architectural and Structural Trades and 15 working days for Mechanical and Electrical Trades or such longer period as may be reasonably required".

.5 Add the following paragraphs to GC- 3.10:

3.10.14 The Trade Contractor acknowledges its responsibilities to submit complete shop drawings and other submittals. Incomplete submittals will be returned to the Trade Contractor unreviewed and will be not be deemed a bona fide submittal. No time extensions or cost increases will be allowed for delays caused by return of incomplete submittals.

3.10.15 The Trade Contractor shall submit shop drawings and other submittals for each and every component of the Work as a requirement of completing the Work and for verification and audit purposes as stipulated in the Contract Documents.

3.10.16 The Trade Contractor shall not provide any of the Products nor include those products in the Work without reviewed shop drawings and other submittals. The Trade Contractor will be totally responsible for rectifying and correcting the Work as required including assuming responsibility for all related costs should Products or the Work occur without approved Shop Drawings and Submittals.

3.10.17 The Consultant's review will not include review of dimensions, quantities, calculations, weights, fabrication processes, construction means or methods, the coordination of trades, or safety factors relating to the construction for which the Contractor has the sole responsibility in connection therewith.
Should any errors in dimensions, or interference with other work be noted by the Consultant in his review of the shop drawings, the attention of the Trade Contractor will be called to them, but review of shop drawings by the Consultant shall not in any was whatsoever relieve the Trade Contractor from responsibilities required for the preparation and submission of shop drawings.

3.10.18 Only shop drawings indicated as 'Reviewed', 'Reviewed for General Design', Reviewed as Noted' or 'Reviewed as Modified' and bearing the Consultant's review date and initials, shall be used at the Place of the work or for the manufacture of fabrication of Products.

3.10.19 The review of shop drawings, by the Consultant, does not authorize a change in the Contract Price or Contract Time.

**6.9 GC 3.11 USE OF THE WORK**

.1 Add the following new paragraphs:

3.11.3 The Owner shall have the right to enter and occupy the Work in whole or in part prior to Total Performance of the Contract if in the opinion of the Consultant this does not interfere with the Work or the Schedule. And, any entry or occupancy by the Owner shall not be considered acceptance of the Work or relieving the Trade Contractor of Contract obligations to completing the Work or to provide and maintain the specified warranties.

3.11.4 The Owner shall have the right to occupy the Work as described elsewhere in this Contract.

3.11.5 The Owner and the Trade Contractor shall cooperate together where occupancy may be required prior to Total Performance of the Contract.

**6.10 GC 3.14 PERFORMANCE BY TRADE CONTRACTOR**

.1 Add new General Condition 3.14.1

3.14.1 In performing its services and obligations under the Contract, the Trade 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 Trade Contractor acknowledges and agrees that throughout the Contract, the Trade 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.

.2 Add new General Condition 3.14.2

3.14.2 The Trade *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.

**PART 4 ALLOWANCES**

**7.1 GC 4.1 CASH ALLOWANCE – not used**

**PART 5 PAYMENT**

**8.1 GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT**

.1 Add the following to sentence 5.2.5:

"The Construction Manager, Payment Certifier and Owner will determine the acceptance of the breakdown submitted. The Trade Contractor will revise as directed".

.2 Add the following new paragraph:

"5.2.8 The second and all subsequent applications for payment including application for release of holdback shall be accompanied by:

.1 a Statutory Declaration, required by the Contract Documents executed by the Trade Contractor, in the form prescribed by the Construction Manager, declaring that all accounts for labour, subcontracts, products, construction machinery and equipment and other indebtedness which may have been incurred by the Trade Contractor in the performance of the work for which the Owner might in any way be held responsible have been paid in full except holdback monies properly retained."

.2 any other documents required by the Contract Documents

.3 The second and all subsequent applications for payment, including application for release of holdback, shall be accompanied by a Workplace Safety and Insurance Board (WSIB) Clearance Certificate and a Statutory Declaration. The Statutory Declaration shall be executed by the Contractor, in the form prescribed by the Consultant, declaring that all accounts for labour, subcontracts, products, construction machinery and equipment and other indebtedness, which may have been incurred by the Trade Contractor in the performance of the work, and for which the Owner might in any way be held responsible, have been paid in full except holdback monies properly retained.

.3 Add the following new paragraph:

5.2.10 Payment at the end of each month is subject to submission of the following Prerequisite documentation. Furthermore, payment will only be made upon receipt of complete information:

.1 Regarding Mitigation Measure/Requirements: Written Proof and documentation that mitigation measures/requirements have been met on an item by item basis.

.5 Each payment and Final payment is subject to receipt of all required documentation.

**8.2 GC 5.3 PROGRESS PAYMENT**

.1 Delete the word “calendar” and substitute the word “business” in sentence 5.3.1.2:

.2 Delete the word “calendar” and substitute the word “business” in sentence 5.3.1.3:

.3 Delete the last two bulleted sentences and insert “after receipt by the Owner of the Application for Payment from the Payment Certifier or Construction Manager.

**8.3 GC 5.4 SUBSTANTIAL PERFORMANCE OF WORK**

.1 Add the following paragraph:

"5.4.4 Procedures upon application by the Trade Contractor for Certificate of Substantial Performance of the Work, and for statement of Completion of the contract, respectively, shall be in accordance with OAA/OGCA Document No. 100, November 1983, Take Over Procedures."

.2 Add the following paragraph:

"5.4.5 In addition to the requirements of applicable lien legislation, a condition precedent to Substantial Performance of the Work shall include submission to the Construction Manager of the following materials and documentations:

.1 submission of warranties, operating and maintenance manuals, shop drawings and as-builts records in acceptable manner;

.2 systems demonstrations and instruction of Owner in the operation of systems;

.3 receipt and submission of the OBC and Municipal Occupancy Permits;

.4 receipt and submission of sprinkler system approval from Insurance Advisory Organization;

.5 Submission to and acceptance by the Consultant of interim accounts of the Work showing all additions and deletions to the Contract Price;

.6 receipt and submission of elevator inspection and approval by governing authorities;

.7 verification reports confirming systems and equipment started up and tested, except for final balancing;

.8 verification reports confirming all life safety systems verified by Contractor as complying with the requirements of the Contract Documents;

.10 Inspection reports from local fire authority confirming that life safety systems installed are acceptable;

.11 submission of all spare parts and maintenance materials

5.4.7 The Trade Contractor shall co-operate with the Consultant and Owner in establishing a Deficiency List before Substantial Performance of the Work. The Contractor shall complete the Work noted on the Deficiency List expeditiously and at the discretion and convenience of the Owner

5.4.8 Acceptance of the Work by the Owner does not relieve that Trade Contractor from correcting deficiencies that are missed at the time of preparing the deficiency list, or hidden deficiencies, which become apparent during warranty period.

5.4.9 The publication by the Trade Contractor of the Certificate of Substantial Performance of the Work shall constitute a waiver by the Contractor, whether for a change in the Contract Price, extension of Contract Time or otherwise, except those made in writing, prior to the Trade Contractor’s application for payment upon Substantial Performance of the Work, and still unsettled.

**8.4 GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL COMPLETION OF THE WORK**

.1 Add the following to Paragraph 5.5.1:

`The Trade Contractor shall submit a written request for release of holdback including a declaration that no written notices of lien have been received and shall submit a Workplace and Insurance Board Certificate of Clearance.’

.2 Delete paragraph 5.5.3 in its entirety.

.3 Add the following Paragraph:

"5.5.6 If a lien is registered by a Subcontractor, supplier, labourer, or mechanic, the Trade Contractor shall reimburse the Owner for damages and costs which may result from such action, and the Trade Contractor shall pay for all legal costs incurred in the removing of such lien."

**8.5 GC 5.7 FINAL PAYMENT**

.1 Add the following to Paragraph 5.7.1:

"5.7.1 (cont'd)

The Contract shall be deemed to be completed when the price of completion or correction of known defects is not more than the lesser of

.1 One percent (1%) of the contract price; and

.2 $1,000.00."

.2 Amend paragraph 5.7.4 to read as follows:

"5.7.4 Subject to the provision of paragraph 10.4.1 of GC 10.4 - WORKERS' COMPENSATION, and any lien legislation applicable to the Place of the Work, the Owner shall, no later than (20) calendar days after the issuance of a final certificate for payment, pay the Trade Contractor as provided in Article A-5 of the Agreement - PAYMENT."

**PART6 CHANGES IN THE WORK**

**9.1 GC 6.2 CHANGE ORDER**

.1 Add the following paragraphs:

"6.2.3 The value of a change shall be determined in one or more of the following methods:

.1 By estimate and acceptance in a lump sum substantiated by an itemized cost breakdown satisfactory to the Consultant with the applicable overhead and profit percentage fees applied.;

.2 By unit prices set out in the Contract or subsequently agreed upon;

.3 By cost and a fixed or percentage fee.

"6.2.4 In the case of changes in the Work to be paid for under methods (.1) and (.3) of paragraph 6.2.3, the Trade Contractor and Subcontractor, respectively, may add to the reasonable net cost of additional work a fee, or mark-up, inclusive of overhead and profit, limited to the following:

.1 The Trade Subcontractor may add to the total net cost of labour and materials, a fee, or mark-up, equal to ten percent (10%) of such cost for Work done by a subcontractor.

.2 The Trade Contractor may add to the total net cost of labour and materials of additional work to be carried out by his own forces a fee, or mark-up equal to fifteen percent (15%) of such cost.

.3 In the event that Owner initiated changes in the Work result in delays to the completion of the Project, the Trade Contractor and/or the subcontractor(s) who are executing the Work shall each be allowed an additional one (1%) percent of the cost of the changes as compensation in full for the delay.

.4 For Owner requested substitution of building material(s) and/or building component(s) with *no additional labour content* by the Trade Contractor, a total mark-up of five (5%) percent shall be allowed on such changes regardless of the value of the change

.5 For Owner requested substitution of building material(s) and/or building component(s) with *no additional labour content* by the subcontractor(s), the subcontractor(s) shall be allowed a total mark-up of five (5%) percent and the Trade Contractor shall be allowed an additional total mark-up of five (5%) percent regardless of the value of the change.

.8 Such fee or mark-up, by Trade Contractor and subcontractor respectively, shall be based on net additional cost for any one change in the Work, such net additional 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 or material deleted and the same product or material added. The procedure of crediting deleted material at a certain unit cost and then charging the aggregate quantity of the same material at a higher unit cost will not be accepted.

.9 The Consultant alone shall determine the scope of change.

.10 Consideration for Unusual Changes: unusual and/or peculiar changes requiring consideration shall be reviewed on an individual basis. The consultant alone shall determine what constitutes an unusual and/or peculiar change.

.11 Changes for Cause and/or Changes for Convenience: The Trade Contractor and all sub-contractors must demonstrate, by way of their submissions, that any/all products and/or substitutions are made as substitutions for 'cause' in support of the intent of of the contract documents.
Changes and/or Substitutions deemed 'for convenience' will not be considered and allowed. The Construction Manager alone will determine the acceptance of a change or Substitution.

"6.2.5 In the case of a Change in the Work to be paid for under method (.2) of Paragraph 6.2.3, involving a class of work for which a unit price was required to be quoted in the Tender proposal, the cost to be paid for such class of work, derived by deducting quantity of deleted work involved in such change from the quantity of additional work involved in such change, multiplied by the applicable unit prices quoted.

"6.2.6 'Overhead' shall include any additional charges and/or premiums for Permits, Bonds, Insurance, Site Supervision, Office Administration and the like, which may result from Changes in the Work, whether calculated on the basis of quoted Unit Prices, or on the basis of Cost Plus Fee or Mark-up."

"6.2.7 Except where Unit Prices have been quoted, the value of a change in the Work shall be determined by method (3) of Paragraph 6.2.3"

"6.2.8 Where the additional cost of a change in the Work has been quoted by the Trade Contractor and accepted by the Owner in the form of a lump sum as evidenced by the issuance of a Change Order, such quoted cost shall be deemed to have included all costs, including any costs for delay of work, which are or may be occasioned by such change. No later claims for additional costs will be considered."

6.2.9 The Trade Contractor's fee, or mark-up, inclusive of overhead and profit, is understood to include, without limitation, the following:

.1 The Trade Contractor's head office and administration expenses, associated travelling / Accommodation / meals costs, financing costs including holdback, bonding and insurance costs;

.2 All supervision, co-ordination, administration, margin and risk of undertaking within stipulated a mount;

.3 The salaries of superintendents, project managers, engineers, timekeepers, accountants, Clerks, and all other Site supervision staff above foreperson level employed directly on the Work;

.4 The Trade Contractor's mark-up and profit;

.5 use of temporary offices, sheds and other general temporary Site support facilities and utilities used therein;

.6 miscellaneous additional costs related to:

.1 licenses, building permit and statutory fees, except when these are special for a particular item of Work;

.2 purchase of rental material, plant and equipment;

.3 purchase of small tools and supplies;

**9.2 GC 6.3 CHANGE DIRECTIVE**

.1 Delete Paragraph 6.3.11 in its entirety.

**9.3 GC 6.4 CONCEALED OR UNKNOWN CONDITIONS**

.1 Add new subparagraph 6.4.5:

6.4.5 The Trade 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. The Trade Contractor is not entitled to compensation or to an extension of the Contract Time for conditions which could reasonably have been ascertained by the Trade Contractor by such careful investigation undertaken prior to the submission of the bid.

**9.4 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 Paragraph 6.5.2 shall be amended by deleting the period at the end of the paragraph and adding: "but excluding any consequential, indirect or special damages."

.3 Add new subparagraph 6.5.6.

6.5.6 "If the Trade Contractor is delayed in the performance of the Work by an actor omission of the Trade Contractor or anyone directly or indirectly employed or engaged by the Trade Contractor, or by any cause within the Trade Contractor's control, then the Contract Time shall be extended for such reasonable time as the Consultant may decide in consultation with the Trade Contractor. The Owner shall be reimbursed by the Trade Contractor for all reasonable costs incurred by the Owner as the result of such delay, including, but not limited to, the cost of all additional services required by the Owner from the Consultant or any trade sub consultants, project managers, or others employed or engaged by the Owner. 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 directly or indirectly, or by stop work order or by a court or public authority as the result or an act of the contractor, or by unusual delay by common carriers or unavoidable casualties or, without limit to any of the forgoing, by any cause within the Trade Contractor's control."

**PART 8 DISPUTE RESOLUTION**

**10.1 GC 8.1 AUTHORITY OF THE CONSULTANT**

.1 Amend paragraph 8.1.2 to read as follows.

"8.1.2 A party shall be conclusively deemed to have accepted a finding of the Construction Manager and Consultant under GC 2.2 - ROLE OF THE CONSTRUCTION MANAGER AND CONSULTANT and to have expressly waived and released the other party from any claims in respect of the particular matter dealt with in that finding unless, within 15 Working Days after receipt of that finding, the party sends a notice in writing of dispute to the other party and to the Consultant, which contains the particulars of the matter in dispute and the relevant provisions of the contract documents. The responding party shall send a notice in writing of reply to the dispute within 10 Working Days after receipt of the notice of dispute setting out particular of this response and any relevant provisions of the Contract Documents."

.3 Add the following paragraphs:

"8.1.4 It is agreed that no act by either party shall be construed as a renunciation or waiver of their rights or recourses, provided they have given the notices in accordance with paragraph 8.1.2 and have carried out the instructions as provided in paragraph 8.1.3."

"8.1.5 If the dispute is not resolved in the first instance by the decision of the Construction Manager and Consultant, then either party may submit the dispute to such judicial tribunal as the circumstances may require."

"8.1.6 In recognition of the obligation by the Trade Contractor to perform the disputed work as provided in paragraph 8.1.3, it is agreed that settlement of dispute proceedings may be commenced immediately following the dispute in accordance with the aforegoing settlement of dispute procedures."

## 10.2 GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION

.1 Add the following new paragraphs 8.2.9, 8.2.10, 8.2.11, 8.2.12., 8.2.13., and 8.2.14.

8.2.9 Within five days of receipt of the notice of arbitration by the responding party under paragraph 8.2.6, the *Owner* and the Trade *Contractor* shall give the Construction Manager and the *Consultant* a written notice containing:
a) A copy of the notice of arbitration
b) A copy of supplementary conditions 8.2.9 to 8.2.14 of this *Contract*, and;
c) Any claims or issues which the Trade *Contractor* or the *Owner*, as the case may be, wishes to raise in relation to the Construction Manager or *Consultant* arising out of the issues in dispute in the arbitration

8.2.10 The *Owner* and the Trade *Contractor* agree that the Construction Manager or *Consultant* may elect, within ten days of receipt of the notice under paragraph 8.2.9, to become a full party to the arbitration under paragraph 8.2.6 if the Construction Manager and *Consultant*:
a) has a vested or contingent financial interest in the outcome of the arbitration;
b) gives the notice of election to the *Owner* and the Trade *Contractor* before the arbitrator is appointed;
c) Agrees to be a party to the arbitration within the meaning of the rules referred to in paragraph 8.2.6, and,
d) Agrees to be bound by the arbitral award made in the arbitration.

8.2.11 If an election is made under paragraph 8.2.10, the Construction Manager or *Consultant* may participate in the appointment of the arbitrator and, notwithstanding the rules referred to in paragraph 8.2.6, the time period for reaching agreement on the appointment of the arbitrator shall begin to run from the date the respondent receives a copy of the notice of arbitration.

8.2.12 The arbitrator in the arbitration in which the Construction Manager or *Consultant* has elected under paragraph 8.2.10 to become a full party may:
a) On application of the *Owner* or the Trade *Contractor*, determine whether the Construction Manager or *Consultant* has satisfied the requirements of paragraph 8.2.10, and;
b) Make any procedural order considered necessary to facilitate the addition of the Construction Manager or *Consultant* as a party to the arbitration.

8.2.13 The provisions of paragraph 8.2.9 shall apply mutatis mutandis to written notice to be given by the Construction Manager or *Consultant* to any trade sub-consultant;

8.2.14 In the event of notice of arbitration given by the Construction Manager or *Consultant* to a trade sub-consultant, the trade sub-consultant is not entitled to any election with respect to the proceeding as outlined in 8.2.10, and is deemed to be bound by the arbitration proceeding.

# PART 9 PROTECTION OF PERSONS AND PROPERTY

## 11.1 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 *Trade 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 *Trade Contractor* shall determine the locations of all underground utilities and structures indicated in the *Contract Documents*, or that are discoverable by applying to an inspection of the *Place of the Work* the degree of care and skill described in paragraph 3.14.1.

**11.2 GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES**

.1 Add the word 'designated' to the words "toxic "and "hazardous" in this General Condition

.2 Add the following sentence to paragraph 9.2.1:
Designated substances shall be as defined by applicable legislation and the Occupational Health and Safety Act.

.3 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 Trade *Contractor* or anyone for whom the Trade *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 Subparagraph 9.2.7.4 is deleted.

.5 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 Trade *Contractor* or anyone for whom the Trade *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,"

.6 Add the following to subparagraph 9.2.8.4:
Add "and the Construction Manager and the Consultant" after the word "Owner"

**11.3 GC 9.5 MOULD**

.1 Add the following to Subparagraph 9.5.2.4:
Add "and the Construction Manager and Consultant" after the word "Owner"

.2 Delete Subparagraph 9.5.3.4.

**PART 10 GOVERNING REGULATIONS**

**12.1 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".

**PART 11 INSURANCE AND CONTRACT SECURITY**

**13.1 GC 11.1 INSURANCE**

.1 Delete paragraph 11.1.1.2 (aircraft and watercraft liability insurance requirements).

.2 Refer to CCDC 41 – CCDC Insurance Requirements, revise paragraph 2 (automobile liability insurance) by replacing the amount of $5,000,000 with the amount of $2,000,000.

.3 Revise paragraph 11.1.3 by replacing the amount of deductible amount of $10,000 with $2,500 and by replacing the limits of insurance of $10,000,000 with $5,000,000.

**PART 12 INDEMNIFICATION, WAIVER OF CLAIMS AND WARRANTY**

**14.1 GC 12.1 INDEMNIFICATION**

.1 Paragraphs 12.1.1, 12.1.2, and 12.1.3 of the General Conditions are deleted and replaced with the following:

12.1.1 The Trade Contractor shall indemnify and hold harmless the Owner, its officers, elected and non-elected officials, partners, agents and employees from and against all actions, claims, demands, losses, costs, damages, suits or proceedings whatsoever which may be brought against or made upon the Owner and against all loss, liability, judgments, claims, suits, demands or expenses, including interest and legal costs, which the Owner may sustain, suffer or be put to resulting from or arising out of the Trade Contractor's failure to exercise reasonable care, skill or diligence or omissions in the performance or rendering of any work or service required hereunder to be performed or rendered by the Trade Contractor, its agents, officials and employees.

**14.2 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…"

.2. Add the following Paragraphs:

"12.3.8 Faulty materials or workmanship shall include but not be limited to shrinkage, expansion and movement. Make good all deficiencies outstanding within thirty (30) days from the end of warranty period.

"12.3.9 The Trade Contractor or Trade Subcontractor responsible shall also bear all costs involved in removing or replacing adjacent affected materials, including owners' Goods and equipment, that may be disturbed and which shall be required in the complete restoration of the original finish.

# DIVISION 01 - GENERAL REQUIREMENTS

**01 00 00 – GENERAL REQUIREMENTS**

1. **Division One Requirements:**
   .1 *The provisions of sections of division one to apply to each section of the Specifications, including those of Divisions 21 to 27.*
2. **Sleeving:**
   .1 Assess requirements for sleeving the structural elements for passing of pipes, conduits and other mechanical or electrical components, and include work required for approved interfacing between the structure, mechanical and electrical work, and other components of the work. Confirm and coordinate sleeving locations with mechanical and electrical trades as required during the construction of the work.
3. **Concealing of Mechanical and Electrical Components:**
   .1 Include work required to modify indicated location of pipes, ducts, conduits, and other mechanical or electrical components to fully conceal such components from view in finished spaces, except where indicated otherwise.
4. **Drainage:**
   .1 Ensure that positive drainage is provided to roof, floor, site drains and catch basins, as set in their final positions, and at other locations to prevent water infiltration into the building. Provide constant slopes for drained surfaces to drains and drainage courses.

.2 Verify the extent of each area served by a drain, or drainage course, to eliminate possible undrained surfaces. Co-ordinate the work of involved Subcontractors before each of their work proceeds.

.3 If water is found to be ponding on roof areas due to improperly placed drains, install additional drains to alleviate water ponding at no cost to the Owner. If extra drains are required co-ordinate the location of rainwater leaders with the Consultant.

5. **Documents at Job Site:**

.1 Maintain at job site, one copy each of the following and make same available to the Consultant upon request:

- .1 Contract drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed shop drawings.
- .5 Architectural Bulletins
- .6 Change Orders.
- .7 Other modifications to Contract.
- .8 Field test reports.
- .9 Copy of approved work schedule.
- .10 Manufacturer's installation and application instructions.
- .11 Ontario Building Code and Guide to the Ontario Building Code, 2012 edition.

6. **Cutting and Patching:**

.1 Do not cut, drill or sleeve load-bearing members without obtaining Consultant's written approval for each condition.

.2 Schedule and coordinate Work to minimize cutting and patching. Cut and patch as required to make work fit. Use workers qualified in work being cut and patched to ensure that it is correctly done.

.3 Cut, patch and make good to accommodate Work and to leave Work in finished condition. Cutting in this sense to mean actual cutting of components to allow new components to pass through or to provide new openings. Cutting to not mean mere drilling of holes to accommodate screws, anchors, bolts or other fasteners as such. Such drilling is part of Section's installation function.

.4 Use workers qualified in work being cut and patched to ensure that it is correctly done.

.5 Make cuts with clean, true, smooth edges to tolerances required and in conformance with industry practice for applicable class of work. Make patches undetectable in finished work.

7. **Cold Weather Construction:**

.1 Work of this Contract to be carried forward to completion with possible speed for the full twelve (12) months of every year and to commence when the Contract is awarded.

.2 The Contractor to be deemed to have included in his pricing ample funds for the provision of necessary temporary heating, temporary enclosures and other cold weather measures during cold weather construction period from September 15th of each year to May 31st of the following year.

.3 Provide labour, plant, equipment and services to provide and maintain adequate heat for work of trades within the building. The use of open fires or salamanders is not permitted. Temperatures attained to not be injurious to materials or finishes of any trade.

.4 During cold weather periods, maintain the ambient air temperature at working areas at or above 5° Celsius for trades requiring above freezing temperatures to ensure specified quality of work and workmanship. Erect and maintain temporary enclosures as required.

.5 The use of the permanent heating plant for temporary heat in areas of the building not occupied by the public will not be permitted unless authorized by the Consultant in writing and then only under conditions set out in the mechanical sections of these Specifications and in a manner which guarantees and warrantees on equipment will not be affected.

.6 Maintain adequate venting, ventilation and humidity to ensure proper curing of materials, safeguard finishes and to prevent build-up of combustion gases within enclosures.

.7 In cold weather, the Contractor to provide ambient minimum protection as follows:

| *Outdoor Air Temperature* | | *Type of Heat* | *Enclosure* |
|---|---|---|---|
| 5 degC to 2 degC | (41 degF to 36 degF) | None | None |
| 2 degC to -4 degC | (36 degF to 25 degF) | Vented heater | Windbreak tarpaulin or plastic / canvas enclosure |
| -4 degC to -8 degC | (25 degF to 18 degF) | Vented heater | Windbreak tarpaulin or plastic / canvas enclosure |
| -8 degC to -18 degC | (18 degF to 0 degF) | Temporary heating | Full enclosure of approved type |
| below -18 degC | (below 0 degF) | Temporary heating | Full enclosure of approved type |

8. **Labels and Nameplates:**

.1 Do not install permanent or permanently attached labels, trademarks, and nameplates in visible locations on materials and components, unless required for operating instructions or by Jurisdictional Authorities.

9. **Work of Other Consultants:**

.1 Refer also to the work of other consultants included in this package and / or retained by the Owner. Coordinate requirements defined by others as required.

10. **Air Leakage and Expansion Control:**
    .1 Recognizing that wall and roof materials are not dimensionally stable, and that they move differentially from the structural frame, the location of cracks should be anticipated and an airtight diaphragm and/or flexible sealants incorporated to maintain air-tightness, and to prevent problems due to vapour condensation.
    .2 In addition, connections between structural steel members are not airtight and perimeter connections must be made airtight.
    .3 Although concealed behind convectors, paneling, wallboard or suspended ceilings, the interior surfaces of exterior walls and roofs to be made airtight. Ensure that backup masonry walls are well laid with full mortar joints, and wallboard joints are sealed.
    .4 The manner of installation of pipes, ducts, conduits, and electrical outlets to be thoroughly coordinated to prevent the occurrence of air leaks: When pipes or conduits run adjacent to exterior walls and are to be furred in, not only to the exterior wall be airtight, but it to be adequately insulated to prevent cold spots on which condensation could occur in the cold space. Provide a continuous air seal between the airtight part of a wall or ceiling and the frames of openings such as windows, doors, hatches, ducts, grilles, louvres, structural steel members and the like.
    .5 As a general rule, the air / vapour barrier must be on the interior (warm) side of the insulation and should be in contact with it.
    .6 In addition to the specific requirements in each technical section of the Specification, make allowance for expansion control throughout the construction. Ensure that poured paving and slabs, exterior to the building structure, together with applied materials are not tight to building face, and that expansion control joints are left to accommodate movement.
    .7 Take particular care in constructing walls around wet areas such as showers, to avoid moisture transfer to adjacent building areas.

**01 18 00 – PUBLIC UTILITIES AND SERVICES**

1. At public utilities and services complete the following:
    .1 Verify limitations imposed on project work by presence of utilities and services, and ensure no damage occurs to them.
    .2 Notify service authorities concerned so that they protect, remove, relocate or discontinue them, as they may require.
    .3 Make arrangements for services required for project work.
    .4 Locate poles, pipes, conduit, wires, fill pipes, vents, regulators, meters, and sanitary service work in inconspicuous locations. If not shown on drawings, verify location of service work with Consultant before commencing installation.

**01 31 00 – BUILDING DIMENSIONS AND COORDINATION**

1. Ensure that necessary job dimensions are taken and trades are co-ordinated for the proper execution of the work. Assume complete responsibility for the accuracy and completeness of such dimensions, and for co-ordination.
2. Verify that work, as it proceeds, is executed in accordance with dimensions and positions indicated which maintain levels and clearances to adjacent work, as set out by requirements of the drawings, and ensure that work installed in error is rectified before construction resumes.
3. Check and verify dimensions referring to the work and the interfacing of services. Verify dimensions, with the trade concerned when pertaining to the work of other trades. Be responsible to see that Subcontractors for various trades cooperate for the proper performance of the Work.
4. Avoid scaling directly from the drawings. If there is ambiguity or lack of information, immediately inform the Consultant. Be responsible for any change through the disregarding of this clause.
5. All details and measurements of any work which is to fit or to conform to work installed to be taken at the building.
6. Advise Consultant of discrepancies and if there are omissions on drawings, particularly reflected ceiling plans and jointing patterns for paving, ceramic tile, or carpet tile layouts, which affect aesthetics, or which interfere with services, equipment or surfaces. DO NOT PROCEED without direction from the Consultant.
7. Ensure that each Subcontractor communicates requirements for site conditions and surfaces necessary for the execution of the Subcontractor's work, and that he provides setting drawings, templates and other information necessary for the location and installation of material, holes, sleeves, insets, anchors, accessories, fastenings, connections and access panels. Inform other Subcontractors whose work is affected by these requirements and preparatory work.
8. Prepare interference drawings to properly coordinate the work where necessitated. Refer to Section 01 33 00.
9. Where work incorporates metric modular components, the following rules apply:
    .1 Actual opening dimensions in masonry including doors, windows, walls, louvres and actual room sizes are 10mm (3/8") greater than nominal dimensions given on Drawings. Actual thicknesses of walls, piers and overall lengths of walls or buildings are 10mm (3/8") less than nominal dimensions given on Drawings unless indicated otherwise.
    .2 Unless indicated otherwise drawing details at scales of 1/2” = 1’-0” (1:10) or larger indicate "actual" rather than "nominal" dimensions.

**01 33 00 – SUBMITTAL PROCEDURES**

1. Submit shop drawings in accordance with the attached schedule. Refer also to structural, mechanical, electrical drawings for additional submittals that may be required.

2. Submit one electronic copy in pdf format of each submittal and or shop drawing. The review by the Consultant is for the sole purpose of ascertaining conformance with the general design concept. The review to not mean that the Consultant approves the detail design inherent in the shop drawings, responsibility for which to remain with the Contractor submitting same, and such review to not relieve the Contractor of his responsibility for errors or omissions in the shop drawings or of his responsibility for meeting requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation, and for coordination of the work of trades. The review of this drawing and/or any notes added to it, does not constitute authorization to proceed with any work which, in the Contractor's or Supplier's opinion, will involve extra cost to the Owner. In the event of any conflict between the Contract Documents and a shop drawing, the Contract Documents to govern. Shop drawings to show;
   .1 The name of the project.
   .2 Kinds of material and finishes.
   .3 Sections, arrangements and details which indicate complete construction, as well as interconnections with other work.
   .4 Fabrication and erection dimensions, together with quantities and/or locations.
   .5 Assumed design loadings, dimensions of elements and material specifications for load-bearing members.
   .6 Data verifying that superimposed loads will not affect function, appearance and safety of work shown on shop drawings, as well as other work interconnected.
   .7 Proposed chases, sleeves, cuts, and holes in structural members.

| **SUBMITTAL SCHEDULE** | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***product / system description*** | ***samples*** | ***product literature / data sheets*** | ***maintenance instructions*** | ***shop drawings*** | ***field review report*** | ***report / modelling analysis*** | ***additional requirements (refer to notes to submittal schedule)*** |
| Metal Fabrications | | | | x | | | Shop drawings to be stamped and sealed by a professional engineer licensed to practice in the province of Ontario. |
| Miscellaneous Metals | | | | x | | | Shop drawings to be stamped and sealed by a professional engineer licensed to practice in the province of Ontario. |
| Windloaded Metal Studs | | | | x | x | | Shop drawings to be stamped and sealed by a professional engineer licensed to practice in the province of Ontario. |
| Metal Wall Panels | x | | x | x | | | Shop drawings to be stamped and sealed by a professional engineer licensed to practice in the province of Ontario. |
| Modified Bituminous Roofing Systems | | x | x | | x | | |
| Inspection Reports From The Building Services Department | | | | | | x | |
| Record Drawings | | | | x | | | Record drawings to be prepared by the Contractor. Maintain one full set of drawings and specification on the site. Accurately record changes to the contract documents on these drawings and submit to the Architect at substantial completion of the work. |
| Electrical Safety Authority (ESA) Certificate | | | | | | x | |
| Warranties | | | | | | x | Provide copies of warranties and extended warranties signed and sealed by the Contractor and Trade Contractors. Where applicable provide extended warranties as required by the specifications. |
| Contractor / Trade Contractor Contact List Index | | | | | | x | Provide a list of trades, contractors and suppliers that have contributed to the project. Provide corporate names, addresses, email telephone numbers and contact names for each. |
| Project Manual | | | | | | x | At substantial completion provide a hardcopy and pdf copy of the project manual. Provide a detailed index of materials. Include copies of items in this schedule. Samples are not required. |

3. **Submittals When Project is Substantially Performed**
   .1 Manufacturer's Data Book and Shop Drawings:
      .1 Provide the Owner with shop drawings and Manufacturer's Data Books at the completion of the Project.
      .2 Shop drawings shall consist of two complete sets of final "REVIEWED" and "REVIEWED AS MODIFIED" shop drawings, on which corrections have been recorded of changes made during fabrication and installation of unforeseen conditions. Do not include drawings which were noted "REVISE AND RESUBMIT".
      .3 The Manufacturer's Data Book shall consist of two (2) bound copies of hard, black, vinyl-covered loose leaf binders, to accommodate 8-1/2" x 11" sheets. Binders shall match in all dimensions. A title sheet labelled "Manufacturer's

Data Book" with project name, and the date of Substantial Performance and list of contents shall precede data. Organize required material into applicable sections of work. Each section shall be marked by labelled tabs protected with celluloid covers fastened to hard paper dividers.

.4 The Manufacturer's Data Book shall contain:

.1 Equipment and operating instructions on all operable equipment and on all mechanical and electrical equipment, plumbing fixtures, and architectural hardware. Notes shall be typed. Drawings shall be neatly drafted and inked, or white-printed. Refer to Divisions 15 and 16 for additional requirements.

.2 Maintenance instructions for all exterior, and interior floors, walls and ceiling surfaces.

.3 Operating and maintenance instructions for all mechanical and electrical equipment.

.4 Original brochures on all equipment.

.5 Parts lists on all equipment including a list of suppliers.

.6 All additional material used in the project beyond that indicated by brochures listed under the various sections, showing manufacturers and sources of supply.

.7 Names, addresses and telephone numbers of the designer(s) and major contractor(s) who worked on the building.

.8 Commissioning data such as air and water flows and regulating valve positions.

**01 35 00 – SAFETY**

1. The Contractor shall conform to and enforce strict compliance with the Occupational Health & Safety Act and Construction Regulations, the Environmental Protection Act, Workplace Hazardous Materials Information System (WHMIS), Transportation of Dangerous Goods Act, and any other pertinent legislation for construction projects.
   .1 The Contractor for purposes of the Occupational Health & Safety Act, will be designated as the constructor for this project and will assume all of the responsibilities of the constructor set out in that Act and its Regulations.
   .2 The Contractor shall monitor the Work to ensure that all applicable Health & Safety Regulations are followed. Violations will be documented, appropriate action taken, and records kept on file.
   .3 The Contractor shall be informed of any minor violations of the Occupational Health & Safety Act or its Regulations and shall correct such minor violations immediately.
   .4 The Consultant or its authorized representative shall stop the Work immediately for any major violation of the Occupational Health & Safety Act or its Regulations. The Contractor shall not resume the Work until any such violation has been rectified.
   .5 The Contractor shall be responsible for any delay in the progress of the Work due to a violation of legislated or City health and safety requirements, and shall take the necessary steps to avoid delay in the final completion of the Work without additional cost to the Owner.
2. The Contractor shall provide a telephone, first aid kit, stretcher, blanket, eye wash station, and any other measures foreseeable in the site office, or other appropriate location, for emergency use.
3. The Contractor to perform the Work in a safe manner and to comply with applicable municipal, provincial, and federal legislation and any other regulation by authorities having jurisdiction of construction projects. In the event of conflict between any provisions on the above authorities, the most stringent provision to apply.
4. Maintain existing exits and accesses to exits and vehicle access points serving portions of the building scheduled to remain in use by the Owner, including corridors and doorways (man doors and overhead doors), free of impediments and obstructions.
5. Where an exit or access to exit is unavoidably blocked provide an acceptable alternate exit and/or access route, clearly defined and protected so that it is separated from the construction area by a smoke and dust tight partition equivalent to a 45 minute fire separation. Proposed alternate exits to be to the satisfaction of authorities having jurisdiction.
6. At existing occupied floor areas exposed to new construction, provide a temporary dust tight partition equivalent to a 45 minute fire separation. Proposed partition to be to the satisfaction of authorities having jurisdiction.

**01 35 26 – LIFE AND FIRE SAFETY**

1. **General:**
   .1 Enforce requirements established by Jurisdictional Authorities and Underwriters for life safety, fire prevention, and fire protection.
   .2 Be **proactive** by means of communication with Building Controls and Local Fire Department regarding ongoing Life and Fire Safety.
2. **Fire Safety Plan:**
   .1 All Contractors and their personnel shall be familiar with this section and its requirements. And, the contents of this section shall not diminish or relieve the contractor of his/her/ contractual obligations to the Owner.
3. **Fire Department Briefing:**
   .1 The General Contractor shall coordinate arrangements for the trade Contractors to be briefed on Fire Safety at their pre-work conference by the Fire Chief before any work is commenced.

4. **Reporting Fires:**
   - .1 Know the location of nearest fire alarm box and telephone, including the emergency phone number.
   - .2 Report immediately all fire incidents to the Fire Department as follows:
     - .1 Activate nearest fire alarm box, or
     - .2 Telephone.
   - .3 Person activating fire alarm box shall remain at the box to direct Fire Department to scene of fire.
   - .4 When reporting a fire by telephone, give location of fire, name or number of building and be prepared to verify the location.
5. **Interior and Exterior Fire Protection and Alarm Systems:**
   - .1 Fire protection and alarm systems shall not be:
     - .1 Obstructed,
     - .2 Shut Off, or
     - .3 Left inactive at the end of a working day or shift without notification and authorization from the Fire Chief or his representative.
   - .2 Fire hydrants, standpipes and hose systems shall not be used for other than firefighting purposes unless authorized by the Fire Chief.
6. **Fire Extinguishers:**
   - .1 The Contractor shall supply fire extinguishers, as scaled by the Fire Chief, necessary to protect, in an emergency, the work in progress and the Contractor's physical plant on site.
7. **Blockage of Roadways:**
   - .1 The Fire Chief shall be advised of any work that would impede fire apparatus response. This includes violation of minimum overhead clearance, as prescribed by the Fire Chief, erecting of barricades and digging of trenches.
8. **Smoking Precautions:**
   - .1 Although smoking is not permitted in hazardous areas, care must still be exercised in the use of smoking materials in non-restricted areas.
   - .2 Smoking is not permitted within the building.
9. **Rubbish and Waste Materials:**
   - .1 Rubbish and waste materials are to be kept to a minimum.
   - .2 The burning of rubbish is prohibited.
   - .3 All rubbish shall be removed from the work site at the end of the work day or shift or as directed.
   - .4 Extreme care is required where it is necessary to store oily waste in work areas to ensure maximum possible cleanliness and safety.
   - .5 Greasy or oily rags or materials subject to spontaneous combustion shall be deposited and kept in an approved receptacle and removed as required.
10. **Flammable Liquids:**
    - .1 The handling, storage and use of flammable liquids are to be governed by the current National Fire Code of Canada.
    - .2 Flammable liquids such as gasoline, kerosene and naphtha may be kept for ready use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing the Underwriter's Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable liquids exceeding 45 litres for work purposes, requires the permission of the Fire Chief.
    - .3 Transfer of flammable liquids is prohibited within buildings or on jetties.
    - .4 Transfer of flammable liquids shall not be carried out in the vicinity of open flames or any type of heat-producing devices.
    - .5 Flammable liquids having a flash point below 38 degC such as naphtha or gasoline shall not be used as solvents or cleaning agents.
    - .6 Flammable waste liquids for disposal, shall be stored in approved containers located in a safe ventilated area. Quantities are to be kept to a minimum and the Fire Department is to be notified when disposal is required.
11. **Hazardous Substances:**
    - .1 If the work entails the use of any toxic or hazardous materials, chemicals and/or explosives, or otherwise creates a hazard to life, safety or health, work shall be in accordance with the National Fire Code of Canada.
    - .2 The Fire Chief is to be advised, and a 'Hot Work' permit issued in all cases involving welding, burning or the use of blow torches and salamanders, in buildings or facilities. Special precautions are necessary to safeguard life and property from damage by fire or explosives.
    - .3 Wherever work is being carried out in dangerous or hazardous areas involving the use of heat, fire watchers, equipped with sufficient fire extinguishers shall be provided. The determination of dangerous or hazardous areas along with the level of precaution necessary for Fire Watch shall be at the discretion of the Fire Chief. Contractors are responsible for providing fire watch service for their work on a scale established and in conjunction with the Fire Chief at the pre-work conference.
    - .4 Where flammable liquids, such as lacquers or urethanes are to be used, proper ventilation shall be assured and all sources of ignition are to be eliminated. The Fire Chief is to be informed prior to and at the cessation of such work.
12. **Questions and/or Clarifications:**

.1 Any questions or clarification on Fire Safety in addition to the above requirements shall be directed to and cleared through the Fire Chief.

**01 41 00 – REGULATORY REQUIREMENTS**

1. Minimum Standard: Unless reference is made in the Contract Documents to other standards, work to conform to or exceed the minimum applicable standards of The Ontario Building Code, and/or the governing Jurisdictional Authorities.
2. Construction Safety: Include provisions for construction safety, such as fences, barricades, bracing supports, storage facilities, sanitation facilities, fire protection, standpipes, electrical supply, temporary heat, ventilation, construction equipment with its supports and guards, stairs, ramps, platforms, runways, ladders, scaffolds, guardrails, temporary flooring, rubbish chutes, walkway lighting and as required by the Occupational Health and Safety Act, and amendments thereto and the Ontario Fire Code Regulation as well as other applicable regulations of Jurisdictional Authorities.

**01 42 13 – ABBREVIATIONS AND ACRONYMS**

1. Many words or expressions that are repeated frequently on the drawings are abbreviated to reduce the amount of wording that might obscure the detailing. In some instance and to avoid misinterpretation, these abbreviations are listed, with their full meaning, on a tables / legends located on the drawings or near schedules where the abbreviations are used.

**01 43 00 – QUALITY ASSURANCE**

1. Each contractor / trade contractor to have a minimum of five (5) years' experience with materials and methods of their trade and if required, be able to provide references and evidence to substantiate this requirement. A contractor's / trade contractor's inability to provide this documentation to constitute grounds for dismissal from the project at no cost to the Owner.

**01 43 13 – MANUFACTURER QUALIFICATIONS**

1. Install materials in accordance with manufacturer's printed instruction. Where instructions in this package conflict with the manufacturer's recommendations identify the conflict to the Architect immediately.

**01 43 39 – MOCK UPS**

1. Prior to proceeding with the Work, prepare mock-ups as requested in the individual sections of the specifications and in this section. Include for Work of all Sections required to provide mock-ups.
2. Construct in specified locations or as selected by the Consultant.
3. Prepare mock-ups for Consultant's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in the Work.
4. Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
5. Remove mock-ups at conclusion of Work or when acceptable to Consultant.

**01 45 00 – QUALITY CONTROL**

1. The Owner / Architect will identify inspection testing companies. Testing will be paid for by the Owner unless noted otherwise.
2. Contractor to be responsible for coordinating completion of the required testing to suit the progress of the project and the required frequencies of the test defined in the specifications or requested by the Consultant Team.
3. Contractor to give the Consultant team notice of the progress of the work to provide reasonable opportunity to review the work for compliance with the Contract Documents. Failure to do so will be cause for the Consultant to classify the work as defective.
4. If the initial inspections and tests required to establish compliance with the Contract Documents indicates non-compliance with the Contract Documents, subsequent testing or re-inspection occasioned by non-compliance to be performed by the same Inspector(s) and the cost thereof borne by the Contractor. Where factual evidence exists, that defective workmanship has occurred or that work has been carried out incorporating defective materials, the Consultant may have tests, inspections or surveys performed, analytical calculation of structural strength made and the like in order to help determine whether the work must be replaced. Tests, inspections or surveys carried out under these circumstances will be made at the Contractor's expense, regardless of their results, which may be such that, in the Consultant's opinion, the work may be acceptable. Testing to be conducted in accordance with the requirements of the Ontario Building Code, except where this would in the Consultant's opinion cause undue delay or give results not representative of the rejected material in place. In this case, the tests to be conducted in accordance with the standards given by the Consultant. Materials or workmanship which fails to meet specified requirements may be rejected by the Consultant whenever found at any time prior to final acceptance of the work regardless of previous inspection. If rejected, defective materials or work incorporating defective materials or workmanship to be promptly removed and replaced or repaired to the satisfaction of the Consultant, at no expense to the Owner.
5. Construction Tolerances:
   .1 Unless more restrictive/demanding requirements are specified, the following construction tolerances could be accepted:
      .1 "Plumb and level" - 3mm in 3m (1/8" in 10'-0").
      .2 "Square" - 10 seconds more or less than 90 degrees.
      .3 "Straight" - 3mm (1/8") under a 3m (10'-0") long straight edge.
      .4 Tolerances to not be cumulative.

**01 50 00 – TEMPORARY FACILITIES AND CONTROLS**

1. The Contractor to be responsible that activities are in compliance with applicable legislation. The Contractor to be responsible for the provision of and removal of temporary provisions and controls for the project including but not limited to the following;
   - .1 Identification and enclosure of materials / spaces required to develop an appropriate field of operations / staging / storage areas to permit the execution of the project.
   - .2 The provision of parking areas for the Contractors / Trade Contractors personnel. Onsite parking is available in work / laydown area that will be designated on site by the Owner. Additional parking areas will be provided in parking lots as designated by the Owner at a later date if required.
   - .3 The provision of hoisting, scaffolding, roads, walkways and other construction aids as required.
   - .4 The provision of field offices provided by the Construction Manager will be located in the Site Trailer / Laydown Area identified by the Owner. Any additional field office requirements by the trade contractor to be supplied by the trade contractor.
   - .5 The provision of temporary heat. Salamanders to not be permitted.
   - .6 The provision of temporary lighting and power systems. Maintain not less than 160 LUX level. Temporary power distribution wiring to comply with the Ontario Hydro Electrical Safety Code. Obtain inspection certificates and approvals for temporary electrical work.
   - .7 Temporary washroom facilities for use by the Contractor and Subcontractors will be provided by the Construction Manager for the duration of the project.
   - .8 The provision of protection of completed construction where ongoing work or exposure to weather may cause damage.
   - .9 **The provision of building enclosures**; Work to include temporary enclosure for building as required to protect it, in its entirety, or its parts, against vandals, the elements, and to maintain temperatures which ensure conditions for installation that prevent harm to materials. Erect temporary enclosures to allow accessibility for the installation of materials during the time the enclosures remain in place. Design temporary enclosures to withstand wind pressures. Structural framing of the building may be used within load limits for which the framing is designed, for support of temporary enclosures. Keep surfaces of temporary enclosures free of snow and ice, to avoid overloading of building framing.
   - .10 **Dust Nuisance, Mud, Snow and Ice Removal;** Prevent nuisance to adjacent properties near the works from dust raising and mud deposits, by taking appropriate anti-dust and mud measures, at such times as found necessary, and as directed by the Consultant, or at any other times complaints of dust or mud are received from the public by either the Contractor, the Consultant, or the Owner.
   - .11 **The provision of dust partitions;** Provide dust tight screens or partitions to localize dust generating activities, and for the protection of workers, areas scheduled to remain occupied during construction, finished areas of work and the public. Maintain and relocate, as required, to suit construction sequencing and until such work is complete.
   - .12 **The provision of safeguards**; In addition to the requirements of the Occupational Health and Safety Act provide temporary safeguards and protection adequate to maintain standard safety practices and to protect against:
     - .1 Accident or injury to any workman and other persons on the site, adjacent work and property, roads and walks.
     - .2 Damage to any part of the work and to any adjoining or adjacent structure, property, pavement, walks, services and other similar items by frost, weather, overloading, and any other cause resulting from the execution of the work.
     - .3 Particular attention to be paid to the prevention of fire and elimination of fire hazards which would endanger the work or adjacent buildings and premises.
     - .4 Particular attention to be paid to the prevention of spills or releases of asbestos, PCB's or mercury which would endanger the work at the site and at adjacent buildings and premises.
     - .5 Should any part of the work or any buildings, pavements, trees, poles, hydrants, cultivated or grassed areas, etc., on or surrounding the site and adjacent to any road leading thereto, become damaged or disfigured due to lack of failure of such protection, make good with material identical with existing and adjoining surfaces, or compensate the Owner for value of same.
     - .6 Provide necessary temporary enclosures, hoardings, fences, gates, guardrails, hoists, stairs, ladders, scaffolding, staging, runways, night-lights, and barriers as necessary for the work. Conform to such requirements of the Labour Laws and other Provincial or local labour safety laws, applicable thereto. Be responsible for scaffolding, formwork, or other temporary supports used during the work. Where such structures are of a complicated nature, employ the services of a Registered Professional Engineer to design such scaffolding, framework, or other temporary supports. Support scaffolding independently of the building's finished surfaces. Arrange to avoid when not in use to permit work to proceed unimpeded, and promptly remove when no longer required.
     - .7 Use temporary fire standpipes and hose, or other approved fire extinguishing equipment in the building(s) until the permanent fire protection system in the building(s) is available.
     - .8 Should work be stopped for any cause, provide protection for the work and necessary temporary cold weather heating during such periods of work stoppages.
     - .9 Keep portions of the work properly and efficiently drained during construction and until completion, and the Contractor will be held responsible for damage which may be caused or result from water backing up or flowing over, through, from, or along any part of the works, whether such damage is to the works, to the existing building, or to neighbouring properties.

.10 Underground Electrical Services: provide safeguards to existing underground electrical services.

.13 Water, reasonably used, to be provided by the Owner at no cost.

.14 Electricity, reasonably used, to be provided by the Owner at no cost. Contractor may connect to existing electricity for use of trades except for purpose of power welding and electric heating.

**01 60 00 – PRODUCT HANDLING**

1. Provide the required facilities to receive, store and secure construction products at the job site as required for the duration of construction.
2. Where require provide system to heat, cool or humidify interior spaces to support the safe storage of materials. Refer to manufacturer of products for environmental requirements.
3. Protect products from damage.

**01 62 00 – PRODUCT OPTIONS**

1. **Substitution(s) for 'Cause" and/or 'Convenience':**
   - .1 The Contractor (and all sub-contractors) must demonstrate, by way of their submissions that any/all products and/or substitutions are made as substitutions for 'cause' and the intent of the contract documents. Substitutions deemed as substitutions for 'convenience' will not be considered and allowed.
   - .2 The distinction made regarding substitution for 'cause' or 'convenience' identified for substitution is intended to allow the contractor to access the marketplace for legitimate options and it is intended to discourage frivolous, inadequately researched or untimely substitutions.
2. **Exceptions:**
   - .1 During bidding, the Consultant will consider written requests from prime bidders for substitutions, received at least seven (7) working days prior to bid closing date; requests received after that time will not be considered.
   - .2 All considerations/requests for product options and /or, for substitution be it during bidding or at construction stage shall include complete data substantiating compliance with the Contract Documents. The onus and responsibility resides with the contractor to demonstrate product compliance.
     - .1 <u>For Cause:</u> Demonstrate rational/reason for substitution and/or Product Option proposed. Submit in writing.
     - .2 For Products:
       - .1 Product identification, including manufacturer's name and address.
       - .2 Manufacturer's literature:
         1. Product description.
         2. Performance test data.
         3. Reference standards.
         4. Living Building Challenge Requirements compliance demonstrating specific applicable prerequisite requirements.
       - .3 Samples.
       - .4 Name and address of similar projects on which product was used, and date of installation, where possible.
       - .5 Any 'Exceptions' status acceptance documentation.
     - .3 For Construction Methods:
       - .1 Detailed description of proposed method.
       - .2 Drawings illustrating methods.
       - .3 Itemized comparison of proposed substitution with product or method specified.
     - .4 <u>For Construction Schedule:</u> Support documentation vis a vis any impact on project schedule.
     - .5 <u>For Cost Consideration (s):</u> Indicate whether Product Option or a proposed substitution is cost saving, cost neutral or a cost increase. Submit cost back-up. Provide additional information as requested by consultant.
     - .6 Relation to (any) separate contracts.
   - .3 In making request for substitution and/or Product Options, the Contractor represents:
     - .1 Substitution for 'Cause'
     - .2 He/she has thoroughly investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.
     - .3 He/she will provide the substitution with the same guarantee as that for product or method specified.
     - .4 He/she will coordinate installation of accepted substitution into work, making such changes as may be required for work to be complete in all respects.
     - .5 Requests for substitutions during construction shall state what cost difference if any, will be made in the Contract Price for each substitution, should it be accepted.
   - .4 Substitutions and/or Product Options will not be considered if:
     - .1 Substitution for 'Cause' is not demonstrated, whereupon the consultant will reject the proposed substitution
     - .2 They are indicated or implied on shop drawings or project data submittals without formal request.
     - .3 Acceptance will require revision to Contract Documents.

**01 73 00 – VERIFICATION OF INVERTS**

1. Immediately after award of the Contract, verify field service connections to ensure that drainage runs can meet the inverts of the site services. Give notification immediately of any apparent difficulties or discrepancies.

**01 74 00 – CLEAN UP REQUIREMENTS**

1. **General:**
   - .1 Maintain the work in a tidy condition and free from the accumulation of waste products and debris, other than that caused by the Owner, other Contractors or their employees. Conform to requirements established by jurisdictional authorities for environmental and pollution control. Prevent dust from spreading to adjoining properties. Keep roads and sidewalks free from excavated materials, dirt and debris, snow, and ice.
2. **Clean-up:**
   - .1 Contractor will be responsible for clean up on a daily basis. If the site is not cleaned each day Owner will arrange for site cleanup and the Contractor will be charged the cost as determined by Owner.
   - .2 Contractor will be responsible for the cleanup and removal of rubbish and surplus material associated with his work. Clean up is to be scheduled and carried out to the satisfaction of Owner.
   - .3 Contractor will be responsible for daily general housekeeping.
   - .4 Should the Contractor repeatedly fail or refuse to perform his own cleanup, Owner to perform this work after 48 hours' notice and cost to be assessed to the Contractor's account.
   - .5 At completion of the work, each Contractor to remove tools, equipment, machinery, storage sheds, temporary protection and surplus material leaving the project clean and ready for occupancy.
3. **Final Clean-up:**
   - .1 Contractor to be responsible for the final cleanup of the project prior to achieving substantial completion. This to be completed by experienced personnel or professional cleaners to the satisfaction of Owner / Architect and to generally include the following;
     - .1 All excess construction materials and construction debris to be removed from the site.
     - .2 All interior surfaces and fixtures to be vacuum clean, mopped and wiped. Clean and polish glass and mirrors.
     - .3 All manufacturer's labels, stickers, markings to be removed.
     - .4 Exterior building surfaces to be cleaned, washed and wiped. Dust, efflorescence or other markings, debris to be removed. Clean and polish glass.
     - .5 Exterior hard surfaces to be broom clean, soft landscaping to be rake clean.

# DIVISION 02 – EXISTING CONDITIONS

## 02 00 00 – EXISTING CONDITIONS

1. Make good surfaces and finishes damaged or disturbed due to Work of this Contract to match existing. Ensure that material used to repair damage is compatible with existing work.
2. Term "make good" to mean repairing or filling operations performed on existing floors, walls, ceiling or any other exposed surfaces. Perform cutting and patching where applicable as specified herein. It is intended that finished surfaces match and line with existing adjoining surfaces.
3. Restore Site to condition equal to or, if specified elsewhere, to condition better than existing conditions.
4. Restore lands outside of limits of Work which are disturbed due to Work to original condition in addition to complying with requirements of General Conditions of the Contract.

## 02 41 00 – DEMOLITION

1. Demolition activities to conform to CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures. Refer to drawings for extent of demolition activities. Demolish portions of the existing building and related services as required to permit construction of new work. Demolish and dispose of components of existing building as described on demolition drawings.
   .1 **Provide a comprehensive demolition plan that confirms with CSA S350-M1980 (R2003) and illustrates / describes the methodology for safely demolishing portions of the existing building to provide access to the new addition. Indicate temporary shoring where required. Demolition plan to be stamped by a professional engineer licenced to practice in the Province of Ontario.**
2. Separate waste materials for reuse and recycling where possible and deliver to recycling depots.
3. Fires and burning of waste or materials is not permitted on site. Do not bury rubbish waste materials. Do not dispose of waste or volatile materials including but not limited to: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
4. Cover or wet down dry materials and waste to prevent blowing dust and debris.
5. Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, and landscaping, adjacent grades to remain. Repair damage caused by demolition as directed by Consultant.
6. Support affected structures and, if safety of structure being demolished or adjacent structures, services or vehicles appears to be endangered, take preventative measures, stop Work. Notify Consultant immediately if existing building, services or vehicles on the site are affected.
7. Disconnect gas, water, sanitary, electrical and telephone service lines entering area of buildings to be demolished.
   Do not disrupt active or energized utilities designated to remain undisturbed. Coordinate with building owner
   Removal of hazardous waste to be by the Owner.
8. Where applicable, supply separate, clearly marked disposal bins for categories of waste material. Dispose of demolished materials not designated for alternate disposal, in accordance with applicable regulations. Transport material designated for alternate disposal using approved haulers/ facilities/receiving organizations in accordance with applicable regulation.

## 02 42 00 – REMOVAL AND SALVAGE OF MATERIALS

1. Within those areas of the existing building undergoing demolition, removals or alteration work, the following items shall be carefully salvaged and shall remain the property of the Owner. Such items may at the option of the Owner include:
   .1 *Not applicable*
2. Carefully remove and handle such items, materials, equipment, etc. and deliver to Owner in location, on Site as directed by Owner.
3. Before beginning any removal and salvage work, survey the site and examine the drawings and specifications to determine the extent of the work. Take necessary precautions to avoid damage to existing materials that are to remain in place.
4. All other materials resulting from demolition and/or removals, and not scheduled for re-use, shall be the property of the Trade Contractor who shall remove them from the building and from site.
5. Upon completion of the work, portions of structure to remain and adjacent areas and structures shall be cleaned of dust, dirt, and debris caused by salvage and demolition operations.

## DIVISION 03 – CONCRETE – Not Used

## DIVISION 04 – MASONRY – Not Used

# DIVISON 05 – METALS

*Refer also to structural drawings prepared by **A2S** for additional Division 05 requirements.*

### 05 40 00 – COLD FORMED METAL FRAMING

**Part 1. General:**

1. **Scope**: Provide engineering, labour and materials required to design and provide cold formed galvanized steel items; the windloaded metal stud systems at all exterior walls including windloaded metal studs, exterior grade sheathing, thermal clips, subgirts and plenum channels, and at interior walls (above 2.4m high), soffits, z girts systems, c channels, and miscellaneous ties and connections for the project in locations as scheduled and / or detailed on the drawings.
2. **Design Criteria:** Design of system to be based on Limit States Design using factored loads and resistances.
   - .1 Building systems to comply with environmental loads as defined by the Ontario Building Code 2012 and the proposed building location, for a building with an importance category of 'normal'.
   - .2 Loads and load factors to be in accordance with the Ontario Building Code. For wind load calculations, the reference velocity pressure, q, to be based on a 1 in 30 probability of being exceeded in any one for strength design and 1 in 10 for deflection.
   - .3 Resistances and resistance factors to be determined in accordance with the National Building Code of Canada, CSA-S136.
   - .4 Stud depths and sizes of z girts are indicated on Drawings. Adjust stud material thicknesses and spacing, as required by the design criteria. Use greater or lesser stud depths only if approved by the Consultant.
   - .5 Space wall studs at 16" (400mm) maximum. Use lesser stud spacing's if required by design criteria.
   - .6 Studs to be minimum 0.05" (1.27mm) (18 ga) thick. Use greater stud / z girt / c- channel design thicknesses if required by design criteria.
   - .7 The minimum design thickness for bridging to be 0.05" (1.27mm) (18 ga). Use greater bridging channel design thickness if required by design criteria.
   - .8 The minimum design thickness for clip angles to be 0.0625" (1.59mm) (16 ga). Use greater clip angle thickness if required by design criteria.
   - .9 Maximum deflections under specified wind loads to be L/240.
   - .10 Design connections to accommodate vertical deflection movement of the structure, frame shortening and vertical tolerances without imposing axial loads onto the framing. Leave a minimum gap of 1/2" (12.7mm) unless required otherwise to accommodate specified erection tolerances of the structure and/or structural movement.
   - .11 Design bridging to prevent member rotation and member translation perpendicular to the minor axis. Provide for secondary stress effects due to torsion between lines of bridging. Do not rely on collateral sheathing to help restrain member rotation and translation perpendicular to the minor axis. Provide bridging at 5'-0" (1500mm) o.c. maximum. Space bridging at equal intervals over the span length of the member.
   - .12 Design anchorage and splice details for bridging.
   - .13 Design for local loading due to anchorage of exterior cladding systems; refer to **section 07 42 13 – metal wall panels,** exterior grade sheathing, thermal clip systems and interior / exterior wall mounted fixtures where required.
   - .14 Connections between wind bearing steel stud members to be by bolts, welding or sheet metal screws.
   - .15 Provide head, sill and jamb members and connections to frame openings larger than 4" (100mm) in any direction.
   - .16 Anchor top and bottom track to the structure at a maximum spacing of 2'-8" (800mm) o.c. Closer spacing's may be required to satisfy structural requirements.
3. **Shop Drawings:**
   - .1 Retain a Professional Structural Engineer registered in the Province of Ontario to design cold formed steel items; the wind bearing steel stud wall assemblies, subgirts, z-girts, plenum channels and miscellaneous C-channels, L sections. Engineer shall prepare, seal and sign shop drawings for system including load bearing and/or force-resulting components and perform field review of installed assemblies. Shop Drawings to indicate both design and installation requirements.
   - .2 Indicate design loads, member sizes, description of materials, design thickness / gauge, exclusive of coatings, connection and bracing details, screw sizes and spicing, and anchors as well as other pertinent data and information, for Consultant's review before fabrication.
   - .3 Indicate locations, dimensions, openings and requirements of related work.
   - .4 Indicate welds by welding symbols as defined in CSA W59.
   - .5 Submit copies of engineering calculations or data verifying the capacity of the members and the ability of the assemblies to meet the design requirements.
   - .6 **Field Review:** The wind bearing steel stud framing system engineer, responsible for the production of shop drawings, to provide periodic field review during construction to verify that the work has been erected in accordance with the reviewed shop drawings. Reports to be submitted to the Consultant. The costs of this field review to be paid for by the Contractor.

**Part 2. Products:**

1. **General:** Steel studs, z girts, c channels to be free from defects which impair strength or durability, or which are visible. Metals to be new, of best quality, and free from rust, or waves, or buckles, clean, straight, and with sharply defined profiles.

2. **Steel:** to meet the requirements of CAN/CSA-S136. Galvanized coating to be structural quality to a minimum G90 (Z275) designation zinc coating. Identify as to specification, type, grade and mechanical properties.
3. **Stainless Steel:** Type 304 alloy conforming to ASTM A167, No. 4 finish.
4. **Welding Materials:** to CSA W59 and certified by Canadian Welding Bureau.
5. **Screws:** stainless steel pan head, self-drilling, self-tapping sheet metal screws with 0.008mm of zinc coating, as required, length to suit engineered design.
6. **Anchors:** concrete expansion anchors or other suitable drilled type fasteners, with 0.008mm of zinc coating as required, length to suit engineered design.
7. **Bolts, Nuts, Washers:** to conform to ASTM A307 or ASTM A325: hot dipped galvanized, size and type to suit engineered design.
8. **Touch up primer:** zinc rich, to CAN/CGSB 1.181.
9. **Sub-framing:**
   - .1 Subgirt: Provide z-girts and metal furring as indicated on drawings to support ACM panels. Z-girts to be fabricated from minimum 1.26mm (0.050") 18 ga x 50mm, Z275, grade A, galvanized steel plenum subgirts. Metal furring for ACM panel to be grade A galvanized steel, minimum 16 gauge or as directed by ACM panel manufacturer and spaced at maximum 16" o.c.,
   - .2 Perforated Screen cover for Gas Piping and Electrical Feed: fabricated from perforated aluminum sheet pre-painted to match new cladding. Perforation 50% net free area.
10. **Exterior Grade Sheathing:** Shall be non-combustible conforming to CAN ULC S114, Type X, weather resistant with fibreglass matt face and back and water resistant treated core, 13mm (1/2") thick equal to Dens Glass Fireguard Sheathing by Georgia Pacific, CGC Securerock or approved equal. Secured to wind loaded metal stud framing with bugle head fine thread corrosion resistant drill point drywall screws at spacing as defined by shop drawings prepared for this section, min size: #6, min. length: 32mm (1 ¼").

**Part 3. Execution:**

1. **Inspection of Site:** Take site measurements to ensure that work is fabricated to fit surrounding construction around obstructions and projections in place, or yet to be put in place to suit service locations, and inaccuracies of construction.
2. **General:**
   - .1 Do welding in accordance with CSA W59.
   - .2 Do work in accordance with Canadian Sheet Steel Building Institute, Lightweight Steel Framing Design manual, 2nd Edition.
   - .3 Erection: Erect components to requirements of reviewed shop drawings.
   - .4 Anchor tracks securely to structure at 2'-8" (800mm) o.c. maximum, unless lesser spacing prescribed on shop drawings.
   - .5 Erect studs plumb, aligned and securely attached with two (2) screws minimum, or welded in accordance with manufacturer's recommendations.
   - .6 Install studs at not more than 2" (50mm) from abutting walls, openings, and each side of corners and terminations with dissimilar materials.
   - .7 Touch up welds with coat of zinc rich primer.
   - .8 Erection Tolerances: Plumb: not to exceed 1/500th of member length. Camber: not to exceed 1/100th of member length. Spacing: not more than 1/8" (3mm) from design spacing.

3. **Windloaded Metal Stud Installation**
   - .1 Install windloaded metal studs including top, bottom and deflection tracks, and horizontal blocking where required.
   - .2 Locate windloaded metal stud system in accordance with architectural drawings and details.
   - .3 Maximum spacing shall be 16" (400mm) on centre.
   - .4 Comply with erection tolerances.
   - .5 Comply with shop drawings that define system components and the type, location and spaces of fasteners.
   - .6 All fasteners shall be countersunk

4. **Exterior Grade Sheathing Installation**
   - .1 Install exterior grade sheathing on outside face of windloaded metal studs.
   - .2 Comply with erection tolerances.
   - .3 Comply with shop drawings that define system components and the type, location and spaces of fasteners.
   - .4 Where required cut panels to suit.
   - .5 Install panels in accordance with manufacturer detailed installation instructions.
   - .6 Provide tight joints between panels, not larger than ¼" (6mm) in width.

5. **Subframing Thermal Spacer Installation**
   - .1 Install thermal spacers in accordance with the manufacturer's detailed instructions.
   - .2 Review installation of air / vapour barrier by section 07 27 13. Do not commence installation of the thermal clips until installation of the vapour barrier is completed and has been reviewed by the Architect.
   - .3 Locate clips to conform with shop drawings and coordinate with cladding systems to be applied to the building.
   - .4 Align thermal clips with metal studs and install at locations and with fasteners as defined by the shop drawings.

.5 Install subgirts to thermal clips using fasteners and at spacings as defined by the shop drawings.
.6 Install mineral fibre insulation in accordance with section 07 21 00. Ensure joints between panel are tight and without an air space. Do not install plenum channels or other materials that would cover up the installation of the insulation until the installation of the insulation has been reviewed by the Architect.
.7 Coordinate installation of the air barrier as defined by section 07 23 13.
.8 Install plenum channels to the subgirts using fasteners and at spacing as defined by the shop drawings. Final installation shall provide a 25mm deep venting plenum that is clear and open for air movement from the base to the top of the exterior wall.
.9 Form and install vent screens where required and detailed on the drawings.

## 05 50 00 - METAL FABRICATIONS

### Part 1. General:

1. **Scope:** Provide required labour and materials to supply and install miscellaneous metals items and described on the drawings including all miscellaneous metal items listed herein. **Refer to schedule of items at article 3.4 of this section.**

2. **Submittals:**
   - .1 Retain a Professional Structural Engineer registered in the Province of Ontario to design miscellaneous metals items; to prepare, seal and sign shop drawings for system including load bearing and/or force-resulting components and perform field review of installed assemblies. Shop Drawings to indicate both design and installation requirements.
   - .2 Indicate design loads, member sizes, description of materials, design thickness / gauge, exclusive of coatings, connection and bracing details, screw sizes and spicing, and anchors as well as other pertinent data and information, for Consultant's review before fabrication.
   - .3 Indicate locations, dimensions, openings and requirements of related work.
   - .4 Indicate welds by welding symbols as defined in CSA W59.
   - .5 Submit copies of engineering calculations or data verifying the capacity of the members and the ability of the assemblies to meet the design requirements.
3. **Shop Drawings:**
   - .1 Submit shop drawings in accordance with Section 01340, of all the work of this Section, including large-scale detail of members and materials, of connection and jointing details, and of anchorage devices, dimensions, gauges, thicknesses, description of materials, metal finishing, as well as all other pertinent data and information, for Consultant's review before fabrication.
   - .2 ***Shop drawings of all load bearing and or force bearing, seismic (as defined by part 4 of the Ontario Building Code and item OBC 4.1.8.17) and/or force-resulting components shall bear the seal and signature of a Professional Structural Engineer registered in the Province of Ontario.***
4. **Product Delivery, Storage, and Protection:**
   - .1 Maintain protection provided for work of this Section from time of installation until final finishes are applied or to final clean up.
   - .2 Protect prime-painted surfaces from damage.
   - .3 Protect exposed surfaces of prefinished metal work which does not receive site finishing with protective coatings or wrappings. Use materials recommended by finishers or manufacturers of metals, to ensure that method is sufficiently protective, easily removable, and harmless to the finish.

### Part 2. Products

1. **Products:** Miscellaneous metals products to have the following characteristics;
   - .1 Welding must conform to CSA W59, S16.1 and W47.1. Protect combustible materials and finishes during welding operations.
   - .2 Reinforcing steel to conform to G30.18-M92 – Grade 400.
   - .3 Provide structural steel as noted on the drawings. Structural steel to conform to CAN/CSA G40.21M.
     - .1 Wide Flanges: Grade 350W.
     - .2 HSS Sections: Grade 350W, Class H for 102mm (4”) or larger sections, Class C for smaller sections.
     - .3 Anchor Bolts: Grade 300W.
     - .4 Other Steel: Grade 300W.
   - .4 Metals:
     - .1 Steel: Structural: hot rolled to meet requirements of CAN3-G40.21, Grade 350W for plates, tubes and hollow sections. Sheet: cold-rolled furniture steel, double annealed, mill stretched and levelled, and fully pickled. Otherwise, steel shall be hot-rolled or cold-rolled of alloy to suit needs of fabrication, use, and appearance.
     - .2 Exterior Steel: Hot dip galvanized conforming to CSA G164, minimum Z350 coating.
     - .3 Stainless Steel: Type 304 alloy conforming to ASTM A167, No. 4 finish.
   - .5 Drilled concrete anchors (DCA) to be Hilti Kwik Bolts or equivalent. Drilled masonry anchors (DMA) to be Hilti SVA sleeve anchors or equivalent. Pull test anchors to rated capacity and report results.
   - .6 Provide 1/4” thick steel saddles at steel columns which support wood beams and lintels.
   - .7 Submit shop drawings for miscellaneous structural steel and reinforcing for review prior to commencing fabrication.
   - .8 Make field measurements necessary for fabrication and erection.
   - .9 Prepare and submit shop drawings of miscellaneous metals items. Steel components and connections must be designed by a Professional Engineer licensed in the province of Ontario and retained by the Contractor. Shop drawings for connection details must be submitted with the Engineer’s seal and signature.
   - .10 Bituminous Paint: Alkali-resisting to meet specified requirements of CAN/CGSB-1.108, Type 2.
   - .11 Pipe: To ASTM A53, extra strong steel pipe for bollards.
2. **Design and Fabrication:**
   - .1 Generally:

.1 Fabricate work of this Section with machinery and tools specifically designed for the intended manufacturing processes, and with skilled tradesmen.
.2 Fit and assemble work in the shop. When this is not possible, make a trial shop assembly.

.2 Construction:
.1 Fabricate work with materials, component sizes, metal gauges, reinforcing, anchors, and fasteners of adequate strength to withstand intended use, and with allowable design factors imposed by Jurisdictional Authorities.
.2 Ensure that work will remain free of warping, buckling, opening of joints and seams, distortion, and permanent deformation.

.3 Assembly:
.1 Accurately cut, machine, and fit joints, corners, copes and mitres so that junctions between components fit together tightly, and in true planes.
.2 Fasten work with concealed methods, unless otherwise indicated on the Drawings.
.3 Weld all connections where possible, and bolt where not possible, and cut off bolts flush with nuts. Countersink bolt heads and provide method to prevent loosening of nuts. Ream holes drilled for fastenings.
.4 Make welded joints tight, flush, and in true planes with base metals, and continuous at joints where entry of water into building or into voids of members or assemblies is possible. Continuously grind and make smooth welds in exposed locations.
.5 Provide for differential movements within assemblies and at junctions of assemblies with surrounding work.
.6 Fabricate shims of steel of sizes required.

.4 Finish Work:
.1 Provide holes and connections for work installed under other Sections of this Specification.
.2 Cleanly and smoothly finish exposed edges of materials, including holes.
.3 Cap open ends of sections exposed to view, such as pipes, channels, angles, and other similar work.

.5 Prime Painting of Steel: Clean all loose mill scale, rust, dirt, weld flux, and spatter from work after fabrication. Grind smooth sharp projections. Prepare for prime painting by blast cleaning to SSPC-SP6. Apply to steel a shop prime coat of paint. Work paint into corners, and onto open areas smoothly. Deliver work to site with primer undamaged. Paint all surfaces except those to be welded in field. Paint surfaces that are inaccessible to finish field painting with two coats of primer.

## Part 3. Execution:

1. **Inspection of Site:**
.1 Take site measurements to ensure that work is fabricated to fit surrounding construction around obstructions and projections in place, or yet to be put in place to suit service locations, and inaccuracies of construction.

2. **Installation:**
.1 Install work plumb, true, square, straight, level, and accurately and tightly fitted together and to surrounding work.
.2 Work includes anchor bolts, bolts, washers and nuts, lag screws, expansion shields, toggles, straps, sleeves, brackets, clips, shims and other items necessary for secure installation, as required to support and/or resist loads and forces, and as required by Jurisdictional Authorities.
.3 Provide anchors at 24" (600mm) o.c. for cast-in-place work unless shown otherwise.
.4 Attach work to wood by screws through countersunk holes in metal.
.5 Attach work to masonry with lead plugs and non-corrosion fastenings to support load with a safety factor of three (3).
.6 Insulate between dissimilar metals, or between metals and masonry or concrete with bituminous paint to prevent electrolysis.

3. **Patching and Refinishing:**
.1 After erection, touch up prime paint finishes damaged or removed during installation.
.2 Remove damaged, dented, defaced, defectively finished, or tool-marked components and replace with new.
.3 Refinish shop-applied finishes in field only with approval of Consultant.
.4 Clean off dirt on surfaces resulting from installation work.

4. **Schedule of Miscellaneous Metals Items:**
.1 Generally:
.1 This schedule does not list all items included in work of this Section. Items not listed are shown on Drawings.
.2 Ensure that all Drawings and Specification Sections, including those for structural, mechanical, and electrical work as applicable are consulted to establish the limits of work included in this Section.

.2 Support Elements and Framing:
.1 Supply and install all support elements and framing as shown on the Drawings except where framing is part of building structural steel. Construct supports from rolled steel sections assembled by welding.
.2 Design supports to withstand, within acceptable deflection limitations, their own weight, the weight of the items to be supported, loads imposed by the motion of supported items, where applicable, and all live loads, static and dynamic which might be applied to the supported items in the course of their normal function. Design supports with a safety factor of three (3). Design supports further as required to accommodate structural deflection.

.3 Provide all accessories, inserts and fixings necessary for attachment of supports to building structure. Drill supports, as required, to receive attachment of supported items. Arrange supports to avoid conflicts with pipes, ducts, connections, thermal and vapour barrier construction, framing provided under other sections, and such that supports and their fixings are fully concealed from view within the finished work.

.3 List of Miscellaneous Metals: This Section includes, but is not necessarily limited to, the following:

.1 Angle and clip supports for new vertical wood blocking fastened to existing block – refer to structural drawings.

# DIVISION 06 – WOOD, PLASTICS + COMPOSITES

*Refer to structural drawings prepared by **A2S** for additional Division 06 requirements.*

## 06 10 00 - ROUGH CARPENTRY

**Part 1. General:**

1. Rough Carpentry systems and materials to be provided in accordance with the following;
   - .1 **Scope:** Provide required labour and materials to supply and install rough carpentry items and described on the drawings including the rough carpentry items listed herein.

**Part 2. Products:**

1. **Materials:**
   - .1 **General:** Except as indicated or specified otherwise lumber to be softwood S4S, SPF species moisture content (MC) not greater than 19% at time of installation in accordance with the following standards;
     - .1 CSA 0141.
     - .2 NLGA Standard grading rules for Canadian Lumber.
   - .2 **Ratings:** Machine stress - rated lumber is acceptable for all purposes.
   - .3 **Lumber:**
     - .1 S-DRY, graded and stamped to National Lumber Grades Authority, Standard Grading Rules for Canadian Lumber.
       - .1 Studs: No. 1/No. 2 (SPF), 121c. "STUD".
       - .2 Blocking, furring, strapping, battens, nailers, bracing, and bridging: spruce, pine or fir (SPF), standard or better grade.
   - .4 **Plywood:** Canadian softwood plywood conforming to CSA 0151, "G1S".
     - .1 Pressure Treated Plywood: Pressure treated plywood conform to CSA 0151, “G1S”.
   - .5 **Engineered I-Joists:** Refer to structural drawings for requirements.
   - .6 **Nails, Spikes, Staples and Other Connectors:** to CSA B111, galvanized for exterior work, interior highly humid areas and for treated lumber; plain finish elsewhere.
   - .7 **Bolts, Nuts, Washers, Screws and Pin Type Fasteners:** Hot dip galvanized to CAN/CSA G164 for exterior work. Elsewhere for sight exposed surfaces, prime paint. Use surface fastenings of following types, except where specified type is indicated:
     - .1 To hollow masonry, gypsum board and panel surfaces use toggle bolts.
     - .2 To solid masonry and concrete use expansion shield with lag screw, or lead plug with wood screw.
   - .8 **Sill Plate Gasket:**
     - .1 Install sill gasket continuously under sill plate on concrete floors to isolate wood and reduce air infiltration.
     - .2 Size: Thickness: 4.5mm (3/16”); Width: To suit stud width
     - .3 Approved Products: FoamSealR by Owens Corning or approved alternate.
2. **Fabrication:**
   - .1 Comply with CAN3-086 or CAN3-086.1 for fabrication and assembly of structural components off site, or on site.
   - .2 Design construction details for expansion and contraction of materials.
   - .3 Machine sand surfaces exposed in the finished work. Hand sand to an even smooth surface free from scratches.
   - .4 List of Rough Carpentry Items: This Section includes, but is not necessarily limited to, the following:
     - .1 Concealed support elements, anchors, bolts, inserts, sleeves for work in this section.
     - .2 Wood Blocking for Millwork: Provide wood blocking on and within partitions as required to support millwork and other wall mounted specialty items.
     - .3 Plywood Roof Sheathing: Provide 12.5mm thick T+G plywood exterior grade sheathing and required fasteners over roof truss system as detailed on the drawings. Refer to Structural Documents.
     - .4 Provide 19mm thick exterior grade plywood sheathing at fascia as detailed in the drawings.
     - .5 Provide 16mm exterior grade plywood sheathing and 2” x 6” pressure treated wood framing at windowsill, jambs and heads as detailed on the drawings.
     - .6 Pressure treated lumber; 2” x 4”, 1”x 6” for the construction of the garbage enclosure.
     - .7 Wood framing at window openings: Provide 16mm thick exterior grade plywood sheathing and pressure treated wood framing in dimensions as detailed on the drawings around window opening.

**Part 3. Execution:**

1. **Examination**
   - .1 Examine areas of work of this section, report any discrepancies and unsatisfactory conditions to the consultant, commencement of work implies acceptance of conditions.
2. **General:**
   - .1 Lay out work carefully and to accommodate work of others. Cut and fit accurately. Erect in position indicated on drawings. Align, level, square, plumb and secure work permanently in place. Join work only over solid backing.

.2 Bore holes true to line, and to same size as bolts. Drive bolts into place for snug fit, and use plates or washers for bolt heads and nut bearings. Turn up bolts and lag screws tightly when installed, and again just before being concealed by other work or at completion of work.

.3 Co-operate with work of other Sections to ensure that unity of actions will ensure orderly progress to meet construction schedule.

.4 Provide anchors, bolts and inserts required for attachment of the work of this Section to those performing the work of other Sections, and who are responsible for their installation.

.5 Work to include such rough hardware as nails, bolts, nuts, washers, screws, clips, hangers, connectors, and strap iron required for installation of work, and operating hardware required on work of this Section for temporary work.

3. **Grounds, Blocking, Strapping, Furring, Sleepers and Nailers:**

.1 Do not regard grounds, blocking, furring, and such other fastening provisions as shown on drawings as exact or complete. Provide required provisions for fastenings, located and secured to suit site conditions and adequate for intended support.

.2 Cut fastening work into lengths as long as practicable, and with square ends. Erect work plumb, in true planes, and fastened rigidly in place.

.3 Provide wood furring and strapping for applied facings, caseworks, etc.

.4 Except where steel is specifically shown, provide wood blocking and supports in metal stud partitions for fastening of items anchored to stud partitions. Provide wood blocking and supplementary supports in metal studs supporting counters and similar items.

.5 Co-ordinate with Section 09 21 16, for the installation of wood blocking for fastening of wall mounted accessories and casework.

# DIVISION 07 – THERMAL + MOISTURE PROTECTION

## 07 21 00 – BUILDING INSULATION

**Part 1. General:**

1. **Scope:** Provide rigid, semi-rigid, batt and low expansion spray foam insulation with accessories.
2. **References:**
   - .1 CGSB 71 GP 24M, Adhesive, Flexible, for Bonding Cellular Polystyrene Insulation
   - .2 CSA A451.1, Polystyrene Insulation Adhesives
   - .3 CAN/ULC S102, Surface Burning Characteristics
   - .4 CAN/ULC S114, Standard Method of Test for Determination of Non-Combustibility in Building Materials.
   - .5 CAN/ULC S124, Standard Method of Test for the Evaluation of Protective Coverings for Foamed Plastic.
   - .6 CAN/ULC S701, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
   - .7 CAN/ULC S702, Thermal Insulation Mineral Fibre for Buildings
   - .8 CAN/ULC S705.2, Standard for Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density - Application
   - .9 CAN/ULC S770-03, Standard Test Method for Determination of Long-term Thermal Resistance of Closed-Cell Thermal Insulating Foams.
   - .10 ASTM C 665, Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
   - .11 ASTM C 518, Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter.
   - .12 ASTM C423, Test Method for Sound Absorption Coefficient by the Reverberation Room Method
   - .13 ASTM D2842, Standard Test Method for Water Absorption of Rigid Cellular Plastics
   - .14 ASTM D1621, Standard Test Method for Compressive Properties of Rigid Cellular Plastics
   - .15 ASTM E 84, Test Method for Surface Burning Characteristics of Building Materials.
   - .16 ASTM E 136, Test Method for Behavior of Materials in a Vertical Tube Furnace at 750□C.
   - .17 ASTM E139, Standard Test Methods for Conducting Creep, Creep-Rupture, and Stress-Rupture Tests of Metallic Materials.
3. **Submittals:**
   - .1 Provide submittals in accordance with Section 01 33 00.
   - .2 Product Data: For each product provide data on published "R" value for thicknesses of insulation, product characteristics, performance criteria, limitations and fire ratings, if required.
   - .3 Submit research and evaluation reposts for foam plastic insulation where required by authorities having jurisdiction.
   - .4 Safety Data Sheets:
     - .1 Submit WHMIS safety data sheets for inclusion with project record documents. Keep one copy of WHMIS safety data sheets on site for reference by workers.
4. **Product Delivery, Storage, and Handling:**
   - .1 Handle and store material in accordance with manufacturer's recommendations and Industrial Health and Safety Regulation requirements.
   - .2 Materials will be delivered to job in their original packages and containers bearing manufacturer's labels intact and clearly visible.
   - .3 Do not expose rigid insulation board to sunlight after installation. Protect with black polyethylene or tarpaulin cover as recommended by manufacturer if permanent covering is not completed within twenty-four (24) hours.
   - .4 Store materials off ground in dry, watertight areas, under cover away from direct sunlight.
   - .5 Protect to prevent damage by other trades.
5. **Project Conditions:**
   - .1 Environmental Limitations: Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

**Part 2. Products:**

1. Semi Rigid Mineral Fibre Exterior Wall Cladding:
   - .1 Mineral fibre cavity wall / rain screen installation board and installation to be ‘CavityRock’ as manufactured by Rockwool, or approved equal having the following characteristics;
     - .1 Compliance with CAN /ULC –S702 – Mineral Fibre Thermal Insulation for Buildings, Type 1.
     - .2 Compliance with CAN4 S114 – Test for Non-combustibility – noncombustible.
     - .3 CAN ULC S102 Surface Burning Characteristics: Flame Spread – 0, Smoke Developed – 0.
     - .4 Thermal Resistance – R4.3 / inch
     - .5 Density to ASTM C303 –
       - .1 1,1.5” thick - 5.3 lb/ft3 (85 kg/m3)
       - .2 2” thick - 4.4 lb/ft3 (70 kg/m3)
       - .3 .2.5” thick - 6.2 lb/ft3 (100 kg/m3)
     - .6 Dimensions –16” x 48” x thicknesses as noted on the drawings,

.7 Reaction to Moisture: Moisture Sorption 0.07% - ASTM C1104, Water Vapour Transmission 27 Perm - ASTM E96.

2. **Mineral Fibre Batt Insulation:**
   .1 Mineral fibre batt insulation shall be 'Comfortbatt' as manufactured by Rockwool, or approved equal having the following characteristics;
      .1 Compliance with CAN/ULC – S702 – Mineral Fibre Thermal Insulation for Buildings, Type 1.
      .2 Compliance with CAN/ULC – S114 – Test for Non-combustibility – noncombustible.
      .3 CAN ULC S102 Surface Burning Characteristics: Flame Spread – 0, Smoke Developed – 0.
      .4 Thermal Resistance – R32 / 8" inch (8" thick batt) or R14 / 3.5" inch (3.5" batt).
      .5 Density to ASTM C612-00- Actual - 2.0 lbs./ft3 (32 kg/m3).
      .6 Dimensions – 16.25" x 48" x 8" (413mm x 1219mm x 204mm) or 16.25" x 48" x 3.5" (413mm x 1219mm x 88.9mm). Size the batt to suit the thickness of the assembly construction as scheduled.
3. **Low Expansion Spray Foam Joint Insulation:**
   .1 'Froth Pak' by DOW, with min aged R value of 4.5 per inch or equal as approved by Architect. Ensure product is compatible with adjacent materials.

4. **Cement Board:**
   .1 CGC Durock Brand Cement Board, 48" x 96" x ½".

**Part 3. Execution:**

1. Installation (Semi Rigid Mineral Fibre Exterior Wall Cladding):
   .1 Ensure substrate and vapour barrier are installed are ready for application of continuous insulation board. Surface shall be flat and free of imperfections. Vapour barrier shall be installed, and sealed to prevent air flow from entering the building. Identify deficiencies in these items and have deficiencies corrected prior to the start of the installation of the insulation.
   .2 Install continuous board insulation in thicknesses as noted on the drawings.
   .3 Offset vertical and horizontal joints in insulation.
   .4 Install boards with tight joints between panels.
   .5 Where required cut boards with an exacto knife to suit size required.
   .6 Fit boards neatly around beams, pipes, ducts, openings and corners, reinforcing and bonding ties, and other obstructions.
   .7 Use the largest module of insulation possible where cutting is necessary, to reduce the number of joints. Patch holes with the same material.
   .8 Secure insulation boards with 2"x 4" wood strapping as scheduled at 16" o/c using stainless steel screws sized to suit application.
   .9 Insulation installations to be reviewed and approved by the Consultant prior to the installation materials that cover the insulation.

2. Installation (Mineral Fibre Batt):
   .1 Fit boards neatly around beams, pipes, ducts, openings and corners, reinforcing and bonding ties, and other obstructions.
   .2 Use the largest module of insulation possible where cutting is necessary, to reduce the number of joints. Patch holes and tears with the same material.
   .3 Insulation installations to be reviewed and approved by the Consultant prior to the installation materials that cover the insulation.

3. Installation (Low Expansion Spray Foam Insulation):
   .1 Follow manufacturer's printed instructions and recommendations.
   .2 Ensure substrates are clean and dry prior to installation of insulation product.
   .3 Ensure window, door frames and vapour barriers are installed are installed at sills, jambs and heads of all openings as detailed.
   .4 Neatly fill shim spaces between window / door frame and the rough opening with insulation. Ensure cavity is completely filled.
   .5 Neatly cut off overfill of insulation as required to permit the installation of window and door casings and caulking as detailed.

## 07 21 29 – SPRAYED INSULATION

### Part 1. General:

1. **Scope:** Spray application of polyurethane foam to provide insulation, air barrier and vapour barrier at exterior existing block wall where spray foam was removed for review and any other areas where it was removed for additional blocking.
2. **Submittals:**
   - .1 Before starting the work, submit in accordance with Section 01 33 00, result of independent laboratory test reports, data sheets, physical proprieties, meeting or exceeding requirements of the standard in reference to this specification.
   - .2 Submit a laboratory report of the adhesion compatibility with: flashing membranes, coatings and substrates.
   - .3 License under CUFCA and certification of applicators under CUFCA to be submitted to the consultant upon request and prior to the beginning of the work.
   - .4 Submit by the manufacturer a conformity certification to NBC of the polyurethane foam system.
   - .5 Submit independent laboratory results on vapour permeance proprieties for each composition wall assembly. The report should be done by an independent SSC certified laboratory in accordance with ASTM E96.
3. **Quality Assurance:**
   - .1 Contractor performing work under this section must be certified by CUFCA for a minimum of 5 years.
   - .2 Upon request of consultant, submit a copy of the contractor quality control report as requested in CAN/ULC-S705.2.
   - .3 Conduct site tests of sprayed work as required by the CUFCA Quality Assurance Program.
   - .4 Upon request, submit manufacturer/supplier field applied product quality control report.
4. **Delivery, Storage and Handling:**
   - .1 Contractor performing work under this section must be certified by CUFCA for a minimum of 5 years.
   - .2 Upon request of consultant, submit a copy of the contractor quality control report as requested in CAN/ULC-S705.2.
   - .3 Conduct site tests of sprayed work as required by the CUFCA Quality Assurance Program.
   - .4 Upon request, submit manufacturer/supplier field applied product quality control report.
5. **Protection:**
   - .1 Ventilate area receiving insulation to maintain safe working conditions.
   - .2 Ensure the safety of the workers in conformity with local regulations, standards and manufacturers recommendations.
6. **Warranty:**
   - .1 Warrant work of this section against defects and deficiencies for a period of two years from date work completion.
   - .2 Provide manufacturer's warranty for the field-applied product.

### Part 2. Products:

1. **Spray Applied Polyurethane Foam Insulation:**
   - .1 ***'Heatlok Soya'*** as manufactured by ***Demilec***, or approved equal.
2. **Performance Requirements:**
   - .1 Density: 33 Kg/m³ in accordance with ASTM D1622.
   - .2 Thermal Resistance: R6 per inch in accordance with CAN/ULC S770, CAN/ULC S705.1-Type 2
   - .3 Flame Spread Index: 200 FSI in accordance with CAN/ULC S102-03.
   - .4 Smoke Develop Index: 396 SDI in accordance with CAN/ULC S102-03.
   - .5 Compressive strength: 195 KPa in accordance with ASTM D1621.
   - .6 Water Absorption: 0.8% in accordance with ASTM D2842.
3. **Primers:**
   - .1 Install primers in accordance with the manufacturer recommendations for project conditions and the CAN/ULC-S705.2 standard.
4. **Equipment:**
   - .1 Equipment shall be as recommended in CAN/ULC-S705.2 and approved by the foam manufacturer for type of application.

### Part 3. Execution:

1. **Examination:**
   - .1 Verify that surfaces and conditions are suitable to accept work as outlined in this section.
   - .2 According to the prescriptions of the standard CAN/ULC-S705.2, verify the conditions of surfaces.
     - .1 Surfaces to be covered with spray foam shall be free of an excess of moisture, frost, oil, rust, and any other foreign material able to have a negative effect on the adhesion of the product. In doubt, apply a primer.
     - .2 Verify the adhesion of membranes and coatings to different substrates are good, taking in account the climatic conditions for the application of membranes, coatings and spray foam.
     - .3 Install in accordance with manufacturers typical details, according to thickness and locations of spray applied insulation, verify all conditions prior to application.
     - .4 All metal surface shall be primed as referenced in CAN / ULC S705.2 art: A 1.7.
     - .5 Identify the moisture content of all different building materials.
     - .6 Report in writing any defects in surface or conditions that may adversely affect the performance of products installed and follow manufacturer's recommendations.

.3 Ensure that all the work that needs to performed prior to the application of the spray foam insulation is completed. Including these elements, but without limitation:
  .1 Masonry anchor;
  .2 Furring, wood blocking, sub-frames, flashing, mechanical fastening;
  .3 Coatings, membranes, flashings, mechanical fastening
  .4 Mechanical and electrical works;
  .5 Primer.

2. **Installation:**
  .1 Spray application of polyurethane foam shall be performed in accordance with CAN/ULC-S705.2.
  .2 Apply spray foam on dry, solid and clean surfaces when the climatic conditions are in accordance with the CAN/ULC S705.2 standard and with manufacturers strict recommendations.
  .3 Apply only when surfaces and environmental conditions are to manufacturer's strict instructions. Refer to technical data sheets.
  .4 Install in strict accordance with manufacturer's instructions.
  .5 Apply the insulation uniform in accordance to NBC article 9.25.2.3. 1). and manufactures strict tolerances.
3. **Quality Control:**
  .1 If requested, a quality control report will be issued after a site inspection by manufacturer.
4. **Fire Protection:**
  .1 Any open flame or welding is not permitted to be in contact with the Spray Polyurethane Foam in place. Use protection as required in CAN / ULC S705.2.
  .2 All plastic insulation must be protected from interior occupancy space by an approved thermal barrier to meet the requirements of the Ontario Building Code.

## 07 27 13 - WEATHER BARRIER MEMBRANES

### Part 1. General:

1. **Scope:** Provide labour and materials required to provide weather membranes as indicated on the drawings. Refer also to section 07 25 00 for additional weather barrier / air barrier requirements and systems.
2. **Reference Standards:**
   - .1 CAN/ULC S102 – Standard Method for Surface Burning Characteristics
   - .2 CAN/ULC S741-08 (R2016) – Standard for Air Barrier Materials - Specification
   - .3 CAN/ULC S742-11(R2016) – Standard for Air Barrier Assemblies - Specification
   - .4 ASTM D412 - [2006ae2], Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension
   - .5 ASTM D3330/D3330M - [2004(2010)], Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape.
   - .6 ASTM D3652/D3652M - [2001(2006)], Standard Test Method for Thickness of Pressure-Sensitive Tapes.
   - .7 ASTM E84 - [2012], Standard Test Method for Surface Burning Characteristics of Building Materials.
   - .8 ASTM E96/96M-[2010], Standard Test Methods for Water Vapor Transmission of Materials.
   - .9 ASTM E2178 - [2011], Standard Test Method for Air Permeance of Building Materials.
   - .10 ASTM E2357 - [2011], Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

### Part 2. Products:

1. **Weather / Air Barrier Membrane and Membrane tie-ins:**
   - .1 **Weather / Air Barrier Membrane and membrane tie-ins:** shall be a 'REVEALSHIELD IT' as manufactured by Vaproshield LLC (tel 866 731 7663, www.vaproshield.com), having the following characteristics;
     - .1 Colour: Black UV Stable, 180 days 100% exposure prior to coverage with open joint cladding
     - .2 Breaking strength and Elongation to ASTM D5034: 126.0 lbf (560 N), machine direction; 87.7 lbf (390 N), cross-machine direction.
     - .3 Water Vapor Permeance tested to ASTM E96 Method B: minimum of 97 perms (6696 ng/Pa.s.m2)
     - .4 Water Vapor Permeance tested to ASTM E398: minimum of 74 perms (5119 ng/Pa.s.m2)
     - .5 Air Leakage: ≤0.0033 cfm/ft2 @ 1.57 psf (≤0.017 L/s m2 @ 75 Pa) when tested in accordance with ASTM E 2178.
     - .6 Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage
     - .7 Application Temperature: No minimum temperature.
     - .8 Surface Burning Characteristics tested to ASTM E84: Class A, Flame-spread index of less than 10, Smoke-developed index of less than 135
     - .9 Physical Dimensions: 0.0177 inches (0.45 mm) thick and 59 inches (1.5 m) wide and 9.133 oz/yd2 (309.7 g/m2).
   - .2 **Fasteners:** "#8, 1" long, bugle head, self tapping, stainless steel screws with Vaprocaps; 1 ¾"dia, black self sealing washers.
   - .3 **Adhesive / Sealant**: Vaprobond Modified Silicone Adhesive Sealant:

### Part 3. Execution:

1. **General Requirements:**
   - .1 Conform to manufacturer's recommendations for storage and application of air / vapour barrier sheet.
   - .2 Permanently seal air/vapour barrier at points where it is penetrated by screws, masonry reinforcing, or other fastening devices.
   - .3 Ensure all sheet metal closures, cover plates, etc. are neatly and securely installed prior to installation of air/vapour barrier membrane.

2. **Weather / Air Barrier Installation**
   - .1 GENERAL
     - .1 Install in accordance with manufacturer's printed instructions. Refer to the manufacturer's current installation guide for detailed information regarding specific details and integration of auxiliary materials.
     - .2 Coordinate 'shingle lap' installation with adjacent thru-wall flashing membranes and window / door flashings where required to create an air / water barrier at these locations.
     - .3 Verify that surfaces and conditions are ready to accept the work of this section. Notify architect in writing of any discrepancies. Commencement of the work or any parts thereof shall mean acceptance of the prepared substrates.
     - .4 All surfaces must be dry, sound, clean, free of oil, grease, dirt, excess mortar or other contaminants detrimental to the attachment of the mechanically attached water resistive air barrier membrane and flashings. Fill voids and gaps in substrate greater than 7/8 inch (22 mm) in width to provide an even surface. Strike masonry joints full-flush.
     - .5 No minimum application temperature of mechanically attached water-resistive vapor permeable air barrier sheet membrane and mechanically attached flashings.
     - .6 Ensure all preparatory work is complete prior to applying primary mechanically attached water-resistive vapor permeable air barrier sheet membrane.
     - .7 If exposed mechanical fasteners are present on the surface of the membrane, cover and seal with VaproBond™.
     - .8 If exposed fasteners are required, use VaproCaps™ to insure water/air tight seal.

.2 COORDINATION OF MECHANICALLY ATTACHED VAPOR PERMEABLE WATER RESISTIVE, AIR BARRIER MEMBRANE INSTALLATION

.1 Download Installation Instructions at http://vaproshield.com/public-documents/installation-instructions.

.2 Installation Summary:

.1 Mechanically attached water-resistive vapor permeable air barrier sheet membrane should be installed horizontally over the outside face of exterior sheathing surfaces or other approved substrates.

.2 Complete detail work at; wall openings, building transitions and penetrations prior to field applications.

.3 Install mechanically attached water-resistive vapor permeable air barrier sheet membrane over the outside face of exterior sheathing surfaces or substrate, measure and pre-cut into manageable sized sheets to suit the application conditions.

.4 Install mechanically attached water-resistive vapor permeable air barrier sheet membrane complete and continuous to substrate in a sequential minimal 6 inch (76 mm) horizontal overlapping weatherboard.

.5 Stagger all vertical end lap seams and overlap a minimum of 12 inch (305 mm).

.6 Roll installed membrane with roller to ensure positive contact and adhesion immediately after the integral tape release film has been removed at the horizontal overlaps.

.3 BUILDING TRANSITION CONDITIONS

.1 Consult published details at WWW.VaproShield.com.

.2 Tie-in to thru wall flashing membranes, parapets, roofing systems and at the interface of dissimilar materials with adhesive / sealant as recommended by the manufacturer.

.3 Align and position air barrier membrane into bead of adhesive sealant and press firmly into place.

.4 Provide minimum 6 inch (152 mm) lap on to substrates.

.5 Ensure minimum 6 inch (152 mm) overlap at side and end laps of membrane and 6 inch (152 mm) at inside and outside corners, if joints occur at corner locations.

.6 Roll membrane and lap seams with roller to ensure positive contact and adhesion, immediately.

.4 MECHANICAL EQUIPMENT PENETRATIONS

.1 Mechanical pipe, electrical conduit and/or duct work must be secured solid into position prior to installation of mechanically attached water-resistive vapor permeable air barrier sheet membrane.

.2 Electrical services penetrating the wall assembly and mechanically attached water-resistive vapor permeable air barrier sheet membrane must be placed in appropriate conduit and secured solid into position.

.3 Install manufactured flanged penetration sleeves as recommended by sleeve manufacturer.

.4 For straight sided penetrations, cut and fit mechanically attached water-resistive vapor permeable air barrier sheet membrane to accommodate sleeve, install VaproLiqui-Flash to seal the air barrier membrane to ductwork or preformed flange sleeve.

.5 For pipe penetrations, refer to manufacturer's standard details.

.5 WINDOW, DOOR AND OTHER WALL OPENINGS

.1 Lap weather / air barrier onto to air / vapour membrane and seal with Vaprobond adhesive / sealant. Provide a minimum lap of 6"(152mm).

.6 MASONRY TIES

.1 Neatly cut slut in weather / air barrier to accommodate masonry tie.

.2 Seal slot with Vaprobond adhesive / sealant prior to installation of wedge lok plates provided by section 04 26 13 – Masonry Veneer

.7 FIELD QUALITY CONTROL

.1 Notify Architect when sections of work are complete to allow review prior to covering mechanically attached water-resistive weather barrier membrane system, with the installation of the cladding.

.8 PROTECTION

.1 Protect wall areas covered with mechanically attached water-resistive weather barrier membrane from damage due to construction activities, high wind conditions, and extended exposure to inclement weather.

.2 Review condition of mechanically attached water-resistive weather barrier membrane prior to installation of cladding. Repair, or remove and replace damaged sections with new membrane.

.3 Protect exposed back-up walls against wet weather conditions during and after application of membrane, including wall openings and construction activity above completed mechanically attached water-resistive weather barrier membrane installations.

.4 Remove and replace damaged water-resistive weather barrier membrane affected by chemical spills, surfactants or physical events.

## 07 42 13 – METAL WALL PANELS

### Part 1. General

1. **Scope:**
   - .1 Provide metal wall panels systems and metal wall panel accent trim noted / detailed on the dwgs as **'MWP'** to be EVO Dry-Joint System, manufactured by Kanalco Ltd., (tel - 1 800 268 8139).
2. **References:**
   - .1 Design of cladding system in accordance to the latest edition of:
     - .1 CSA-S136 for the design of Cold Formed Steel Structural Members
     - .2 CAN3-S157 for the design of Strength Design in Aluminum
     - .3 Ontario Building Code 2012
     - .4 CAN/ULC-S114 - Test for Determination of Non-Combustibility in Building Materials.
3. **Design Requirements:**
   - .1 **Performance Requirements:** Provide metal panels that have been manufactured, fabricated and installed to withstand loads from deflection and thermal movement and to maintain performance criteria stated by manufacturer without defects, damage or failure.
   - .2 Design system based on Rainscreen principle. Incorporate means of draining moisture to the exterior.
   - .3 **Structural movement:** Accommodate movement of supporting structural framing and without causing bowing, buckling, oil canning, excessive stress on fasteners, or any other detrimental effects.
   - .4 **Normal Deflection:** Deflection of perimeter framing member not to exceed L/240 normal to plane of the wall; deflection of individual panels not to exceed L/175.
   - .5 **Wind Loads:** Design wall system to resist wind loads, positive and negative, expected in this geographical region NBCC climatic data, 50 year probability - minimum 30lbs/sf without causing rattling, vibration or excessive deflection of panels, overstressing of fasteners, clips or other detrimental effects on wall system.
   - .6 **Anchor Deflection:** At connection points of framing members to anchors, anchor deflection in any direction not to exceed 1/16 inch (1.6mm).
   - .7 **Thermal Movements:** Allow for free horizontal and vertical thermal movement due to expansion and contraction of components over a temperature range from -30 degrees C to + 30 degree C.
   - .8 Buckling, opening of joints, undue stress on fasteners, failure of sealants, or any other detrimental effects of thermal movement will not be permitted.
   - .9 Fabrication, assembly and erection procedures to take into account the ambient temperature range at the time of the respective operation.
   - .10 **Fire Performance:** Components of the system to be noncombustible in accordance with CAN/ULC S114.
   - .11 Panel flatness tolerance applies to even rises and falls across panel. Local bumps and depressions will not be accepted. Fabricate panels not exceeding the following tolerances: 1.5mm (0.06") in a convex direction, measured perpendicularly to normal plane, 1.5mm (0.06") in a concave direction, measured perpendicularly to normal plane.
   - .12 Maximum deviation from vertical and horizontal alignment of erected panels: 6mm (0.24") in 6 m (20' 0").
   - .13 Maximum deviation from panel flatness to be 3mm (0.12") in 1.5 m (59") panel in any direction for assembled units (non-accumulative).
4. **Warranty:**
   - .1 **Installer:** For work in this section, warranty by installer against defects or deficiencies in materials or workmanship to be for a period of one (1) year from date of substantial completion.
   - .2 **Panel System Fabricator:** Five (5) year fabrication Warranty for conformance to design and performance and requirements.
   - .3 **Panel Manufacturer:** Standard 5 (5) year materials Warranty against defective materials under normal weathering and fabricated to manufacturer's instructions.
   - .4 **Panel Finish:** Standard thirty (30) year finish Warranty against peeling, checking, or cracking (except bent edges); Chalking in excess of 8 rating measured in accordance to ASTM D4214-89; and/or fading in excess of 5 delta (colour difference units) measured in accordance to ASTM D2244-89, under normal weathering.
5. **Submittals:**
   - .1 **Shop Drawings:** Submit shop drawings that indicate elevations, profiles, dimensions and thickness of panels, location and detail of joints including joints necessary to accommodate thermal movement. Indicate attachment clips, joint extrusion system and installation details. Show fastening and anchoring details. Drawings to be signed and sealed by a Professional Engineer, attesting to the ability of the metal panel's assembly to withstand the specified loads. Panels to be identified on the shop drawings as to building location to facilitate panel removal and replacement.
   - .2 **Samples:** Provide a 300 x 300mm sample of the metal wall panel system including mounting system on a 12.7mm thick plywood backing.
   - .3 Maintenance Data: Provide maintenance data for cleaning and maintenance of panel finishes for incorporation into project manual. Submit instructions for repair and removal of panels.
   - .4 **Mock-up:** Erect mock-up panel approximately 6' long x 6' high in location directed by Architect. Mock-up panel to include components of the wall system and if approved by Architect may be incorporated in to finished work. Notify 72 hours before installation of mock-up for inspection by Architect. Do not proceed with panel system work until mock-up has been approved.

**PART 2. Products:**

1. **Materials:**
   - .1 Material: Aluminum Composite Material (ACM) ALUMINUM ALLOY 3003-H14, FR Core by Reynobond, Alpolic or Larson
   - .2 Panel Thickness: 4mm
   - .3 Face Sheets Finish to be Polyvinylidene fluoride (PVDF resins with 70% Kynar 500 resin finish. Colour to be selected by the Architect from the manufacturer's standard colour range. Selected colour will be solid 2 coat.
   - .4 Mounting Systems: Mounting system to be a proprietary aluminum extrusions compatible with panel edges, manufacturer's standard profiles including vertical and horizontal joint closures, perimeter trim, and weep holes as required for complete installation of a dry joint rainscreen system. Mounting system to have a deflection limit of L/240.
   - .5 Trim + Joint Fillers: Trim to be aluminum 4mm. Metal flashing to be 1mm (0.40`). Exposed aluminum accessories to have the same finish colour as the panels.
   - .6 Fasteners: To be stainless steel screws as recommended by the panel manufacturer, concealed and non-corrosive. Exposed fasteners are not permitted.
   - .7 Overall System Thickness: Based on Kanalco Ltd EVO seamless dry-joint system, 2" depth
   - .8 Isolation Shims and Tape: As recommended by the manufacturer.

**PART 3. Execution:**

1. **Examination:**
   - .1 Examine work of other Sections upon which work of this Section depends. Verify that conditions of substrates previously installed under other sections are acceptable for product installation.
     - .1 Report any unsatisfactory conditions to Architect in writing. Do not start work until unsatisfactory conditions are rectified.
2. **Installation:**
   - .1 Erect panels and joint filler strip in accordance with system manufacturer's details and instructions and to meet specified details, design and performance requirements.
   - .2 Finished work to be securely anchored, free of distortion and surface imperfections, uniform in colour and gloss.
   - .3 Use concealed fastenings only, except where exposed fastenings are specifically permitted by Architect in writing.
   - .4 Install panel's plumb, true, level and in alignment to established lines and elevations.
   - .5 Where indicated on drawings or as required to complete work of this Section, supply and install closures, caps, fascia covers and trims with matching panel finish, where exposed.
   - .6 Where aluminum materials come in contact with dissimilar materials, an isolation tape to be installed at fastening locations.
3. **Clean Up:**
   - .1 Remove temporary coverings and protection of adjacent work areas. Clean exposed panel surfaces in accordance with manufacturer's instructions. Remove construction debris from project site and legally dispose of debris.
   - .2 Repair and touch up with colour matching high grade enamel minor surface damage, only where permitted by the Architect and only where appearance after touch-up is acceptable to Architect.
   - .3 Replace damaged panels and components that, in opinion of the Architect, cannot be satisfactorily repaired.

## 07 52 00 –MEMBRANE ROOFING

### Part 1. General:

1. **Scope:** Provide labour and materials required to provide waterproof membranes at the following locations; At new modified parapets to comply with the following requirements;
   - .1 Comply with the following reference standards;
     - .1 Canadian Roofing Contractors Association “CRCA Roofing Specifications Manual” – Current Edition.
     - .2 CAN/CGSB-37.50-M89; Hot Applied, Rubberized Asphalt for Roofing and Waterproofing
     - .3 CGSB 37-GP-56M; Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing
     - .4 CAN/ULC-S701-11; Thermal Insulation, Polystyrene, Boards and Pipe Covering.
   - .2 Work of this Section shall include, but not necessarily be limited to, the following:
     - .1 Remove existing parapet metal flashings as required to permit installation of new membrane and metal flashings - refer to details.
     - .2 Provide all required wood and plywood blocking at parapets as required to support areas where parapet height has been modified - refer to details.
     - .3 Provision of cant strips and counter slopes at parapets.
     - .4 Provide EPDM membrane flashings to lap over existing membrane flashings and roofing membranes (scrape back existing pea gravel) at adjacent roof tie-ins. New EPDM flashing to extend up and over parapet wall and extend to edge of sloped horizontal plywood cap.
     - .5 Provide a hot flood coat of rubberized asphalt and a layer of pea gravel at the tie in to the existing roof.
     - .6 Provide prefinished metal flashing at new parapets.section 07 52 00 in the addenda right?
2. **Quality Assurance:**
   - .1 Ensure roofer is qualified and approved by membrane manufacturer
   - .2 Roofing contractor is to be an active member in good standing with Ontario Industrial Roofing Contractors Association (OIRCA).
3. **Warranty:**
   - .1 Provide to owner a written warranty covering any actual leaks in the roofing membrane or membrane flashings resulting from faulty workmanship for a period of two (2) years commencing from the date of completion of roofing. Ensure warranty is submitted on OIRCA’s “standard form of warranty”.
   - .2 Provide a warranty for the roofing systems that complies with the following;
     - .1 Warranty to cover the repair or replacement of defective work, starting at substantial completion of the project.
     - .2 Leaking, failure to stay in place, undue expansion, deformation, blistering, and splitting seams will be judged as defective work.
     - .3 Provide a Total Workmanship Warranty for a period of five (5) years for components of the roof.
     - .4 Provide a Manufacturer’s Warranty for a period of fifteen (15) years covering the repair or replacement of any portion of the roofing and waterproofing membrane resulting from defects in the manufacture of the membrane materials. Manufacturer’s Warranty to start at the date of substantial completion of the project. Manufacturer’s warranty to cover labour and materials and include repair and replacement, to extent required, of work of this Section in event of leaks or other failure if such failure results from defects and deficiencies of membrane and flashings.
     - .5 Arrange for roofing manufacturer to conduct periodic visual inspections of roof surface during the second, fifth and tenth years after Substantial Performance of the Work.
     - .6 Record noted deficiencies and arrange for their proper repair under warranty.
4. **Product Delivery, Storage, and Handling:**
   - .1 Package and store roofing and terrace materials identified with attached labels of the manufacturer, showing brand, contents, weight as applicable, and product and specification numbers. Deliver materials to Site, protected, with manufacturer's seals and labels intact. Unload and place in temporary storage in manner to prevent damage.
   - .2 Package and Store roofing materials in accordance with the manufacturer’s printed instructions and in a manner to prevent damage to new materials and completed work. Repair or replacement of materials or the completed work attributed to the improper product delivery, storage or handling shall be the responsibility of the Contractor.
5. **Environmental Conditions:**
   - .1 Do not apply any part of the roofing system over damp materials, nor during a period of damp weather.
   - .2 Apply roofing materials only when air and surface temperature are above 4°C, have been so for at least 48 hours, and are not likely to go below 4°C until work is completed.
   - .3 Proceed with winter work during the months of November to March inclusive, and otherwise when temperatures are below 4°C, only with the mutual documented agreement of Contractor and manufacturer of built-up bituminous roofing membrane that with materials and methods used, specified installation under conditions of warranty will be successfully achieved.
6. **Protection:**
   - .1 Ensure that stored porous materials absorb no moisture. Remove wet materials from project site.
   - .2 Protect surrounding work from damage during roofing and terrace operations. Protect walls with tarps in order to prevent damage.

.3 Be responsible for repair of damage caused by work of this Section.
.4 Provide special protection against damage from traffic or work performed on top of completed roofing waterproofing.
.5 Seal exposed edges of membranes to prevent water infiltration into the system at the end of each day's work.

7. **Waste Management and Disposal:**
.1 Separate and recycle waste materials in accordance with Waste and Materials Management and 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. Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.
.4 Fold up metal banding, flatten and place in designated area for recycling.
.5 Plan and coordinate insulation work to minimize generation waste.
.6 Collect and separate plastic and/or paper packaging for recycling
.7 Give preference to suppliers who take back mineral fibre insulation waste for reuse or recycling.
.8 Use the least toxic sealants and adhesives necessary to comply with requirements of this section.
.9 Close and seal, tightly, all partly used sealant and adhesive containers and store protected in well ventilated, fire-safe area at moderate temperature.
.10 Place used hazardous sealant tubes and adhesive containers in areas designated for hazardous materials.
.11 Collect, package and store partly used or unused containers of asphalt, sealing compounds, primers and roofing felts for recycling, and return to recycler in accordance with Waste Management Plan.

8. **Roof Slopes:**
.1 Prior to application of roofing, Trade Contractor and Contractor shall review constructed roof slopes and ensure that no area on the roof shall permit the ponding of water. Should ponding occur on the existing roof identify condition to Architect prior to demolition of existing roof and coordinate adjustments to provide tapered fibreboard counter slopes to eliminate standing ponds of water.
.2 After the roof is installed the Trade Contractor and the Contractor shall review the final roof and ensure that no area on the roof permits the ponding of water. Should ponding occur provide tapered fibreboard counter slopes to eliminate standing ponds of water.

## Part 2. Products:

1. **Materials:** Use the following materials:
.1 **Asphalt Primer:** non-fibrated, asbestos free, and asphalt cutback primer, to CGSB 37-GP-9Ma as recommended by roofing membrane manufacturer.
.2 **Elastomeric Flashing:** polyester reinforced EPDM / SBR elastomeric sheeting suitable for adhering with hot applied flashing adhesive, equal to TRA/elastomeric, as manufactured by Tremco Canada Ltd.
.3 **Elastomeric Flashing Adhesive (for installation of elastomeric flashing located below membrane):** Tremlar Adhesive Horizontal by Tremco. Install at a rate of 20 sf/gallon.
.4 **Hot Flood Coat of rubberized asphalt:** elastomeric modified bitumen, mopping grade; equal to Thermastic 80 manufactured by Tremco.
.5 **Ballast:** hard durable, nominal 9mm diameter, opaque pea gravel, washed free of clay, loam, sand and other foreign material.
.6 **Sheet Metal Flashings:** to be fabricated from minimum 26 gauge (0.6mm) base metal thickness, pre-finished, zinc coated steel sheet, commercial quality. Zinc coating to conform to ASTM A525, latest edition, with Z275 zinc coating designation. Cleats and Starter Strips to be a minimum 16 gauge (0.06") (1.6mm) thick zinc coated steel, minimum 2" (50mm) wide; starter strips continuous. Form in profiles as detailed on the drawings. Provide alkali resistant bituminous paint. Colour to match new metal cladding. Colour to be approved by Architect.

## Part 3. Execution:

1. **Installation:**
.1 **General:**
.1 Contractor is to complete all work in conformance with OIRCA/CRCA recommendations and this specification.
.2 The roofing contractor to co-ordinate the installation of the roofing so that each area is made watertight at the end of each work period.
.3 Inspect existing conditions to ensure they are suitable for roofing work to begin. Do not proceed until unacceptable conditions are corrected.
.4 Before proceeding with roofing application, ensure that:
.1 Roof and/or drains are below roofing level, and are connected.
.2 Deck is clean, free of ice and snow. Do not use salt or calcium to remove ice or snow. Ensure deck is sufficiently dry for application under specified warranty.
.3 Adjacent construction and installation of work of others incorporated with roof is completed.
.4 Materials are free of cracks that are wider than bridging ability of materials.
.5 New work that penetrates existing roofing has been installed.

.6 Wood blocking has been installed on deck surfaces, as required.

.5 Apply roofing materials in accordance with drawings, specifications, material manufacturer's printed directions, and requirements of Jurisdictional Authorities.

.6 Apply as soon as possible after deck is finished on a continual basis, and to meet project construction schedule.

.7 Adjustments to specified procedures caused by weather and site conditions to be made only with Consultant's approval.

.8 Maintain equipment in good working order, to ensure control of operations and protection of work.

.9 Lay plies free from wrinkles, air pockets, fish-mouths, tears, and prominent lap joints. Imbed them in a uniformly spread layer of bitumen.

.10 Extend roofing sheets to outer edges of roof and up vertical surfaces.

.2 **Fibre Cants**: Install fibreboard cants at parapets and intersections of roofing and vertical surfaces as indicated on Drawings. Install in accordance with manufacturer's recommendations, in continuous bed of hot asphalt applied to roof sheathing overlay. Lay true to line, level and with flush, butt joints and accurate corner mitres.

.3 **Membrane Flashings Application:**

.1 Extend reinforced elastomeric sheeting over outside face of cant and extend a minimum 1” (25mm) over the fascia blocking. Mechanically fasten with 1-1/2” (38mm) common roofing nails, 8” (200mm) on centre.

.2 Extend reinforced elastomeric sheeting down over cant strip and embed in flashing adhesive from top of cant to at least 6” (150mm) beyond toe of cant onto roof.

.3 Ensure complete bond and continuity without wrinkles or voids. Lap sheeting ends 4” (100mm); and adhere with flashing adhesive.

.4 Flashing adhesive application rate to be 25 lbs. / 100 sq. ft. (1.2 kg / m2).

.5 Over the lapped joints (vertical seams and corners) apply a layer of stripping mastic and embed a strip of stripping membrane followed by another layer of stripping mastic. Apply at a rate of 1 gallon per 12.5lf.

.6 Tie in leading edge of sheeting with stripping ply membrane embedded between alternate courses of stripping ply adhesive

.4 **Gravel Surfacing Application:**

.1 Prior to application of surface treatment system, contractor to inspect roof with the consultant.

.2 Ensure surface is clean and dry. Flood coat area of tie in on roof with specified **flood coat of rubberized asphalt** at the rate of 55 lbs. / 100 sq. ft. (2.7 kg/m2).

.3 Immediately broadcast minimum 600 lbs. /100 sq. ft. (19.5 kg/m2) of new, clean, dry roofing pea gravel. Cover flood coat material completely.

.4 Rake out gravel to provide a neat even surface.

.5 **Sheet Metal Flashings:**

.1 Sheet metal work to be watertight under conditions.

.2 Backpaint sheet metal that comes into contact with another kind of metal, or masonry with two (2) coats of isolation coating. In any case, do not backpaint sheet metal where it comes in contact with single ply roof and flashing membrane. Remove and replace back painted metal flashing where installed over single ply membrane at no cost to the Owner.

.3 Install sheet metal work with concealed fastenings. Exposed fastenings will be permitted only with approval of Consultant, when concealed fastenings are impossible. If used, install to a weather-tight condition, and evenly and neatly locked. Do not use pop rivets.

.4 Join sheet metal by "S" seams, to permit thermal movement. Fill joints with sealant as flashing is being installed. Subsequent to installation clean off excess visible material. Space joints evenly where exposed, or as otherwise shown on drawings or approved by the Consultant. Lock seam and seal. Make corners by means of raised lock seams.

.5 Do not form open joints or pockets that fail to drain water.

.6 Apply sealant to open sheet metal joints and at juncture with other materials.

.7 Install sheet metal flashings where detailed on drawings, and for components and equipment that penetrate roofing. Provide counter-flashing over curbs for mechanical and electrical equipment.

.8 Prepare and touch up scratches on pre-painted finish with air drying formulation of the coil coating paint. Replace material at no cost to the Owner, if touching up is not acceptable to the Consultant.

2. **Field Quality Control:**

.1 The Owner may engage an inspection company to inspect installation of roofing and to verify its completeness in accordance with this Specification.

.2 Notify Consultant, modified bituminous membrane Representative and Inspection Company at least 72 hours before roofing operations commence, and arrange for a job site meeting to be held the day before the roofing starts, with the following present: the Consultant or his representative, the roofing manufacturer's representative, the Contractor's Superintendent, Roofing Inspector, and a principal of the Roofing Subcontractor's firm.

.3 Subsequently, give two (2) working day's prior notice to the Inspector of the commencement of each phase of the work, and provide him with materials and installation information as required.

3. **Cleaning:**

.1 Clean work in accordance with Division 01. Clean to Consultant's approval, soiled surfaces, spatters, and damage caused by work of this Section.

.2 Check drains to ensure cleanliness and proper function, and remove debris, equipment and excess material from site.

**07 72 00 – JOINT SEALANTS**

**Part 4. General**

4. **Scope:** Provide sealants of the following types and at the specified locations. Provide sealant backing as conditions require. Provide cleaning materials as required to remove excess sealant from adjacent material without damage. Protect the work from damage.

**Part 5. Products:**

5. Schedule:
   .1 **Type A** – exterior, non-traffic bearing weather side of construction, multi component urethane based chemical curing sealant conforming to CAN/CGSB-19.24-M type 2, class B; Dymeric manufactured by Tremco Limited. Provide sealant at joints between window / door frames and adjacent wall construction, at control joints in masonry, between and at other exterior locations as noted on the drawings.
6. Provide wood planks or other approved, non-staining means of protection for the completed caulking and sealants installations where required to protect the work from mechanical, thermal, chemical and other damage by other construction operations and traffic. Maintain protection securely in place until project completion.

## DIVISON 08 – OPENINGS – not used

## DIVISION 09 – FINISHES – not used

## DIVISION 10 – SPECIALTIES – not used

## DIVISION 11 – EQUIPMENT – not used

## DIVISION 12 – FURNISHINGS – not used

## DIVISION 14 – CONVEYING EQUIPMENT – not used

## DIVISION 21 – FIRE SUPPRESSSION – not used

## DIVISION 22 – PLUMBING – not used

## DIVISION 23 – HEATING, VENTILATION AND AIR CONDITIONING – not used

## DIVISION 26 – ELECTRICAL

*Refer to Electrical Drawings prepared by **Piotrowski Consultants LTD.***

## DIVISION 27 – COMMUNICATIONS – not used

## DIVISION 28 – ELECTRONIC SAFETY AND SECURITY – not used

## DIVISION 29 – 30 – not used