Halifax
Regional Centre for Education

Purchasing Division

RFT #4044

Portable Classrooms 2020

Addendum #2

March 4th, 2020
2:45 P.M.

To: Bidders

From: Nancy Rideout, Manager, Accounting and Purchasing

Pages: 2 including cover

Phone: 464-2000(ext. 2222)

The bid documents shall be amended and new drawings and clauses added, and shall become part of the contract documents as follows:

1. **Electrical:**
    1. Provide a 15A/2P circuit breaker in branch circuit wiring panel. Provide 2C #12 Teck 90 cable from breaker to a 30A/2P weatherproof disconnect switch on exterior condensing unit.
    2. Provide 4C #14 Teck 90 cable from the exterior condensing unit to the evaporator. Provide a service disconnect switch on the indoor unit.
    3. Push-on breakers are acceptable for electrical panel

2. **Mechanical:**
    1. Provide a ductless split heat pump unit with exterior condensing unit and interior evaporator unit, similar to Mitsubishi PKA-A18HA & PUZ-A18NHA3 with PAR-21MAA Temperature Controller, wired by mechanical contractor.
    2. Alternates to Mitsubishi: Samsung, Daiken, Fujitsu.
    3. Provide a galvanized steel 18 inch high stand to mount the condensing unit, bolted to patio stones.
    4. Provide insulated refrigerant piping between condenser and evaporator sized to suit manufacturer.
    5. Provide PVC lineset covers.
    6. Wrap any exposed refrigerant line insulation with Alumaguard Vapour Membrane.
    7. Engage manufactures representative to start-up and commission the unit.

3. **Reference Drawing 1/A101**
    1. Delete two(2) inches of rigid insulation from floor assembly.

4. **Reference Drawing 8/A102**
    1. Minimum Window dimensions are to be 60” high by 44” wide.
    2. Window sills to be 24” above finished floor. Headers to be min.7’ a.f.f.

5. **Reference Specification Section 07 19 00 “Sheet and Vapor Air Barrier”**
    1. Add sentence 2.1.5 “Acceptable alternative for vapour permeable air barrier: W.R. meadows AIR-SHIELD SMP “
    2. Add sentence 2.1.6 “Acceptable alternative for non-permeable air barrier: W.R. Meadows Air-Shield“

End of Addendum #2

PLEASE SIGN BELOW AND RETURN WITH BID DOCUMENTS:

_____ _____

Signature Company Name

Halifax
Regional Centre for Education

Purchasing Division

RFT #4044

Portable Classrooms 2020

Addendum #1

March 3rd, 2020
1:00 P.M.

To: Bidders

From: Nancy Rideout, Manager, Accounting and Purchasing

Pages: 3 including cover

Phone: 464-2000(ext. 2222)

The bid documents shall be amended and new drawings and clauses added, and shall become part of the contract documents as follows:

DRAWINGS

1. **Reference Drawing A101-Sections and Details**
   1.1. Add note: Minimum ceiling height to be 8' above finished floor.

2. **Reference Drawing 3/A102 – Interior Elevation – Wall 2**
   2.1. Delete note "(by others)"
   2.2. Contractor to supply and install one (1) 12' white board with two (2) flanking cork boards:
   2.2.1. Facings of steel sheet. Porcelain enamel finish for dry, erasable markers and chalk. Suitable for use as a projection screen. Unaffected by solvents and reagents, white in colour. Provide sample for Architect's approval.

   2.2.2. C/W trim equal to Delta Series, No. 20 with map rail, map hooks, and chalkrail complete with end castings. Mounting heights, extent and location in accordance with drawings.

   2.2.3. Standard of Acceptance: VIT-RITE "rite on wipe-off", Delta Duro, Canadian Blackboard 2000 Series.

3. **Reference Drawing A103-Ramps and Stairs**
   3.1. All exterior ramps, stairs, and skirting to be completed by others.

SPECIFICATIONS

1. **Reference Section 00 41 13 – Price Submission Form**
   1.1. Add sentence 6.3 – The "price per unit for optional quantity up to 10 portables" will only be employed if a single contractor is awarded more than 11 portables from this tender. This price is to be used for the 12th - 21st units awarded to a single contractor. HRCE still reserves the right to award this contract to one or more contractors who bid on this tender.

2. **Reference section 00 73 00 Supplementary General Conditions**
   2.1. Add sentence to paragraph 5.3.1 : There shall be no progress payment until unit/materials are on HRCE property.

3. **Reference section 00 73 00 Supplementary General Conditions**
   3.1. Delete paragraph 9.12. Contractor is not responsible for locating underground services
   3.2. Add sentence 9.2.6.1: Hazardous materials are not expected on site. If any Hazardous substance is identified the contractor is to notify the owner immediately and leave substance undisturbed. The owner will be responsible for remediation costs.

4. **Reference section 01 11 41 Project Coordination**
   4.1. Delete Section 4 "Cutting and Patching" and its sub-sentences

5. **Reference section 01 33 00 Submittal Procedures**
   5.1. Delete Paragraph 8 "Extra Stock" and its sub-sentences
   5.2. Replace sentence 9.1 with "Submit one (1) digital copy of Maintenance Manual with application for completion certificate".

6. **Reference section 01 35 13 Project Procedures**
   6.1. Delete sentence 10.1.3: "Presence of lead paint or ACM's (Asbestos Containing Materials) must be determined prior to the start of any job. Specific protocols or Codes of Practice may apply."

7. **Reference section 01 35 13 Appendix A-Special Project Procedures**
   7.1. Delete paragraph 10.1.8. "Presence of lead paint or ACM's (Asbestos Containing Materials) must be determined prior to the start of any job. Specific protocols or Codes of Practice may apply."
      7.1.1. Site preparation is by others.
   7.2. Delete Paragraph 10. 2 "Contaminant Control II" and its sub sentences
   7.3. Delete Paragraph 10.3 "Contaminant Control III" and its sub sentences

8. **Reference section 01 77 00 Contract Closeout**
   8.1. Delete Paragraph 4 "Spare Parts and Maintenance Materials" and its sub sentences

9. **Reference section 05 50 00 Metal Fabrication**
   9.1. Delete sentence 3.2.4 "3/8" galvanized checker plate at base of ramp."

10. Reference section 07 55 00 Modified Bitumen Roofing & Flashing

10.1. Asphalt shingles are acceptable if the slope is greater than 3/12.

10.1.1. Shingles to carry lifetime warranty

10.1.2. Acceptable manufactures: GAF, IKO or Certainteed

10.1.3. Provide ice and water barrier over entire surface of roof.

11. Reference section 08 71 00 Door Hardware

11.1. Replace sentence 2.2.2.2 with “Mortice cylinders to match HRCE keyways”.

End of Addendum #1

PLEASE SIGN BELOW AND RETURN WITH BID DOCUMENTS:

_____ _____

Signature Company Name

Halifax
Regional Centre for Education

RFP #4044

Portable Classrooms – Various Locations within HRCE

Closing Date: **Wednesday, March 11th, 2020**
Closing/Opening Time: **2:00:00 P.M. (Atlantic Standard Time)**

Closing Location:
Halifax Regional Centre for Education
33 Spectacle Lake Drive
Dartmouth, N.S. B3B 1X7

Substantial Performance Date:
June 30, 2020

HRCE Contact:
Don Walpola, Buyer
Tel: (902) 464-2000 #2223
Fax: (902) 464-0161
Email: dwalpola@hrce.ca

School Location:
Various Locations
within HRCE

Operations Contact:
Earl McMullin, Manager Special Projects
Tel: (902) 464-2000 #5116
Email: emcmullin@hrce.ca

A mandatory bidders meeting will be held at HRCE Central Office located at 33 Spectacle Lake Dr, Dartmouth NS, B3B 1X7 in Room 302 on 24th February 2020 at 01.00 p.m.

School Locations:

Name of School	Quantity
TBA	Minimum quantity of 11 units with optional pricing for up to 10 additional units.

To obtain documents:
Download RFP documents in .pdf format from the HRCE's Website:
http://www.hrce.ca/about-hrce/financial-services/purchasing/tenders/tender-listing

TECHNICAL SPECIFICATIONS **No of Pages**

SECTION 00 00 15 - DESCRIPTION OF WORK & LIST OF DRAWINGS

1. General

1.1 The work of this contract includes the provision of all materials, labour and equipment necessary to complete the **Portable Classrooms** at **various locations in HRM**, as noted on the drawings and specifications prepared by **SP Dumaresq Limited**. HRCE reserves the right to award the contract to one or more contractors who bid on this tender. HRCE reserves the right to accept bids on any or all of the locations of this work.

1.2 It is the HRCE's intent to have all work completed, to point of Substantial Performance, prior to **June 30th, 2020**. It is expected that an early award of this contract will enable the Contractor to facilitate shop drawing review and ordering of materials to allow commencement of work immediately following award of tender.

1.3 The whole of the work shall agree in all particulars with the levels, measurements and details contained in the drawings accompanying this specification and with such other drawings or information as may from time to time be supplied by the HRCE, or may be supplied by the Contractor and reviewed by the HRCE.

1.4 The number of portable classrooms required at each location is listed below

Name of School	Quantity
TBA	Minimum quantity of 11 units with optional pricing for up to 10 additional units.

Notes:

A. **Due to the numerous possible locations for delivery of the Portable Classrooms, for estimating, bidders should assume that the delivery locations will be within HRM and at a maximum radius of 30 km from the center point of the A. Murray MacKay bridge. Further assume that site conditions will be flat and level and that flatbed truck/trailer deliveries directly to the final locations are possible.**
B. **Bidders to assume that pricing will include construction, supply and delivery of Portables Classrooms to each site.**

C. The original design package for Portable Classrooms by S.P. Dumaresq Architects Ltd. was for stick built-on-site structures. Bidders will be permitted to make changes to the design to facilitate a pre-manufactured design constructed offsite and transported to HRCE site as a mostly completed structure. Original footprint square footage and 24' (22' minimum interior space) wide dimensions to be same as or as close to as practical. Refer also to Item 2 of this section 'Alternate Requests for Proposals' Height of interior walls and roofline can be reduced to permit an overall structure height which will facilitate on road transport to site. All other building equipment and features to be adhered to. Design changes to be by qualified professionals and in conformance with applicable building codes. All Federal, Provincial and Municipal requirements and laws to be met. Any required changes or assumptions to be submitted on a separate sheet titled 'Assumptions and Proposed Changes' Any cost of pricing implications to be stated on same submittal.

D. Exterior ramps, stairs and skirting to be by owner after delivery of units.

****HRCE reserves the right to award the contract to one or more contractors who bid on this tender. HRCE reserves the right to accept bids on any or all of the locations of this work. ****

1.5 List Of Drawings

Drawing NO.	Drawing Title
A100	FLOOR PLAN AND EXTERIOR ELEVATIONS
A101	SECTIONS AND DETAILS
A102	FINISH INFORMATION
A103	RAMP AND STAIRS
S401	FRAMING PLANS, SECTIONS, AND NOTES
MV101	FLOOR PLAN AIR DISTRIBUTION
MV501	SCHEDULES & DETAILS AIR DISTRIBUTION
E-001	ELECTRICAL LEGEND, SCHEDULES AND SPECIFICATIONS
E-002	FLOOR PLANS ELECTRICAL
E-003	ELECTRICAL DETAILS

2. Alternate Request for Proposals

For the purposes of providing lower cost alternatives and meeting challenging delivery schedules, bidders are invited to submit detailed and separate proposals for Portable Classrooms. Provide pricing per delivered unit to HRM. Minimum quantities will be 11 with options for up to 10 additional units. Sizes and configurations proposed can vary, however minimum base width of 15'-8" (outside dimension) and minimum overall footprint of 800 ft^2 must be maintained. Design to be by qualified professionals and in conformance with applicable building codes. All Federal, Provincial and Municipal requirements and laws to be met. Mechanical, electrical, and architectural equipment, and interior finishes to be equivalent to those called in aforementioned design package by S.P. Dumaresq Architects.

END OF SECTION 00 00 15

SECTION 00 05 00 - LIST OF CONSULTANTS

Owner: **HALIFAX REGIONAL CENTRE FOR EDUCATION**
33 SPECTACLE LAKE DRIVE, DARTMOUTH NS

Consultant: Original Design by SP Dumaresq Architect Ltd.
Third Party Construction/Inspection Consultant to be engaged by HRCE.

END OF SECTION 00 05 00

SECTION 00 21 13 – INFORMATION FOR PROPONENTS

Invitation:

1. Proposal Call

1.1. The Halifax Regional Centre for Education (HRCE) will receive offers in the form of a two-envelope proposal from proponents which is signed and received on or before the date and time specified on the cover sheet of this document. The HRCE deems the correct time to be the time indicated on the phone clock on the receptionist's desk at 33 Spectacle Lake Drive.

1.2. Offers submitted after the closing time/date shall be returned to the proponent unopened.

1.3. Proponents are to submit completed Request for Proposal (RFP) documents in a sealed envelope marked as follows: ***RFP #4044, Portable Classrooms.*** The exterior envelope must be clearly identified with the contractor's name and the RFP number as noted on the cover page of this document. The exterior envelope must contain two separate sealed envelopes: one labelled "Technical Submission RFP #4044" and the other labelled "Price Submission RFP #4044". Both sealed submission envelopes must be clearly marked with the contractor's name. There must be no reference to the bid price within the technical submission. Proponents can refer to item 11 for more detailed submission instructions.

1.4. Proposals will be opened at the time indicated on the cover sheet of this document. As of April 1, 2014 public openings are no longer held for any Tenders/RFP's relating to goods, services or construction for the HRCE. **The technical submission will be the only envelope opened during the RFP closing.** All proposal submissions are subject to evaluation after opening and before award of contract. The successful proponent and award amount will be posted on the Procurement Services website (http://novascotia.ca/tenders/tenders/ns-tenders.aspx) **after award**.

1.5. In the event that the Halifax Regional Centre for Education office is closed due to inclement weather or any other reason on the date and at the time of the RFP closing, the closing date and time will be extended one (1) business day. Proponents should note that closure of schools does not necessarily mean closure of the HRCE's Regional Office.

1.6. Amendments to the submitted offer will be permitted if received in writing prior to bid closing and if endorsed by the same party or parties who signed and executed the offer. If the amendment relates to the technical submission, it **must** be dated and sealed in an envelope clearly marked "Technical Submission Amendment" along with the RFP number of

the project and the company name. If the amendment relates to the price submission, it must be dated and sealed in an envelope clearly marked "Price Submission Amendment" along with the RFP number of the project and the company name. The price amendment envelope must include the signed "Price Amendment Form" (Section 00 41 73) and shall not disclose either the original or revised total price.

1.7. Emailed/Faxed Bid Submissions **will not** be accepted.

2. Intent

2.1. The intent of this Request for Proposals (RFP) is to obtain an offer to perform all work associated with ***RFP #4044 Portable Classrooms*** for a Stipulated Price Contract in accordance with the Contract Documents.

2.2. Substantial Performance of the project is to be achieved on or before

2.3. **June 30th, 2020** provided the contract is awarded within ten (10) business days after the RFP closing.

2.3.1. In the event that the contract is not awarded within ten (10) business days of closing, the substantial performance date will be extended by one (1) business day, for every business day that passes, until the contract has been officially awarded.

2.3.2. Receipt of the award letter by the successful contractor does not constitute approval to begin work on site.

2.4. The HRCE does not guarantee the award of all area, phases or any portion thereof.

2.5. The HRCE reserves the right to award individual areas or phases to one contractor or between multiple contractors.

3. Scope of work

3.1. Refer to Section 00 00 15 – Description of Work and List of Drawings and Section 01 11 00 Summary of Work.

4. Availability

4.1. RFP documents can be obtained as per the directions on the cover sheet of this document.

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

4.3. The Halifax Regional Centre for Education is not responsible for accuracy of documents and project postings obtained from any other source.

5. Examination

5.1. RFP documents are on display at the offices of the Construction Association of Nova Scotia (CANS), Halifax, NS.

5.2. Upon receipt of RFP documents, proponents should verify that documents are complete. Proponents should notify the HRCE's Buyer by email to dwalpola@hrce.ca, should the documents be incomplete, or upon finding discrepancies or omissions in the RFP documents.

5.3. Bidders shall become fully aware of the content of all RFP documents for the preparation of the Bidder's submission.

6. Clarification and Addenda

6.1. Proponents must notify Don Walpola, Buyer, by email to dwalpola@hrce.ca no less than **five (5)** working days before the RFP Closing regarding any questions, omissions, errors or ambiguities found in contract documents. If HRCE considers that correction, explanation or interpretation is necessary, a reply will be produced in the form of an addendum, a copy of which will be posted on the novascotia.ca/tenders and/or the HRCE website as applicable. It is the responsibility of the Bidder to ensure all addenda are received and acknowledged.

6.2. Addenda will be issued no less than three (3) business days before the RFP closing date and time, and will form part of the Contract Documents.

6.3. Verbal answers to queries are not binding. Information must be confirmed by written addenda. The HRCE and its representatives shall not be bound by or be liable for any representation or information provided verbally. Information obtained by any other source is not official and will not bind the Halifax Regional Centre for Education.

6.4. Proponents are to complete Price Submission Form (section 00 41 13) acknowledging that addenda have been received.

7. Product/System Options

7.1. Alternatives to specified products and systems will only be considered during the bidding period in the manner prescribed below.

7.1.1. Where the RFP documents stipulate a particular product, alternatives may be considered by the Consultant up to five (5) working days before the RFP closing date and time. Bidders must forward their written requests by email to: dwalpola@hrce.ca. The Buyer will relay the requests to the appropriate person(s) for review.

7.2. The submission must provide sufficient information to enable the Consultant to determine acceptability of such products. Request for an alternate product/system must be accompanied with:

7.2.1. information about how the request affects other work in order to accommodate each alternate;

7.2.2. the dollar amount of additions to or reductions from the Price Submission, including revisions to other work.

7.2.3. A later claim by the bidder for an addition to the contract price because of changes in work necessitated by use of alternates shall not be considered.

7.3. When a request to substitute a product is made and pursuant to consultation with the Consultant, HRCE may approve or disapprove the substitution. The bidder making the request will be notified of the HRCE's decision and if the alternate is approved, the HRCE will issue an addendum.

7.4. Alternates must be submitted in the above manner; otherwise, they will not be accepted.

8. Mandatory Bidders' Meeting

8.1. Bidders will be deemed to have familiarized themselves with the existing RFP and bid project documents, No plea of ignorance of such conditions as a result of failure to make all necessary examinations will be accepted as a basis for any claims for extra compensation or an extension of time.

8.1.1. A mandatory bidders' site meeting has been scheduled as per the information on the cover sheet of this document. All bidders are required to attend. Representatives of HRCE will be in attendance.

8.1.2. Bidders must register their presence with the HRCE stating the name of the contractor they represent. Failure to attend and register will lead to non-acceptance of the proposal by HRCE. HRCE recommends that interested bidders ensure that their proposed subcontractors are in attendance at the mandatory bidder's meeting. *HRCE recognizes that short timelines for RFP submission may prove to be problematic for potential bidders. If the site visit will cause serious logistical challenges for potential bidders, please contact Earl McMullin to discuss.*

9. Bidders Registration

9.1. The successful contractor and sub-contractors must comply with the Nova Scotia Corporations Registration Act and/or Partnerships and Business Name Registration Act, or equivalent, before a contract is awarded.

10. Qualifications (Subcontractors/Other Tradespersons/Individuals)

10.1. Bidders are fully responsible to the HRCE for the acts/omissions of subcontractors and of persons directly or indirectly employed or retained by them. Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the HRCE. Subcontracting the contract shall not relieve the Bidder from any contractual obligations.

10.2. Bidders must provide subcontractors with a copy of the RFP documents making subcontractors aware that the HRCE is not responsible for any payments to subcontractors, and that all actions, directions or claims are solely between the bidder and the subcontractor.

10.3. The Contract, or any portion thereof, shall not be assigned nor sub-contracted without the prior written approval of HRCE, which approval may be withheld in the HRCE's sole discretion. When sub-contracting, successful bidder(s) must be prepared, if requested, to provide copies of billings from subcontractors.

10.4. Successful bidder(s) shall only use additional subcontractors during the course of the contract with the prior written approval of the HRCE.

10.5. The successful bidder(s) shall not re-assign the role of Project Manager to another individual other than the proposed Project Manager as indicated in the technical submission, without prior written approval from the HRCE.

10.6. The successful bidder(s) shall at all times enforce strict discipline and good order among their employees and subcontractors and shall avoid any unfit person or any person not skilled in the work assigned to the employee.

10.7. HRCE reserves the right to reject a proposed sub-contractor for a reasonable cause.

10.8. Refer to Article GC 3.7.3 of CCDC-2 2008.

11. Proposal Submission

11.1. RFP Proposal Package - A complete proposal package is comprised of the elements below:

11.2. Technical Submission and Price Submission - General

11.2.1. Each proposal shall include a sealed Technical Submission envelope and a sealed Price Submission envelope, clearly labelled as previously instructed in Section 00 21 13, item 1.3. These two envelopes are to be inserted and sealed into one envelope.

11.2.2. Both the Technical Submission envelope, which shall be identified as Technical Submission, and the separate Price Submission envelope, which shall be identified as Price Submission, shall be submitted simultaneously.

11.2.3. The Technical Submission envelope **must not** contain any reference to the bid price being offered for this project.

11.2.4. The identification label on the outside of the main envelope must identify the name of the proponent/company and the RFP name and number.

11.2.5. Proponents shall be solely responsible for the delivery of their proposals in the manner and time prescribed.

11.3. Technical Submission Contents

11.3.1. Technical submissions shall be submitted in typed format, in 12 point font, and on proponent's letterhead, with the signature in longhand. Proposals shall be submitted in the English language and shall not exceed 20 pages in length (excluding the Schedule of work). The response shall be organized in the order as indicated below. **Proponents must include one (1) original signed hardcopy of the technical submission and three (3) copies for evaluators.** The Technical Submission shall include the following:

I. **Relevant Project Experience**: The proponent is required to provide a detailed summary of their company's experience within the last five (5) years, by describing three (3) comparable projects for an educational/commercial institution. These projects should be similar in nature, complexity and value to the requirements specified in this RFP. For each project listed, the proponent is to indicate the name of the Project Manager, the dollar value, and a description of the project. The proponent is also required to indicate how your company adhered to the bid price, the schedule of work, the substantial performance deadline, and the overall satisfaction of the client.

II. **References:** Based on the same projects the proponent has described in Item 1 of the Technical Submission, the proponent is to provide a total of three (3) references, with each reference corresponding to the respective project. For each reference, the company name, contact name, contact phone number, and email address are required. The proponent is to ensure that their references are aware they will be contacted, and that prior consent was granted.

III. **Project Manager**: Proponents are required to provide a detailed resume for the proposed Project Manager and indicate the percentage of their time that will be committed to this project.

IV. **Team Composition**: The proponent is required to identify the key personnel who will be assigned to this project and clearly indicate each employee's name, title, and role within this project.

V. **Management of Project Risk**: Proponents shall identify a minimum of five (5) risks that their company could be faced with related to the scope of work for this project. Proponents shall identify risk mitigation strategies for each scenario and in the event that the risk occurs, assess the impact and identify the corrective action required.

VI. **Schedule of Work**: This schedule shall be provided with a reasonable level of detail in Gantt chart format. (11 x 17 format or greater.)

VII. **Hot Work Program:** Proponents must provide a copy of their company's Hot Work Permit program and procedures.

11.4. Price Submission Contents

11.4.1 The Price Submission is to be submitted on the forms provided by the HRCE (Section 00 41 13 – Price Submission Form). These forms are to be completely filled out in ink, with the signature in longhand, corporate sealed as applicable, and the completed form shall be without interlineations, alterations or erasures. Electronic price submissions sent by facsimile transmission or email will **not** be accepted.

11.4.2 The Price Submission Forms are to be completed in full. The total contract price in both written words and numerals must be entered. Where the bid value is requested in both words and numbers, and if the two (2) do not represent the identical amount, words shall prevail.

11.4.1. The executed pricing offer is to be submitted on the forms **together with the required bid security** in a sealed opaque envelope, clearly identified as instructed above. No additional copies are required of the Price Submission Forms. One signed original set must be submitted within the Price Submission envelope.

11.4.2. Improperly completed information, and/or irregularities in the bid security, may be cause to declare the submission non-compliant.

11.5. Proposal Evaluation

11.5.1. Evaluation Process – Compliant proposals will be evaluated, first during Phase A, and those meeting the minimum qualifying score under Phase A will then be evaluated in Phase B, with a final score determined in Phase C.

11.5.2. Proposals that do not meet the qualifying score for Phase A (as indicated below) will not be given further consideration.

11.5.3. Proposals will be evaluated and scored by an evaluation team comprised of a minimum of three (3) representatives of the HRCE. It is to be understood that the degree to which a proposal meets the proposal requirements will be at the sole discretion of the evaluation team.

11.5.4. Phase A – Technical Submission – The Technical Submission for compliant proposals will be evaluated using the evaluation criteria set out in the table below. Scores will be recorded for each criterion (rounded to two (2) decimal points) and a total qualifying score will be determined.

Phase A - Evaluation Criteria – Technical Submission	Weight (points)
Presentation of Technical Submission	25.00
Relevant Project Experience	10.00
References (3)	9.00
Proposed Project Manager and Team Composition	5.00
Management of Project Risk	5.00
Schedule of Work (Gantt Chart)	13.00
Hot Work Permit Programs & Procedures	3.00
Total Phase A – Potential total score	**70.00**

A minimum qualifying score of 50.00 points is required in Phase A for the proposal to be given further consideration. All technical submissions that have met the minimum qualifying score of fifty (50.00) points will proceed to Phase B - Price Submission.

11.5.5. Phase B - Price Submission - Price Submission envelopes for proponents whose Technical Submission has received fifty (50.00) points or greater will be opened. **The Price Submission will have a weight of thirty (30.00) points.**

Price submissions will be evaluated and a Phase B score will be assigned to each proponent by using a proximity to lowest price method. In this method, proponents will be awarded points based on how close their bid price is to the lowest price. The pricing from each submissions will be calculated and weighted as a fraction closest to low bid

Formula:

Price Score = % value of score x $\frac{\text{Low bid}}{\text{Your bid}}$

Example:

Company A	Company B	Company C	Company D	Company E
$115,000	$135,000	$185,000	$165,000	$180,000

Example for Company D above
Score = 30 x $115,000 / $165,000 = 21 points

The Total Score (Phase C) will be calculated by adding together Phase A + Phase B scores.

11.5.6. The proponent who has the highest total score after the Phase C calculation, will be the successful proponent, subject to other provisions herein, including Section 16.5.

12. Conditions of the RFP Process

12.1. Proponents shall take full cognizance of content of all Contract Documents in preparation of their proposal. Section 00 41 13 – Price Submission Form, Subsection 5.0 references a complete list of Contract Documents.

13. Amendment or Withdrawal of Proposals

13.1. Proposal packages may be **withdrawn** from the RFP process in writing, by facsimile or by email to the HRCE Buyer if received prior to date and time of closing.

13.2. As previously stated in Section 00 21 13, item 1.6 - Amendments to the submitted offer will be permitted if received in writing prior to the RFP closing time and if endorsed by the same party or parties who signed and executed the offer. If the amendment relates to the technical submission, it must be dated and sealed in an envelope clearly marked "Technical Submission Amendment" along with the RFP number of the project and the company name. If the amendment relates to the price submission, it must be dated and sealed in an envelope clearly marked "Price Submission Amendment" along with the RFP number of the project and the company name. The price amendment envelope must include the signed "Price Amendment Form" (Section 00 41 73).

13.3. A single page Price Amendment Form is provided immediately following the Price Submission Forms (Section 00 41 73).

13.3.1.1. The Price Amendment Form provided is the standard master form for submission of any price amendments for this project.

13.3.1.2. The Price Amendment Form must be copied and completed, as directed, for any price amendments submitted.

13.4. Price amendments shall not disclose either original or revised total price.

14. Proposal Ineligibility (Reason for Rejection)

14.1. HRCE may reject a proposal which has been received prior to the closing time where:

14.1.1. The two envelope system (Technical Submission and Price Submission) is not followed.

14.1.2. The price submission is not submitted on the required forms (Section 00 41 13) included herein.

14.1.3. The proposal is submitted by electronic transmission or facsimile.

14.1.4. There are omissions of information that the HRCE in its sole discretion deems to be significant.

14.1.5. The technical submission or price submission form is not signed as required.

14.1.6. The proposal has conditions attached which are not authorized by the invitation to bid**.**

14.1.7. The proposal fails to meet one or more standards specified in the invitation to bid.

14.1.8. All addenda have not been acknowledged.

14.1.9. Any other defect which, in the opinion of the HRCE brings the meaning of the proposal into question.

14.1.10. The required bid security is not provided within the Price Submission envelope.

14.1.11. Proponent failed to attend bidders' mandatory site meeting.

15. Communications Affecting Bids

15.1. Electronic transmissions, including, but not limited to facsimile transmission:

15.1.1. The technical submission or price submission forms submitted by facsimile and/or e-mail transmission are not acceptable and will be rejected.

16. Right to Accept or Reject any Proposal

16.1. The HRCE reserves the right to reject any proposal in its sole and absolute discretion for any reason whatsoever.

16.2. The HRCE specifically reserves the right to reject all proposals if none are considered to be satisfactory in the HRCE's sole and absolute discretion and, in that event, at its option, to call for additional proposals.

16.3. Without limiting the generality of any other provision herein, the HRCE reserves the right to accept or reject any proposal in accordance with item #14 above (Proposal Ineligibility).

16.4. Notwithstanding the above, the HRCE shall be entitled, in its sole and absolute discretion, to waive any irregularity, informality or non-conformance with these instructions in any proposal received by the HRCE. The HRCE reserves the right to reject any or all proposals, or to accept any proposal, or portion thereof, deemed in its best interest.

16.5. In the event that more than one proponent achieves an identical final total score within two decimal places in Phase C, the HRCE will flip a coin to determine the successful contractor.

16.6. No term or condition shall be implied, based upon any industry or trade practice or custom or in a practice or policy of the HRCE or otherwise, which is inconsistent or conflicts with the provisions contained in these instructions.

17. Construction Contract Guidelines

17.1. The printed policies of the Nova Scotia Construction Guidelines, dated May 18, 2006 (or latest revisions) are applicable to these RFP documents.

18. Submission and Security Forms – Signatures

18.1. All Price Submission forms, bid security forms and performance assurance forms **must** bear the Bidder's original signature and name HRCE as the insured.

19. Bid Security

19.1. Proponents must submit within the sealed Price Submission envelope one of the following: bid security in the form of a certified cheque, Irrevocable Letter of Credit, or Bid Bond on CCDC Form 220, in the amount of ten percent (10%) of the Bid Price made payable to, or naming HRCE (as obligee). This bid security **must** accompany the Price Submission.

19.2. Where bid bond is provided as bid security:

19.2.1. The bond must be provided on the standard CCDC Bid Bond Form (latest version) in the amount of not less than ten percent (10%) of the Bid Price.

19.2.2. The bond must be submitted by the general contractor bidder, signed and sealed by the principal (Contractor) and Surety and shall be with an established Surety Company satisfactory to and approved by the HRCE.

19.2.3. The cost of providing the Bid Bond must be included in the Bid Price.

19.3. Where a certified cheque or a bank draft is provided as bid security:

19.3.1. The certified cheque or bank draft must be endorsed in the name of HRCE, for a sum not less than ten percent (10%) of the amount of the Bid Price.

19.3.2. The cost of providing the certified cheque or bank draft must be included in the Bid Price.

19.4. Where the Irrevocable Standby Letter of Credit is used as bid security:

19.4.1. The letter must be endorsed in the name of HRCE, for a sum not less than ten percent (10%) of the Bid Price

19.4.2. The Irrevocable Standby Letter of Credit shall be issued by a certified financial institution subject to the Uniform Custom and Practices for Documentary Credit (1993 revision or latest revision), International Chamber of Commerce (Publication No. 500).

19.4.3. The cost of providing the letter must be included in the Bid Price.

19.5. Return of Bid Security:

19.5.1. The bid security of the unsuccessful proponents will be returned to them after the contract has been signed, or previous to such time, at the discretion of HRCE.

19.5.2. If no contract is awarded, all bid security will be returned.

20. Contract Security (Performance Assurance) – Required for contracts valued over $100,000

20.1. The performance assurance forms must bear the bidder's original signature and name HRCE as the insured.

20.2. The successful contractor shall maintain performance assurance in force for a period of not less than twelve (12) months after the issue of the substantial performance certificate certified by HRCE and until completion of the contract.

20.3. Performance Assurance must be endorsed as specified for bid security.

20.4. Should it become apparent that the final cost of the project will exceed the total amount payable by more than 20%, the bidder shall arrange to have their bonds reissued based on the projected final cost.

20.5. Section 00 72 13 – General Conditions GC11.2 and Section 00 73 00 – Supplementary General Conditions for form of Contract Security. Proponents should reference the project documents for the amount of Contract Security and the alternate type of Contract Security if applicable.

20.6. Performance Assurance must be submitted as one of the following:

20.6.1. Where a Bid Bond was used as bid security:

20.6.1.1. Within ten (10) days after notification of award of the Contract, the successful contractor must provide a Performance Bond and a Labour & Material Payment Bond, each in an amount equal to fifty percent (50%) of the amount of the Contract, naming HRCE.

20.6.1.2. Performance Bond and Labour and Material Payment Bonds, submitted by the bidders, shall be provided at the expense of the bidder and shall be with an established Surety Company satisfactory to and approved by the HRCE.

20.6.2. Where a certified cheque or bank draft is used as Contract Security:

20.6.2.1. The certified cheque or bank draft submitted during the bid period will be cashed and the amount retained by the HRCE shall serve as

Performance Assurance**,** including the payment of all obligations arising under the Contract.

20.6.2.2. The value of the certified cheque or bank draft will be retained in lieu of the Performance Bond and Labour and Material Bonds, providing that, at Contract award, the successful contractor shall supplement their certified cheque or bank draft to maintain an amount of ten (10%) of the total amount payable (Contract Price plus HST) under the contract.

20.6.2.3. The amount remaining will be returned without interest after a period of not less than twelve (12) months after the issue of the Substantial Performance Certificate certified by the HRCE.

20.6.2.4. Where certified cheque or bank draft is used as Performance Assurance, the cost of providing the certified cheque or bank draft in the Contract price.

20.6.3. Where an Irrevocable Standby Letter or Credit is used as Contract Security:

20.6.3.1. The Irrevocable Standby Letter of Credit submitted during the bid period will be retained by the HRCE and shall serve as performance assurance, including the payment of all obligations arising under the contract. The Irrevocable Standby Letter of Credit shall be issued by a certified financial intuition subject to the Uniform Customs and Practices for Documentary Credit (1993 revision) International Chamber of Commerce (Publication No. 500).

20.6.3.2. Where an Irrevocable Standby Letter of Credit is used as Performance Assurance, the cost of providing this letter should be included in the Contract Price. The contractor shall provide to the HRCE documentation throughout the duration of the contract that the Irrevocable Standby Letter of Credit remains in full effect at all times as specified.

20.6.3.3. Upon expiry of the Irrevocable Standby Letter of Credit, a separate Irrevocable Standby Letter of Credit shall be provided for work requiring extended warranties for such amounts as are required by the contract.

20.6.3.4. The Irrevocable Standby Letter of Credit is to be in effect for a period of not less than twelve (12) months after the issue of the Substantial Performance Certificate certified by the HRCE.

21. Insurance

21.1. Proponents should refer to project documents for the amount of insurance, the duration of coverage and alternate type of insurance if applicable. Section 00 72 13 -General Conditions of Contract, GC 11.1 – Insurance and Section 00 73 00 – Supplementary General Conditions for form of Insurance.

21.2. The General Contractor shall secure and maintain, at its expense, during the term of the insurance:

21.2.1. Workers' Compensation to meet statuary requirements and/or Employers Liability (with limits of not less than $2,000,000).

21.2.2. Wrap-Up Liability insurance must insure the general contractor(s) and all sub-contractors on this project:

21.2.2.1. including but not limited to, products liability and completed operations, contractual liability, owners and contractors liability, attached machinery extension endorsement, and independent contractor, for a combined single limit of no less than $5,000,000.00 per occurrence.

21.2.3. Commercial Auto liability insurance covering all owned, non-owned and hired vehicles for a minimum combined single coverage of $2,000,000.00 per occurrence.

21.2.4. Builders Risk – all risks – in the amount of the project contract stipulated bid price.

21.2.5. The Contractor must deliver a certificate of insurance evidencing the above prior to work being performed. It is also agreed that the above insurance coverage is primary and must be kept in force during the term of this agreement. Furthermore, HRCE must receive, in writing, at least thirty (30) days' notice of cancellation or modification of the above insurances. All insurance policies or certification documents shall specify coverage being applicable to this contract. The Contractor shall not do or omit to do or suffer anything to be done or omitted to be done which will in any way impair or invalidate such policy or policies of insurance.

21.3. Primary Insurance- the Contractor agrees that the insurance as required above shall be primary and non-contributory.

21.4. No limitation- he Contractor is responsible for determining whether the above minimum insurance coverage's are adequate to protect its interests. The above minimum coverages do not constitute limitations upon Supplier's Liability.

21.5. Endorsements – For the policies in para 23 above, there shall contain an endorsement naming HRCE and its affiliates as Additional Insureds, and eliminating and removing any exclusion of liability for:

21.5.1. injury, including bodily injury and death to an employee of the insured or of HRCE, or

21.5.2. any obligation of the insured to indemnify, hold harmless, defend, or otherwise make contribution to the HRCE because of damage arising out of injury, including bodily injury and death, to an employee of HRCE.

21.6. Insurance document(s) must be provided to the Purchasing Department after receipt of written HRCE request (via award letter) – the documents are required before a purchase order will be issued and/or before commencement of work.

22. Proof of Competency of Proponent

22.1. Any bidder may be required to furnish evidence satisfactory to the owner that he and his proposed sub-contractors have sufficient means and experience in the types of work called for to assure completion of the contract in a satisfactory manner.

22.2. Proposal Signing

22.2.1. The Technical Submission and the Price Submission form must be signed and under seal (as applicable) by a duly authorized signing officer(s) in their normal signatures.

22.3. Contract Time

22.3.1. The bidder, in submitting an offer, agrees to achieve substantial performance of the work by the date indicated in the contract documents.

23. Offer Acceptance / Rejection

23.1. Duration of offer

23.1.1. Proposals shall remain open to acceptance and shall be irrevocable for a period of ninety (90) days after the RFP closing date.

23.2. Award/Selection/Acceptance of Offer

23.2.1. In the evaluation of a proposal, HRCE will consider, but not be limited to, the following criteria:

23.2.1.1. Compliance with proposal requirements

23.2.1.2. Proposal Evaluation Criteria as stated in Section 11.5

23.2.2. The Owner's evaluation of any and all proposals will be final

23.3. After acceptance by HRCE, the successful bidder shall be notified in writing of acceptance of the bid by way of an award letter.

24. Agreement

24.1. After acceptance, the HRCE and the successful proponent will enter into a CCDC-2 –2008, standard form of contract for the execution of the work.

24.2. A purchase order will be issued to the successful bidder once the contract has been signed and executed.

25. Post Award Submissions

25.1. The successful contractor will provide after receipt of award, when requested by HRCE, a copy of the following documents (within ten (10) business days of written request):

25.1.1. Current Certificate of Recognition or Letter of Good Standing - The Contractor will supply a Certificate of Recognition issued jointly by the Workers' Compensation Board of Nova Scotia and an occupational health and safety organization approved by the Workers' Compensation Board of Nova Scotia (such as the Nova Scotia Construction Safety Association). These approved organizations are currently listed on the Workers' Compensation Board of Nova Scotia website (www.wcb.ns.ca). The contractor shall remain in good standing for the duration of the contract. The Contractor shall supply the following:

25.1.1.1. Worker's Compensation Coverage – The Contractor shall supply a clearance letter from the Worker's Compensation Board of Nova Scotia, (or equivalent) indicating the Contractor is assessed and in good standing;

25.1.1.2. All required contract security and insurance documentation;

25.1.1.3. A completed Schedule of Values (see Section 01 37 00);

25.1.1.4. A completed HRCE Safety Plan (Copy attached in RFP package); and,

25.1.1.5. A detailed listing of subcontractors to be used.

25.1.2. In the event that any such certification during the term of the contract expires, the obligation remains with the Contractor to provide the updated required certificates.

25.1.2.1. The Contractor and subcontractors (if applicable) shall remain in good standing for the duration of the contract and the Contractor is responsible to ensure that good standing status is maintained.

26. Taxes

26.1. The General Conditions of the Contract state that the Contractor, as of April 1, 1997 and thereafter, is to pay all Harmonized Sales Tax.

26.2. HRCE is not exempt for Harmonized Sales Tax (HST) purposes. As a result, the aggregate amount of the bid for contracts is subject to HST; however, **prices submitted shall not include HST.**

26.3. The HST payable by the HRCE will be added as a separate item during the processing of progress payments and therefore **HST will not appear as a cost in the aggregate amount of the bid amount.**

26.4. Proponents are advised that they may be eligible to claim an Input Tax Credit (ITC) for a portion of the HST paid in relation to the contract requirement of the Government of Canada.

26.5. Proponents are to note that prices indicated on the Price Submission Form and the amendments to the Price Submission Form shall not include Provincial Sales Taxes, the Federal Goods and Services Tax or the Harmonized Sales Tax.

26.6. Refer to CCDC-2 - 2008 (Section 00 72 13) and Supplementary General Conditions (Section 00 73 00).

27. Proponent Debriefing

27.1. HRCE will, if requested by a proponent within fifteen (15) days of notice of RFP award, arrange a debriefing for the purpose of informing the bidder why their proposal was not selected. At least two (2) HRCE staff shall attend the de-briefing. The purpose of the de-briefing will be to discuss the proponent's scoring, answer questions and identify any weak areas in the proponent's submission in order for the proponent to improve future bid submissions. HRCE will not divulge details contained in any proponent's proposal with other proponents or overall ranking.

28. Purchase Orders

28.1. The official purchase order will not be issued by the HRCE Purchasing Department until the CCDC-2-2008 Documents have been fully executed.

29. Invoices

29.1. The purchase order number and HST number shall be noted on any/all invoices related to work performed under this contract.

END OF SECTION 00 21 13

SECTION 00 41 13 – PRICE SUBMISSION FORM

1. Salutation:

To: **HALIFAX REGIONAL CENTRE FOR EDUCATION**
33 SPECTACLE LAKE DRIVE, DARTMOUTH NS
Attn: DON WALPOLA, BUYER
For: RFP #4044 Portable Classrooms

From: _____

Address: _____

_____

E-Mail: _____

Phone: **Fax**: _____

Person Signing for Firm: _____

Position: _____

2. Proponent Declares:

2.1. That this submission was made without collusion or fraud.

2.2. That the proposed work was carefully examined.

2.3. That the Proponent is familiar with local conditions.

2.4. That Contract Documents and Addenda were carefully examined.

2.5. That all the above were taken into consideration in preparation of this RFP.

3. Proponent Agrees:

3.1. To provide all necessary equipment, tools, labour, incidentals and other means of construction to do all the work and furnish all the materials of the specified requirements which are necessary to complete the work in accordance with the Contract and agrees to accept, therefore, as payment in full the Lump Sum Price stated in Subsection 6 hereunder.

3.2. The have carefully examined the site of the work described herein; have become familiar with local conditions and the character and the extent of the work; have carefully examined every part of the proposed Contract and thoroughly understand its stipulations, requirements and provisions.

3.3. The have determined the quality and quantity of materials required; have investigated the location and determined the source of supply of the materials required; have investigated labour conditions; and have arranged for the continuous prosecution of the work herein described.

3.4. To be bound by the award of the Contract and if awarded the Contract on this bid price, to execute the required contract within ten (10) days after notice of award.

3.5. They have noted that the Harmonized Sales Tax is excluded from the "Contract Price".

3.6. The Contractor's employees shall always report to the main office of a school, indicate who they are, and state their purpose on site prior to starting any work in the school.

3.7. To the hours of work, defined as: All work for HRCE is to be completed during hours when schools are unoccupied, unless otherwise indicated in writing by the Operations Manager or designate. Hours of work shall comply with local ordinances and bylaws for each site.

3.7.1. No work shall be conducted on weekends or statutory holidays without specific written approval from the Operations Manager or designate.

3.7.2. In the event that work is requested by HRCE during hours when schools are occupied, the work will be limited to work that is not disruptive to the school. There shall be no mechanical removals, no drilling, screwing or torch work during occupied hours without prior written approval from HRCE.

4. Owner Agrees

4.1. To examine this proposal and in consideration, therefore, the proponent hereby agrees not to revoke this bid:

4.1.1. until some other proponent has entered into the Contract with the HRCE for the performance of the work and the supply of the materials specified in the notice inviting proposals; or in the Information to Proponents, or

4.1.2. until ninety (90) days after the time fixed in the Information to Proponents for receiving bids has expired, or

4.1.3. Whichever first occurs; provided, however, that the Proponent may revoke this proposal at any time before the time fixed as indicated in the section 00 21 13, item 13.1.

5. Contract Documents include:

5.1.1. Cover Page
5.1.2. Table of Contents – Section 00 00 10
5.1.3. Description of Work & List of Drawings – Section 00 00 15
5.1.4. List of Consultants – Section 00 05 00
5.1.5. Information for Proponents – Section 00 21 13
5.1.6. Price Submission Form – Section 00 41 13
5.1.7. Price Amendment Form (if applicable) – Section 00 41 73
5.1.8. Agreement Between Owner and Contractor (CCDC 2 – 2008) – Section 00 52 00
5.1.9. Definitions (CCDC 2 – 2008) – Section 00 52 13
5.1.10. General Conditions of the Stipulated Contract Price (CCDC 2 -2008) – Section 00 72 13
5.1.11. Supplementary General Conditions – Section 00 73 00
5.1.12. Specifications of Work (all applicable sections)
5.1.13. Drawing(s) – as applicable
5.1.14. Addendum/Addenda issued by HRCE
5.1.15. Contract Sets (2)

6. Price Submission - Contract Price:

6.1. The undersigned Proponent, having carefully read and examined the aforementioned Contract Documents prepared by the Consultant, for the Halifax Regional Centre for Education, hereby accepts the same as part and parcel of the Contract herein referred to, and having carefully examined the locality and site of works and having full knowledge of the work required and of the materials to be furnished and used, does hereby propose and offer to enter into a contract to perform and complete, the whole of the said works and provide all necessary labour, plant, tools, materials and equipment and pay all applicable taxes, as set forth and in strict accordance with the Specifications, Drawings and other Contract Documents and to do all therein called for on the terms and conditions and under the provisions therein set forth for the following:

6.2 PRICE PER UNIT for first 11 Portable Classrooms

_____ /100 Dollars ($_____) (HST Excluded)

PRICE PER UNIT for optional quantity up to 10 Portable Classrooms

_____ /100 Dollars ($_____) (HST Excluded)

****HRCE reserves the right to award the contract to one or more contractors who bid on this tender. HRCE reserves the right to accept bids on any or all of the locations of this work. ****

Contract Price to be completed in written form on the lines provided above, with cents expressed as numerical fraction of a dollar. Contract price to be completed in numerical form on the line bounded by parenthesis above, with cents expressed as a decimal of a dollar. WHERE THERE IS A CONFLICT, WRITTEN WORD WILL GOVERN.

7. Completion Time:

7.1. The proponent agrees to be substantially complete on or before the following date:

7.1.1.1. ***June 30th, 2020***

7.1.1.2. The undersigned Proponent agrees, if awarded the Contract, to achieve the Substantial Performance Date providing the contract is awarded within ten (10) business days of tender closing time.

8. Addenda Acknowledgement

I/We have received and noted the following addenda **RFP # 4044 Portable Classrooms**

Addendum #	Dated	# of Pages
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Signature * The undersigned Proponent declares that this bid is made without connection to any other person(s) submitting pricing for the same work and is in all respects fair and without collusion or fraud.

SIGNATURE:

SIGNED AND DELIVERED
in the presence of:

_____
Witness

CONTRACTOR

_____
Company name

_____
Signature of Signing Officer

_____
Name and Title (printed)

_____
Date

9. Acknowledgement of Child/Student Safety

HRCE is directly responsible for the safety of its children and staff. Should contractors be required to work in or on school property while children are present, it is a **mandatory HRCE requirement** that contractors assign the work to employees and/or sub-contractors who do not have a criminal record and who are not listed on the Child Abuse Registry. Failure to comply with this requirement may result in immediate contract termination.

The HRCE reserves the right to demand, at any time, during the full term of the project a Criminal Record Check and/or a Child Abuse Registry Check, on any personnel authorized by the Contractor to be on HRCE work/school sites.

By signing below you are confirming that you understand and will abide by this mandatory HRCE requirement.

_____
Company name

_____
Witness

_____
Signature of Signing Officer

_____
Name and Title (printed)

_____
Date

END OF SECTION 00 41 13

SECTION 00 41 73 - PRICE AMENDMENT FORM

RFP # 4044 Portable Classrooms

Note: to be completed and forwarded for each Price amendment prior to RFP closing time and date as detailed on the cover sheet of the RFP document and any applicable addenda.

Lump Sum Price Amendment – Section 00 41 13 Price Submission form, Article 6.1. Contract Price

Increase Price by		**Decrease Price By**	
Amount (excluding HST)	**$**	**Amount** (excluding HST)	**$**
HST	**$**	**HST**	**$**
Total Amount (including HST)	**$**	**Total Amount** (including HST)	**$**

It is the Proponent's responsibility to ensure the table above is legible.

Submitted by:

_____

Company Name (please print as it appears on original RFP envelope)

_____

Authorized Proponent's Name (please print as it appears on Price Submission Form)

_____

Authorized Proponent's Signature

Date

_____

END OF SECTION 00 41 73

SECTION 00 52 00 - AGREEMENT BETWEEN OWNER AND CONTRACTOR

CCDC 2 – 2008

(A copy of Section 00 52 00, Standard Construction Contract CCDC 2 – 2008 (5 pages) is available upon request, otherwise, will form part of the contract sets to the successful bidder)

END OF SECTION 00 52 00

SECTION 00 52 13 - DEFINITIONS

CCDC 2 - 2008

(A copy of section 00 52 13, Standard Construction Contract CCDC 2 – 2008 (2 pages) is available upon request, otherwise, will form part of the contract sets to the successful bidder)

END OF SECTION 00 52 13

SECTION 00 72 13 - GENERAL CONDITIONS
OF THE STIPULATED PRICE CONTRACT
CCDC 2 - 2008

(A copy of section 00 72 13, Standard Construction Contract CCDC 2 – 2008 (23 pages) is available upon request, otherwise, will form part of the contract sets to the successful bidder)

END OF SECTION 00 72 13

SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS CCDC2 – 2008

The Canadian Standard Construction Document for Stipulated Price Contract (CCDC 2, 2008 version), Definitions and General Conditions governing same, shall be used by the project. The following Supplementary General Conditions are intended to supplement or amend the General Conditions, and where conflicts occur, the Supplementary Conditions shall take precedence.

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.

ARTICLE A-5 PAYMENT

Delete paragraph 5.1 in its entirety and insert:

5.1 "Subject to applicable legislation and the provisions of the Contract Documents, and in accordance with legislation and statutory regulations respecting holdback percentages and, where such legislation or regulations do not exist or apply, subject to a holdback of ten percent (10%) including the HST (Harmonized Sales Tax), the Owner shall:"

.1 Make progress payments to the Contractor on account of the Contract Price (work performed) when due in the amount certified by the Consultant together with Value Added Taxes as may be applicable to such payments, and
.2 Upon Substantial Performance of the Work as certified by the Consultant, pay to the Contractor the unpaid balance of monies then due, excepting that amounts as certified by the Consultant to rectify deficiency items, or incomplete portions of individual work items may be retained by the Owner pending Total Performance of the work or other authorization for the release by the Consultant, and
.3 Upon Total performance of the Work as certified by the Consultant pay to the contractor the unpaid balance of monies due together with such Value Added Taxes as may be applicable to such payment.

Change 5.3.1 (1) to read: "1% per annum above the prime rate."

Delete 5.3.2 (2) in its entirety.

DEFINITIONS

Add subparagraph 19a to definitions:

19a. Submittals

Submittals are documents or items required by the Contract Documents to be provided by the Contractor, such as:

1 Shop Drawings, samples, models, mock-ups to include details or characteristics, before the portion of the Work that they represent can be incorporated into the Work; and
2 As-built drawings and manuals to provide instructions to the operation and maintenance of the Work.

Add subparagraph 26 a, b and c to definition #26 "Working Day":

26a. HRCE hours of work – All work for HRCE is to be completed during hours when schools are unoccupied, unless otherwise indicated in writing by the Operations Manager or designate. Hours of work shall comply with local ordinances and bylaws for each site.

26b. No work shall be conducted on weekends or statutory holidays without specific written approval from the Operations Manager or designate.

26c. In the event that work is requested by HRCE during hours when schools are occupied, the work will be limited to work that is not disruptive to the school. There shall be no mechanical removals, no drilling, screwing or torch work during occupied hours without prior written approval from HRCE.

GC 1.1 CONTRACT DOCUMENTS

Add to the end of subparagraph 1.1.2.2:

1.1.2.2 Except where the Consultant shall be indemnified as a third party beneficiary as provided in subparagraphs 9.2.7.4, 9.5.3.4 and in 12.1.3.

Add subparagraph 1.1.7.5:

1.1.7.5 Should conflicts occur between Contract Documents and any work is done without consulting the Consultant for his decision, the Contractor shall assume full responsibility.

Add subparagraph to 1.1.7.6:

1.1.7.6 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the Contract Documents.

Delete paragraph 1.18 in its entirety and insert:

1.18 "The Contractor will be provided with up to a maximum of ten (10) copies, without charge, of the Contract Documents or parts thereof for the performance of the work. Extra copies may be obtained for cost of printing and mailing."

GC 2.4 DEFECTIVE WORK

Add new subparagraphs 2.4.1.1 and 2.4.1.2:

2.4.1.1 The Contractor shall rectify, in a manner acceptable to the Owner and the Consultant, all defective work and deficiencies throughout the Work, whether or not they are specifically identified by the Consultant.

2.4.1.2 The Contractor shall prioritize the correction of any defective work which, in the sole discretion of the Owner, adversely affects the day to day operation of the Owner.

GC 3.1 CONTROL OF THE WORK

Add new paragraph 3.1.3:

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

GC 3.4 DOCUMENT REVIEW

Delete paragraph 3.4.1 in its entirety and substitute new paragraph:

3.4.1 The Contractor shall review the Contract Documents and shall report promptly to the Consultant and error, inconsistency or omission the Contractor may discover. Except for its obligation to make such review and report the result, the Contractor does not assume any responsibility to the Owner or to the Consultant for the accuracy of the Contract Documents. The Contractor shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the Contract Documents, which the Contractor could not have reasonably have discovered. If the Contractor does discover any error, inconsistency, or omission in the Contract Documents the

Contractor shall not proceed with the work affected until the Contractor has received corrected or missing information from the Consultant.

GC 3.7 SUBCONTRACTORS AND SUPPLIERS

Add the following paragraph 3.7.7:

3.7.7 A copy of the agreement between Contractor and any subcontractor(s) shall be provided to the Consultant if so requested.

GC 3.8 LABOUR AND PRODUCTS

Add the following paragraph 3.8.4:

3.8.4 The Contractor is responsible for the safe on-site storage of Products and their protection (including Products supplied by the Owner and other contractors to be installed under the Contract) in such ways as to avoid dangerous conditions or contamination to the Products or other persons or property and in locations at the Place of the Work to the satisfaction of the Owner and the Consultant. The Owner shall provide all relevant information on the Products to be supplied by the Owner.

GC 3.10 SHOP DRAWINGS

Add the words "AND OTHER SUBMITTALS" to the Title after SHOP DRAWINGS in GC 3.10.

Add "and submittals" after the words "Shop Drawings" in paragraphs 3.10.1, 3.10.2, 3.10.4, 3.10.7, 3.10.8, 3.10.8.2, 3.10.9, 3.10.10, 3.10.11 and 3.10.12.

Delete 3.10.3 in its entirety and substitute new paragraph:

3.10.3 Prior to the first application for payment, the Contractor and the Consultant shall jointly prepare a schedule of the dates for submission and return of Shop Drawings and any Submittals.

Add the following subparagraph 3.10.6.1:

3.10.6.1 The following paragraph shall apply to each shop drawing and submittals reviewed in connection with the project. This review shall not mean that the Consultant approved the detailed design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same. The Contractor is responsible for information that pertains solely to fabricated processes or to techniques of construction and installation, and for coordination of the work of all sub trades.

Delete and insert the words in paragraph 3.10.12

3.10.12 "with reasonable promptness so as to cause no delay in the performance of the Work" and replace with "within ten (10) working days or such longer period as may be reasonably required"

PART 3 EXECUTION OF THE WORK

Add new GC 3.14 as follows:

GC 3.14 CONTRACTOR RESPONSIBILITY FOR WATER TIGHTNESS

GC 3.14.1 The drawings and specifications are not intended to depict each and every condition or detail of construction. As the knowledgeable party in the field, the contractor is in the best position to verify that all construction is completed in a manner which will provide a watertight structure. The contractor has the sole responsibility for ensuring the watertight integrity of the structure.

Add new GC 3.15 as follows:

GC 3.15 PERFORMANCE BY CONTRACTOR

GC 3.15.1 In performing its services and obligations under the Contract, the Contractor shall exercise a standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The Contractor acknowledges and agrees that throughout the Contract, the Contractor's obligations, duties and responsibilities shall be interpreted in accordance with this standard. The Contractor shall exercise the same standard of due care and diligence in respect of any products, personnel, or procedures which it may recommend to the Owner.

The Contractor further represents, covenants and warrants to the Owner that:

1. The personnel it assigns to the Project are appropriately experienced;
2. It has 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.

GC 4.1 CASH ALLOWANCES

Delete paragraph 4.1.4 in its entirety and substitute:

4.1.4 Where cost under a cash allowance exceed the amount of the allowances, unexpended amounts from other cash allowances shall be reallocated at the *Consultant's* direction to cover the shortfall.

Delete paragraph 4.1.5 in its entirety and substitute:

4.1.5 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the Contract Price by Change Order.

Delete paragraph 4.1.7 in its entirety and substitute:

4.1.7 At the commencement of the work, the Contractor shall prepare for the review and acceptance of the Owner and the Consultant, a schedule indicating the times, within the construction schedule referred to in GC 3.5, that items call for under cash allowances and items that are specified to be Owner purchased and Contractor installed or hooked up are required at the site to avoid delaying the progress of the Work.

Add new paragraph 4.1.8:

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

GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

Delete section GC 5.1 in its entirety.

GC 5.2 APPLICATION FOR PROGRESS PAYMENT

Add the following at the end of paragraph 5.2.2:

5.2.2 Such applications shall be accompanied by one or more of the following documents: a Statutory Declaration Waiver of Lien or receipt stating that the holdback monies claimed have been paid to the particular party or parties so named or referred to in the Declaration. Form of Statutory Declaration shall meet the approval of the Consultant.

Add the following paragraph 5.2.8:

5.2.8 The reference to payment for products delivered to the place of work in Article 5.2.7 shall not be construed as covering day-to-day financing of the project. Products delivered to the place of work shall be construed to mean major items of equipment or quantities of items that are essential for the expedient conduct of the work.

GC 5.3 PROGRESS PAYMENT

Supplement paragraph 5.3.1 by adding the following:

5.3.1 A holdback percentage of ten (10) percent (%) shall apply to progress payments. The sworn statement by the Contractor for release of holdback monies shall be in the form of a Statutory Declaration meeting the approval of the Consultant. Amounts as certified by the Consultant to rectify deficiency items, or incomplete portions of individual work items, may be retained by the Owner after Substantial Performance has been obtained, pending Total Performance of the work or other authorization for release by the Consultant.

Amend subparagraph 5.3.1.3 as follows:

5.3.1.3 Delete "20" and replace with "30."

GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK

Add the following paragraph 5.4.4:

5.4.4 Before the Contractor submits his application for Substantial Performance of the Work, all Operations and Maintenance Manual materials shall be submitted in accordance with the Contract Documents. The Certificate of Substantial Performance will not be issued until this requirement is met.

GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK

Add the following subparagraphs 5.5.1.3 and 5.5.1.4:

5.5.1.3 Submit a certificate from barrister stating that there are no Builders' Liens filed relating to the Contract Works.
5.5.1.4 Submit a clearance letter from the Workers' Compensation Board.

GC 5.7 FINAL PAYMENT

Add the following subparagraphs 5.7.1.1, 5.7.1.2, 5.7.1.3, 5.7.1.4 and 5.7.1.5:

5.7.1.1 Contractor's application for final payment is considered to be valid when the following have been performed:

1. Work has been completed and inspected for compliance with Contract Documents, and the Consultant is satisfied that all the requirements of the Contract have been fulfilled by the Contractor.
2. Defects have been corrected and deficiencies have been completed.
3. Equipment and systems have been tested, adjusted and balanced and are fully operational, and written reports as outlined in the Contract Documents have been provided to the Consultant.
4. Certificates required by Utility companies, manufacturer's representative and inspectors have been submitted.
5. Spare parts, maintenance materials, warranties and bonds have been provided.

5.7.1.2 If Work is deemed incomplete by Consultant, complete outstanding items and request re-inspection.

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

5.7.1.4 If, within sixty (60) days after the issue by the Consultant of the Certificate of the Substantial Performance, the Contractor has not corrected all the deficiencies, the Owner will retain sufficient money to cover the cost of completing said deficiencies, as determined by the Consultant, in addition to holding monies retained in accordance with the Contract and subject to the provisions of the Builders' lien legislation of Nova Scotia.

5.7.1.5 Neither the final certificate nor the payment thereunder, nor any provision in the Contract Documents shall relieve the Contractor from responsibility for faulty material or workmanship which shall appear within a period of one (1) year from the date of Substantial Performance of the Work and he shall remedy any defects due thereto and pay for any damage to other Work resulting therefrom which shall appear within such period of one year. The Owner shall give notice of observed defects promptly. This article shall not be deemed to restrict any liability of the Contractor arising out of any law in force in the Province of Nova Scotia.

GC 6.2 CHANGE ORDER

Add the following paragraphs 6.2.3, 6.2.4, 6.2.5, 6.2.5, 6.2.6 and 6.2.7:

6.2.3 All contemplated changes in the work shall be issued by the Consultant on a "Contemplated Change Order" form.

6.2.4 For lump sum pricing, the Contractor shall, upon receipt of the Contemplated Change Order, submit to the Consultant for approval within seven (7) days, a quotation for changes in the work.

6.2.5 Quotation for changes shall be priced in sufficient detail (GC6.6 applies).

6.2.6 Consultant shall, within five (5) working days, notify the Contractor whether estimates are accepted by Owner or further information required. Acceptance of Owner shall be indicated by writing, and a signed copy of form (Change Order) returned to Contractor.

6.2.7 Contractor shall take reasonable measures to stop work or minimize the work in areas affected by or related to the contemplated changes.

GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

Add new paragraph 6.4.5:

6.4.5 The *Contractor* confirms that, prior to bidding the *Project,* it carefully investigated the Place of the Work and applied to that investigation the degree of care and skill described in paragraph 3.15.1, given the amount of time provided between the issue of the bid documents and the actual closing of bids, the degree of access provided to the Contractor prior to submission of bid, and the sufficiency and completeness of the information provided by the Owner. The Contractor is not entitled to compensation or to an extension of the Contract Time for which could reasonably have been ascertained by the Contractor by such careful investigation undertaken prior to the submission of the bid.

GC 6.5 DELAYS

Delete the period at the end of paragraph 6.5.1 and substitute the following words:

6.5.1 ", but excluding any consequential, indirect or special damages."

Add new paragraph 6.5.6:

6.5.6 If the Contractor is delayed in the performance of the Work by any act or omission of the Contractor or anyone employed or engaged by the Contractor directly or indirectly, or by any

cause within the Contractor's control, then the Contract Time shall be extended for such reasonable time as the Consultant may decide in consultation with the Contractor. The Owner shall be reimbursed by the Contractor for all reasonable costs incurred by the Owner as the result of such delay, including all services required by the Owner from the Consultant as a result of such delay by the Contractor and, in particular, the cost of the Consultant's services during the period between the date of Substantial Performance of the Work stated in Article A-1 herein as the same may be extended through the provisions of these General Conditions and any later, actual date of Substantial Performance of the Work achieved by the Contractor.

Add new paragraph 6.5.7:

6.5.7 If the Contractor is delayed in the completion of the Work by any act or neglect of: The HRCE, any employee or either any other Contractor employed by The HRCE, changes ordered in the Work, strikes, lockouts, fire, unusual delay by common carriers, unavoidable casualties, any other cause of any kind whatsoever beyond the Contractor's control or by any cause within the Contractor's control which the Consultant shall decide as justifying the delay, then the time of completion shall be extended for such reasonable time as the Consultant may decide.

Add new paragraph 6.5.8:

6.5.8 No such extension shall be made for delay occurring more than seven (7) days before claim therefore is made in writing to the Consultant, provided however that in the case of a continuing cause of delay, only one (1) claim shall be necessary.

Add new paragraph 6.5.9:

6.5.9 If no schedule is made, no claim for delay shall be allowed on account of failure to furnish such schedule until two (2) weeks after demand for such schedule and not then unless such claim be reasonable.

Add new paragraph 6.5.10:

6.5.10 The Consultant shall not, except by written notice to the Contractor, stop or delay any part of the main Contract Work pending decisions or proposed changes.

GC6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE

Amend paragraph 6.6.5 as follows:

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

GC 6.7 VALUATION OF CHANGES

Add the following Header and paragraphs 6.7.1, 6.7.2, 6.7.3 and 6.7.4 in their entirety:

GC 6.7 VALUATION OF CHANGES

6.7.1 The value of any change shall be determined in one or more of the following way as determined by the Consultant:

(a) By estimate and acceptance in a lump sum, submitted with sub-contractors' and suppliers' signed quotations and breakdown estimates including itemized material and labour lists.
For changes where the individual trade cost is anticipated to be less than $1000, the requirement for the detailed cost breakdown may be waived, but individual trade quotation must be supplied.

(b) By unit prices agreed upon or as listed in the contract.

(c) Cost of work and percentage or by cost and fixed fee.

6.7.2 In cases of additional work to be paid for under method "c", the Contractor shall keep and present in such form as the Consultant may direct, a correct account of the net cost of labour and materials, together with vouchers. In any case, the Consultant shall certify to the amount due to the Contractor including the profit and overhead. Pending final determination of value, payments on account of changes shall be made on the Consultant's certificate.

6.7.3 In determination of method ".1(a) or ".1(c) above, the labour costs to be calculated by the actual estimated hours at an hourly rate determined as follows:

The hourly labour rate to be total payroll costs including hourly wage, statutory contributions to UIC, WCB, CPP, Training Funds, Health Benefits and other applicable labour burdens paid directly by the employer such as vacation pay, holiday pay, pension plan etc.

The HRCE reserves the right to verify the payroll cost by independent audit.

To the total payroll cost the following percentage factors will be recognized.

- small tools/expenditures 5% (on payroll costs)
- site supervision 5% (on payroll costs)

(d) In determination of methods ".1(a)" and ".1(c)" above, the material costs to be calculated as follows:

Contractors net costs, including contractor discounts from suppliers, FOB the project site plus applicable taxes.

(e) In determination of methods ".1(a)" and ".1(c)" above, equipment rental costs for major pieces of equipment required will be at local industry rates.

(f) In determination of methods ".1(a)" and ".1(c)" above, overhead and fees shall be calculated as follows:

The cost of any authorized change shall be determined by the net total of labour and material or equipment as outlined in ".3(a)", ".3(b)" and ".3(c)" above on which the percentage markup shall be determined as follows:

<u>For Extras Up to $5,000:</u>

Sub- Contractors Own Work	- Overhead & Fee – 15% total
General Contractors Own Work	- Overhead & Fee – 15% total
General Contractors on Sub Contractors work	- 10% total
(no percentage markup shall be applied to deductions)	

<u>For Extras Above $5,000:</u>

Sub-Contractors Own Work	- Overhead & Fee – 10% total
General Contractors Own Work	- Overhead & Fee – 10% total
General Contractors on sub contractor's work	– 8% total
(no percentage markup shall be applied to deductions)	

6.7.4 Submit to the Consultant and The HRCE's representative detailed breakdown of the hourly labour rate as defined in paragraph ".3(a)".

GC 8.2 NEGOTIATION, MEDIATION, AND ARBITRATION

<u>Add</u> the following paragraphs 8.2.9, 8.2.10, 8.2.11, 8.2.12, 8.2.13, 8.2.14, and 8.3:

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 Contractor shall give 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 Contractor or the Owner, as the case may be, wishes to raise in relation to the Consultant arising out of the issues in dispute in the arbitration.

8.2.10 The Owner and the Contractor agree that the 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 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 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 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 Consultant has elected under paragraph 8.2.10 to become a full party may:

a) on application of the Owner or the Contractor, determine whether the Consultant has satisfied the requirements of paragraph 8.2.10, and;

b) make any procedural order considered necessary to facilitate the addition of the 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 Consultant to any sub-consultant.

8.2.14 In the event of notice of arbitration given by the Consultant to a sub-consultant, the 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.

8.3 An application for arbitration shall be accompanied by security in the amount of $1000 to apply to the cost of arbitration. Any claims of excess costs must be submitted in writing to the Consultant within two weeks of completion or alleged completion of the work. No claims shall be accepted after this date and, also, no claims shall be accepted for disputed work unless the Consultant has been notified as specified.

GC 9.1 PROTECTION OF WORK AND PROPERTY

Delete subparagraph 9.1.1.1 in its entirety and substitute the following new paragraph 9.1.1.1:

9.1.1.1 errors in the Contract Documents which the Contractor could not have discovered applying the standard of care described in paragraph 3.15.1.

Delete paragraph 9.1.2 in its entirety and substitute the following new paragraph 9.1.2:

9.12 Before commencing any Work, the Contractor shall determine the locations of all underground utilities and structures indicated in the Contract Documents, or that are discoverable by applying to an Inspection of the Place of Work exercising the degree of care and skill described in paragraph 3.15.1.

GC 9.2 TOXIC AND HAXARDOUS SUBSTANCES

Add in paragraph 9.2.6 after the word "responsible", the following new words:

9.2.6 Or whether any toxic or hazardous substances or materials already at the Place of Work (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the Owner and others,

Add in subparagraph 9.2.7.4:

9.2.7.4 "and the Consultant" after "Contractor":

Add in paragraph 9.2.8 after the word "responsible", the following new words:

9.2.8 or that any toxic or hazardous substances or materials already at the Place of the Work (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirement, or which threatens, humane health and safety or the environment, or material damage to the property of the Owner or others.

GC 9.5 MOULD

Add in subparagraph 9.5.3.4:

9.5.3.4 "and the Consultant" after "Contractor"

GC 10.1 TAXES AND DUTIES

Add the following paragraph 10.1.3:

10.1.3 The Contractor shall indicate on each application for payment as a separate amount, the appropriate Harmonized Sales Tax the Owner is legally obliged to pay. This amount will be paid to the Contractor in addition to the amount certified for payment under the Contract.

GC 10.2 LAWS, NOTICES, PERMITS AND FEES

Delete from the first line of paragraph 10.2.5 the word, "The" and substitute the words:

10.2.5 "Subject to paragraph 3.15.1, the"

GC 10.4 WORKERS' COMPENSATION

Add the following paragraphs 10.4.3, 10.4.4, and 10.4.5:

10.4.3 The contractor is referred to regulations, as applicable, under the Worker's Compensation Act of Nova Scotia.

10.4.4 Registration with Worker's Compensation Board shall be continuous during the contract. Should registrations be scheduled to expire during the contract period, the Contractor shall submit a copy of registration renewal one month prior to the expiration of the current certificate.

10.4.5 The Contractor shall furnish evidence of coverage under the Worker's Compensation Act, R.S.N.S. and a clearance Certificate providing proof of registration with Worker's Compensation Board prior to commencement of work. (A photocopy of the Contractors registration certificate is acceptable proof). On-going proof of good standing with the Worker's Compensation Board during the term of the contract is required.

GC 11.1 INSURANCE

Delete sentences and replace with the following in subparagraph 11.1.1.1:

11.1.1.1 "General liability insurance shall be maintained from the commencement of the work until one year from the date of Substantial Performance of the Work. Liability coverage shall be provided for completed operations hazards from the date of Substantial Performance of the Work, as set out in the certificate of Substantial Performance of the Work, on an ongoing basis for a period of 6 years following the Substantial Performance of the Work**" and replace with:** " General Liability Insurance or Wrap-Up Liability

Insurance, (as detailed in the Information to Tenders section under "Insurance Requirements"), shall be maintained from the commencement of the work until final completion and acceptance of the work including the making good of faulty work or materials, except that coverage of completed operations liability shall in any event be maintained for twelve (12) months from date of Substantial Performance of the work as certified from the Consultant, and approved by the Owner".

Add the following subparagraphs 11.1.1.1.1, 11.1.1.1.2, and 11.1.1.2.1:

11.1.1.1.1 The general liability insurance to be maintained by the Contractor shall include Commercial General Liability Insurance covering Premises and Operations Liability, elevators, board form property damage, board from automobile, owners and contractors protective, blanket contractual, personal injury, completed operations liability contingent employers liability, cross liability clause, non-owned automobile liability, and a 30 day notice of cancellation clause.

11.1.1.1.2 All liability insurance policies shall be written in such terms as will fully protect the Contractor and
The Halifax Regional Centre for Education as an additional named insured.

11.1.1.2.1 Liability coverage of not less than two million dollars ($2,000,000) is required with regard to operations of owned automobiles.

Delete subparagraph 11.1.1.4 in its entirety and insert the following subparagraphs:

11.1.1.4 Broad Form (All Risks) Builders Risk Coverage - Prior to the commencement of any Work the Contractor shall maintain and pay for Broad Form (All Risks) Builders Risk Coverage in the joint names of The HRCE and the Contractor totaling not less than one hundred percent (100%) of the total value of the Work done and materials delivered on the site (contract value), so that any loss under such policies of insurance will be payable to The HRCE and the Contractor as their respective interests appear. The Builders Risk Insurance shall include all materials related to the work while in transit or at other locations.

11.1.1.4.1 Should a loss be sustained under the Builders Risk Coverage, the Contractor shall act on behalf of The HRCE and Contractor for the purpose of adjusting the amount of such loss with the insurance companies. As soon as such adjustment has been satisfactorily completed, the Contractor shall proceed to repair the damage and complete the Work and shall be entitled to receive from The HRCE in addition to any sum due under the Contract, the amount at which The HRCE interest has been appraised in the adjustment made with the insurance companies as referred to above, said amount to be paid to the Contractor as the Work of restoration proceeds. Any loss or damage which may occur shall not affect the rights and obligations of either party under the Contract except as aforesaid and except that

the Contractor shall be entitled to a reasonable extension of time for the performance of the Work, as The HRCE may decide.

11.1.1.4.2 Upon approval by The HRCE of the Substantial Performance certificate issued by the Consultant, the Contractor's obligation to maintain Builder Risk Insurance shall cease and The HRCE shall assume full responsibility for insuring the whole of the Work against loss or damage.

11.1.1.4.3 "Broad form" property insurance in the joint names of the *Contractor,* the *Owner* and the *Consultant.* The policy shall include as insureds all *Subcontractors* The Broad form" property insurance shall be provided from the date of commencement of the *Work* until the earliest of:

11.1.4.3.1 Ten (10) Calendar days after the date of *Substantial Performance of the Work;*

11.1.4.3.2 on the commencement of use or occupancy of any part or section of the *Work* unless such use or occupancy is for construction purposes, habitational, office, banking, convenience store under 465 square meter in area, or parking purposes, or for the installation, testing and commissioning or equipment forming part of the *Work*; and

11.1.4.3.3 when left unattended for more than thirty (30) consecutive calendar days or when construction activity has ceased for more than thirty (30) consecutive calendar days.

Paragraph 11.1.2 is clarified as follows:

11.1.2 Submit certified true copies of each insurance policy to the Owner's Contract Authority within seven (7) working days after notification of award or in any event prior to payment of the first progress claim. Such copies shall be exclusive of information pertaining to premium or premium bases used by the insurer to determine the cost of the insurance. Prior to the commencement of any work, the Contractor shall file with the Owner a certified copy of each insurance policy and certificate required.

Delete 11.1.5 in its entirety and replace with the following:

11.1.5 Insurance contracts shall be procured from and the premiums paid to a resident agent of an insurance Company licensed to underwrite insurance in the Province of Nova Scotia.

Add the following paragraph 11.1.9:

11.1.9 All of the insurance policies shall contain a clause stating that no change in terms and conditions or cancellation may at any time be made without the full knowledge and consent of the owner.

GC 11.2 CONTRACT SECURITY

Add the following subparagraph 11.2.2.1:

11.2.2.1 "Bonds shall be procured from a Nova Scotia resident agent of an insurance company licensed to do business in Nova Scotia and shall be maintained in good standing and held by the Owner until one (1) year after Substantial Performance of the Work.

Add the following paragraph 11.2.3:

11.2.3 If a Certified Cheque is held as contract security it shall be in an amount equal to ten (10) percent (%) of the Contract Price. Supplement the Certified Cheque as necessary to maintain the amount equal to ten (10) percent (%) of the total amount payable (Contract Price plus HST).

.1 The Certified Cheque will be deposited at the chartered bank holding The HRCE deposits.
.2 The HRCE will return the cheque amount to the Contractor upon satisfactory completion of the contract and duration as specified in the Tender documents.
.3 Should Contractor default, total amount payable under the Certified Cheque will be the face value of the cheque plus all accrued interest.
.4 Payment for completion of work, due to failure of performance of the Contractor, shall include all reasonable obligations under the Contract, including architectural and engineering costs arising because of the default of the Contractor.
.5 Payment for labour and materials shall be limited to those who have a direct contract with the Contractor for the provision of labour and/or material (which includes equipment rental).

GC 12.3 INDEMNIFICATION

Add the following paragraph 12.1.1.3:

12.1.1.3 The Contractor shall indemnify and hold harmless the Consultant, its agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceeding by third parties that arise out of, or are attributable to, the Contractor's performance of the Contract, provided such claims are attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, and caused by negligent acts or omissions of the Contractor or anyone for whose acts the Contractor may be liable, and made in writing within a period of six (6) years from the date of Substantial Performance of the Work, or within such shorter such period as may be prescribed by any limitation statute or the province or territory of the Place of Work.

GC 12.3 WARRANTY

Delete from the first line the word, "The" and substitute the words in paragraph 12.3.2:

12.3.2 "Subject to paragraph 3.15.1, the…"

Add the following paragraph 12.3.7:

12.3.7 Warranty repairs or replacements which arise during warranty period which affect the operation of the system shall be attended to immediately upon notification from the Consultant.

END OF SECTION 00 73 00

SECTION 01 11 00 - HRCE SUMMARY OF WORK

1. Project Location & General Scope

1.1. ***Portable Classrooms***
Various Locations within the HRCE

1.2. Scope: Refer to Section 00 00 15 for scope and schedule information.

2. Contract Documents

2.1. Work will be performed under CCDC-2, 2008 contract.

3. General Conditions

3.1. Halifax Regional Centre for Education and CCDC-2, 2008, form an integral part of this Project Manual, a copy of which is bound herein.

4. Project Manual

4.1. Sections of the Project Manual are numbered in conformance with the Master List of Section Titles and Numbers, CSC Document 004E, published jointly by Construction Specifications Canada and The Construction Specifications Institute (USA). Sections are arranged in their standard format.

4.2. Sections are written as units of the Work which have been assigned numbers in conformance with the CSC/CSI system. They are arranged in sequence for this Manual. Gaps in the order of numerical sequence do not indicate that a section has been inadvertently omitted from this Manual, but, rather that a Section is not required for completion of the Work.

4.3. Wherever the project location building name occurs in the Contract Documents it shall be taken to mean all work included in the Contract.

4.4. Wherever in the Contract Documents the words "approval", "approved", "direction", "directed", "selection", "selected", "request", "requested", "report", and similar words are used, such approvals, directions, selections, requests and reports shall be given by the HRCE unless specifically stated otherwise.

4.5. Wherever in the Contract Documents the word "provide" is used in any form, it shall mean that the Work concerned shall include both supply and installation of the products required for completion of that part of the Work.

4.6. Wherever in this Project Manual it is specified that Work is to proceed or to meet approval, direction, selection or request of jurisdictional authorities or others, such approval, direction,

selection or request shall be in writing.

5. Errors & Omissions

5.1. If errors or omissions are observed in the Contract Documents, immediately notify the HRCE Procurement in writing of all such errors or omissions. In the event no such notice is given, the Contractor will be held responsible for the results of any such error or omission and the cost of rectifying the same.

6. Division 1

6.1. The provisions of all Sections of **Division 1** shall apply to each Section of this Specification**.**

7. Wage Rates

7.1. Pay all employees engaged on the Work a wage not less than the minimum wage per hour as set out by the Province of Nova Scotia. For overtime work beyond 48 hours in any one week, pay no employee at a rate of less than one and one-half times the minimum wage per hour noted above. Provide for these wage rates in tendered contract amount.

8. Work Performed Under Separate Contracts

8.1. Work not to be included in the Contract, as noted "NIC" on the Drawings, shall be governed by Article 37, Separate Contracts, of General Conditions of Contract.

8.2. Furniture installation will be carried out by others.

8.3. Computer installation will be carried out by others.

9. Project Schedule

9.1. Refer to Section 00 00 15 Description of Work.

9.2. Existing services (mechanical & electrical) will need to be maintained through the renovations.

9.3. During construction, all life safety systems as well as mechanical and electrical systems must be in active, usable condition to permit the school to operate or alternate methods used to ensure the safe operation of the school as directed by HRCE project representative.

9.4. As construction progresses revise the schedule to compensate for any delays or unforeseen activities so as to maintain the contract completion date. Each schedule submission is to be complete with a statement indicating the changes made, the reason they were changed and confirmation that the project completion date will not change. The above schedule

information is to be submitted monthly or more often if necessary.

10. Site Progress Records

10.1. Maintain at site a permanent written record of progress of Work. Make the record available at all times with copies provided when requested. Include in record each day:

10.1.1. Commencement and completion dates of the Work of each trade in each area of Project.

10.1.2. Attendance of Contractor's and Subcontractor's Work forces at Project and a record of the work they perform.

10.1.3. Visits to site by representatives of the Owner, Engineer, jurisdictional authorities, Contractor, Subcontractors, and suppliers.

10.2. Maintain a progress chart in approved format. Show on chart proposed Work schedule and progress of Work by Contractor and Subcontractor.

11. Examination

11.1. Site:

11.1.1. Examine site, and ensure that site conditions have been examined, that all are fully informed on all particulars which affect Work thereon and at the place of construction, and in order that construction proceeds competently and expeditiously.

11.1.2. Ensure by examination that all physical features, and working restrictions and limitations which exist are known.

11.2. Previously Completed Work:

11.2.1. Verify dimensions of existing Work in place before construction of Work to be incorporated with it.

11.2.2. Verify that previously executed Work and surfaces are satisfactory for construction, and that performance of subsequent Work will not be adversely affected.

11.2.3. Commencement of Work will constitute acceptance of site conditions and previously executed Work as satisfactory.

11.2.4. Report to Engineer defects in prior Work which will affect quality of subsequent Work, or construction schedule.

11.3. Construction Measurements:

11.3.1. Before commencing installation of Work, verify that its layout is accurate in accordance with intent of Drawings, and that locations, elevations, and clearances to adjacent infrastructure are maintained.

11.3.2. If Work is installed in wrong location, rectify it before other Work concerned proceeds.

12. PROTECTION OF WORK, PROPERTY & PERSONS

12.1. Include in Work necessary methods, materials, and construction to ensure that no damage or harm to Work, materials, property and persons results from the Work of this Contract. Temporary facilities relating to protection are specified in Section 01 52 00.

12.2. Protect, and if damaged make good, adjacent private and public property.

12.3. Keep surfaces, on which finish materials will be applied, free from grease, oil, and other contamination which would be detrimental in any way to the application of finish materials.

12.4. Protect finished surfaces of completed Work from damage by restriction of access or by use of physical means suitable to the material and surface location. Establish with each Subcontractor the suitability of such protection in each case.

12.5. Protect existing underground infrastructure, mechanical, electrical, telephone and similar services from damage. If necessary, relocate active services to ensure that they function continuously in safety and without risk of damage.

12.6. Cap off and remove unused utility services encountered during Work after approval is given by the utilities concerned or jurisdictional authorities, whichever may apply. Relocation, removal, protection and capping of existing utility services shall be performed only by the applicable utility and of other services by licensed mechanics.

12.7. To prevent soiling or damage to finish flooring where pedestrian traffic occurs after the flooring has been installed, install and maintain 6 mil. polyethylene membrane or reinforced kraft paper temporary protection, secured in place and with joints sealed by reinforced pressure sensitive tape.

12.8. Install plywood panels of minimum ¼" thickness over completed finish flooring materials, on which further construction Work is performed by other trades or delivery of products is made, or both. Seal joints between panels with reinforced pressure sensitive tape.

12.9. Prevent spread of dust beyond the construction zone by wetting, or by other approved means, as it accumulates.

12.10. The outside work area shall be appropriately demarked and/or surrounded by rigid chain link panels or fencing (at the cost of the contractor) to prevent unauthorized entry to the work area. Any area of roof having work completed is to be covered below with this fencing approximately 10' from the edge of the building. It is to be maintained at all times throughout the project. All waste disposal bins are to be fenced in using the same type of fencing as indicated above during working hours. After working hours, all waste disposal bins shall be located a minimum of 25 feet from any structure. Any windows where the debris chute is located are to be covered. All entrances below the roof area are to have covered scaffolding erected to ensure a safe travel path to a distance of ten feet from edge of building. All workers shall contain their activity to the work site area. Access to the school

shall only be allowed as planned in coordination with HRCE Operations and the school administration.

12.11. All security on site shall be coordinated through HRCE using an HRCE preferred vendor.

12.12. The contractor is responsible for the cost of security for all project materials.

12.13. If access to the project site is required inside the building, HRCE will provide security personnel at its own cost.

12.14. The contractor shall keep the work site free from accumulated debris caused by the employees or work and shall remove all debris at the end of each work shift. Debris shall not be deposited in HRCE controlled garbage and/or recycling containers.

12.15. All waste materials and debris created during demolition and/or construction shall be disposed of in a dumpster provided by the contractor, to be removed at the end of the construction project, using a methodology that is in compliance with the applicable HRM solid waste by laws. Otherwise, the material must be removed and disposed of off-site at the end of each working day. The waste materials may not be stored on site unless they are held in an approved project dumpster no closer than twenty five (25) feet from any structure.

12.16. All temporary structures such as portable washroom facilities, materials storage trailer, work trailer, debris dumpster, vehicles, etc., shall be located a minimum of (25) twenty-five feet from the school building.

12.17. Where applicable, a hot work permit will be required to be completed and approved by HRCE prior to commencement of work and all conditions of the permit must be maintained until completion of hot work. A copy of the hot work permit signed by the contractor representative shall be provided to HRCE upon completion of each hot work session. Contractor must assign a designated fire watch as noted on the permit document who shall remain on site for three hours after completion of each hot work session.

12.18. A school washroom will be designated for use where appropriate. However, protection of the surfaces as indicated above must be maintained. It should also be noted that access to the building during summer months will be limited for security reasons. Contractor is responsible to provide temporary portable washroom facilities for general use of contractor staff.

12.19. Access to Interior of School - All interior access is to be scheduled with the PM. This will allow for notice to the school admin., custodial and possible scheduling of a security guard for after hour access.

12.20. Adhesives / Torch Work - All adhesive use and torch work must be completed after school hours. Contractor must assign a designated fire watch as indicated above in 12.17.

13. Cleaning

13.1. Ensure that during and after construction the public streets and existing asphalt parking lot are cleaned as required.

14. Salvage

14.1. Unless otherwise specified, salvaged material resulting from construction, and surplus materials and construction debris shall become property of Contractor, who must dispose of it away from Site.

15. Site Limitations

15.1. Since the existing building will be occupied during the Work (in accordance with the Phasing Schedule) the Architect will designate the precise areas on the site which may be utilized for work and storage, and where personnel will be permitted to be present. Refer also to Drawings. Allow for hoarding to secure construction areas from occupied portions of the Building and Site.

15.2. All access to the construction site is to be coordinated with the Project Manager for HRCE and communicated at the pre-construction meeting.

15.3. Any Work carried out in the building is to be carried out during hours approved by the School Administration.

15.4. Any disruption to services within the building must occur during hours approved by School Administration.

15.5. Any Work which may have an adverse effect on the occupancy functions, must have prior approval of the School Administration and **may** require scheduling during off-hours.

16. Security Regulations

16.1. Perform Work in conformance to the security regulations of the building as directed by the Project Manager for HRCE.

17. Project Identification

17.1. No project sign is required on this Project.

18. Owner's Occupancy

18.1. The Owner reserves the right to occupy and use portions of the Project, whether partially or entirely completed, or whether completed on schedule or not, provided such occupancy does not interfere with the Contractor's continuing Work.

18.2. Partial occupancy or installation by the Owner of his equipment shall not imply acceptance of the Project in whole, or in part, nor shall it imply acknowledgement that terms of the Agreement are fulfilled.

END OF SECTION 01 11 00

SECTION 01 11 25 - PRICES

1. General

1.1. Prices included in the Contract shall be complete for the applicable Work, and shall include for each price:

1.1.1. Expenditures for wages and for salaries of workmen, engineers, superintendents, draftsmen, foremen, timekeepers, accountants, expeditors, clerks, watchmen and such other personnel as may be approved, employed directly under the Contractor and while engaged on the applicable Work at the site and expenditures for travelling and HRCE allowances of such employees when required by location of the applicable Work or when covered by trade agreements and when approved; provided, however, that nothing shall be included for wages or salary of the Contractor if an individual, or of any member of the Contractor's firm if the Contractor is a firm or the salary of any officer of the Corporation if the Contractor is a corporation, unless otherwise agreed to in writing.

1.1.2. Expenditures for material used in or required in connection with the construction of the applicable Work including material tests and required by the laws or ordinances of any authority having jurisdiction and not included under Subparagraph .9.

1.1.3. Expenditures for preparation, inspection, delivery, installation and removal of materials, equipment, tools and supplies.

1.1.4. Temporary facilities as required for the applicable Work.

1.1.5. Travelling expenses properly incurred by the Contractor in connection with the inspection and supervision of the applicable Work or in connection with the inspection of materials prepared or in course of preparation for the applicable Work and in expediting their delivery.

1.1.6. Rentals of all equipment whether rented from the Contractor or others, in accordance with approved rental agreements including any approved applicable insurance premiums thereon and expenditures for transportation to and from the site of such equipment, costs of loading and unloading, cost of installation, dismantling and removal thereof and repairs or replacements during its use on the applicable Work, exclusive of any repairs which may be necessary because of defects in the equipment when brought to the Work or appearing within thirty (30) days thereafter.

1.1.7. The cost of all expendable materials, supplies, light, power, heat, water and tools (other than tools customarily provided by tradesmen) less the salvage value thereof at the completion of the applicable Work.

1.1.8. Assessments under the Workmen's Compensation Act, the Unemployment Insurance Act, Canada Pension Act, statutes providing for government hospitalization, vacations with pay or any similar statutes; or payments on account of usual vacations made by the Contractor to his employees engaged on the applicable Work at the site, to the extent to which such assessments or payments for vacations with pay relate to the Work covered by the specified price; and all sales taxes or other taxes where applicable.

1.1.9. The amounts of all Subcontracts related to the specified price.

1.1.10. Premiums on all insurance policies and bonds called for under this Contract as related to the specified price.

1.1.11. Royalties for the use of any patented invention on the applicable Work.

1.1.12. Fees for licenses and permits in connection with the applicable Work. No Building Permit is required for the project.

1.1.13. Duties and taxes imposed on the applicable Work.

1.1.14. Such other expenditures in connection with the applicable Work as may be approved.

1.1.15. Provided always that except with the consent of the Owner, the above items of cost shall be at rates comparable with those prevailing in the locality of the Work.

END OF SECTION 01 11 25

SECTION 01 11 41 - PROJECT COORDINATION

1. Requirements Included

1.1. Each Trade Contractor's responsibilities include the coordination of Work within his own Contract and with the Work of other Contracts.

2. Related Requirements

2.1. Project Meetings: Section 01 31 19

2.2. Submittals: Section 01 33 00

3. Description

3.1. Coordinate Work on which subsequent Work depends to facilitate mutual progress, and to prevent conflict between parts of the work.

3.2. Ensure that each Section makes known for the information of the Construction Manager and other Sections, the environmental and surface conditions required for the execution of its Work, and the sequence of others Work required installation of its Work.

3.3. Ensure that each Section, commencing Work, and that each Section is assisted in the execution of its preparatory Work by Sections depending upon its preparation.

3.4. Deliver materials supplied by one Section to be installed by another well before the installation begins.

3.5. Sections giving installation information in error, or too late to incorporate in the Work, shall be responsible for having Work done which was thereby additionally made necessary.

3.6. Coordinate warranty conditions of interconnected Work to ensure that full coverage is obtained.

3.7. Remove work installed in error which is unsatisfactory for subsequent Work.

4. Cutting And Patching

4.1. Include under Work of this Section all cutting and patching of asphalt required by the Work.

4.2. Finish new surfaces flush with existing surfaces.

4.3. Cut and patch as required making work fit.

4.4. Make cuts with clean, true, smooth edges.

4.5. Patching of existing or new asphalt shall be performed only by workmen with expertise in that particular trade and who normally perform that Trade.

4.6. Replace, and otherwise make good, damaged or defective Work. If required by the Construction Manager.

4.7. Do not endanger Work or property by cutting, digging, or similar activities. No Section shall cut or alter the Work of another Section unless approved by the Section which has installed it.

4.8. Cut and drill with true smooth edges and to minimum suitable tolerances.

4.9. If required, before cutting, drilling, or sleeving structural load bearing elements, obtain approval of location and methods.

4.10. Cutting, drilling and sleeving of Work shall be done only by the Section which has installed it. The Section requiring drilling and sleeving shall inform the Section performing the Work of the location and other requirements for drilling and sleeving. The Contractor shall directly supervise performance of cutting and patching.

4.11. Cutting and Patching for Holes Required by Mechanical & Electrical Work:

4.11.1. Include under Work of Mechanical Divisions cutting or provision of holes up to 8" in diameter and related patching.

4.11.2. Include under Work of this Section holes and other openings required by the work of Mechanical Divisions which are larger than 8" in diameter or least dimension, and chases, bulkheads, furring and required patching. This Section shall be responsible for determination of Work required for holes in excess of 8" diameter or least dimension.

4.11.3. Include under the Work of Electrical Divisions all cutting or provision of holes and related patching for the Work of that Division.

4.12. Include under Work of this Section all other cutting and patching required by the Work except as described in Clause .11 above.

4.13. Patching or replacement of damaged Work shall be done by the Subcontractor under whose Work it was originally executed, and at the expense of the Subcontractor who caused the damage.

4.14. Make patches invisible in final assembly.

5. Quality Assurance

5.1. Requirements of Regulatory Agencies:

5.1.1. Make known and coordinate the requirements of jurisdictional authorities, as made explicit by the Contract Documents, and by representatives of such authorities

5.2. Source Quality Control:

5.2.1. Ensure that Work meets specified requirements

5.2.2. Schedule, supervise and administer inspection and testing as specified in Section 01 45 00.

5.3. Job Records:

5.3.1. Maintain job records and ensure that such records are maintained by subcontractors.

Submittals

5.4. Prepare a Project schedule in accordance with Section 01 33 00, and ensure that all subcontractors and suppliers are aware of the details of this schedule, and progressively of their general compliance with the schedule.

5.5. Become aware of the required submittals specified in each Section, and expedite submission of such submittals so as not to hinder the Project Schedule.

5.6. Review submittals and make comments as specified in Section 01 33 00.

6. Job Conditions

6.1. Ensure that Work proceeds under conditions meeting specified environment and job safety requirements

6.2. Ensure that protection of adjacent property and the Work is adequately provided and maintained to meet specified requirements.

7. Product Delivery, Storage And Handling

7.1. Site has limited spaces for storage, only delivery of materials agreed upon by the Construction Manager will be allowed. Comply with Construction Manager's allocations. Any requirement for modifications to the building in order to allow delivery and storage of the materials to complete this work is the responsibility of the contractor.

7.2. Schedule delivery of products & removal of material with Construction Manager.

7.3. Make available areas for storage of products and construction equipment to meet specified requirements, and to ensure a minimum of interference with progress of the Work and relocations.

7.4. Trade Contractor to provide flag persons, traffic signals, barricades and Flares/lights/lanterns as required to perform the Work and to protect the public.

7.5. Material and Waste - Deliveries and Removals - Must be coordinated to be completed 30 minutes after school dismissal where applicable.

END OF SECTION 01 11 41

SECTION 01 31 19 – PROJECT MEETINGS

1. Pre-Award Meeting

1.1. A Pre-award meeting will be held at which time the following will be addressed:

- **1.1.1.** Owner and HRCE's functions.
- **1.1.2.** The Consultant and the Consultant's functions.
- **1.1.3.** The General Contractor and the General Contractor's functions.
- **1.1.4.** Documentation requirements from the General Contractor.
- **1.1.5.** Obligee for Performance and Payment Bonds from Sub-contractors.
- **1.1.6.** Progress Claims.
- **1.1.7.** CO's & CCO's.
- **1.1.8.** Construction Schedule.
- **1.1.9.** Project Start-up.
- **1.1.10.** Job Meetings.
- **1.1.11.** Superintendent – General Contractor's Representative.
- **1.1.12.** Design / Administration authority.
- **1.1.13.** Owner's Representative.
- **1.1.14.** Special Consultants.
- **1.1.15.** Quality of Workmanship.
- **1.1.16.** Accountability.
- **1.1.17.** Harmonized Sales Tax.
- **1.1.18.** Contract Close-out Documentation.

2. Preconstruction Meeting

2.1. Within fifteen (15) days after award of Contract, arrange a meeting between the, Consultant, Subcontractors, Project Superintendents, Inspection and Testing Company Representatives, and representatives of others whose coordination is required during construction.

2.2. Discuss at the meeting the means by which full cooperation and coordination of the participants during construction can be achieved.

2.3. Document the responsibilities and necessary activities of the participants during construction as discussed, and distribute to each participant.

2.4. Establish procedures for maintenance and completion of Project record drawings specified in Section 01 77 00.

2.5. Review and establish methods of maintaining life safety and egress for the school occupants. Communicate these methods thoroughly with the School Principal.

3. Progress Meeting

3.1. Invite representatives of HRCE, to attend twice monthly site meetings called by the Contractor during the progress of the Work.

3.2. Inform HRCE of each meeting and of proposed agenda a minimum of five (5) days before meeting.
3.3. Submit proposed schedule of site meetings to Engineer and Owner.
3.4. Record, prepare and distribute minutes of each meeting to HRCE and to each other participant within 72 hours of meeting.
3.5. Ensure that all representatives who attend meetings have the authority to conduct business on behalf of firms they represent.
3.6. Details of Progress Meetings to be discussed at the project start-up meeting.

4. Suggested Agendum (Preconstruction Meeting)

4.1. Distribution and discussion of:
4.1.1. List of major subcontractors and suppliers.
4.1.2. Projected Construction Schedules.
4.2. Critical work sequencing.
4.3. Major equipment deliveries and priorities.
4.4. Project Coordination:
4.4.1. Designation of responsible personnel.
4.5. Procedures and Processing of:
4.5.1. Field decisions
4.5.2. Proposal requests
4.5.3. Submittals
4.5.4. Change orders
4.5.5. Applications for Payment.
4.6. Adequacy of distribution of Contract Documents.
4.7. Procedures for maintaining Record Documents.
4.8. Use of premises:
4.8.1. Office, work and storage areas.
4.8.2. Owner's requirements.
4.9. Construction facilities, controls and construction aids.
4.10. Safety/Tool Box Meetings.
4.11. Security procedures.
4.12. Housekeeping procedures.
4.13. Egress/life safety procedures

5. Suggested Agendum (Progress Meetings)

5.1. Review and approval of minutes of previous meeting.
5.2. Safety meeting minutes.
5.3. Review of work progress since previous meeting.
5.4. Field observations, problems, conflicts.
5.5. Problems which impede Construction Schedule.
5.6. Review of off-site fabrication, delivery Schedules.

5.7. Corrective measures and procedures to regain projected schedules.
5.8. Revisions to Construction Schedules.
5.9. Maintenance of quality standards.
5.10. Pending changes and substitutions and effect on Construction Schedule.
5.11. Other Business.

6. Attend, with representatives of HRCE weekly meetings with the School Administration to review construction activities and concerns of Building Occupants.
7. Quarterly meetings with Contractor and the HRCE / User during Warranty Period including major sub-trade contractors.
8. Dates for meetings will be set at time of completion.

END OF SECTION 01 31 19

SECTION 01 33 00 – SUBMITTAL PROCEDURES

1. General Requirements

1.1. Make submittals specified in this Section to Consultant unless otherwise specified, with additional submissions made, in manner he directs, to other parties involved with construction of the Project as their interests are concerned. These parties are, but shall not be restricted to, consultants, jurisdictional authorities, and Subcontractors whose Work must be coordinated with Work related to Submittals.

1.2. Ensure that submissions are made to allow sufficient time for review without the construction schedule being delayed.

2. Document Submissions Required

2.1. At Commencement of Contract:

2.1.1. Performance and Payment Bonds.

2.1.2. Public Liability and Property Damage Insurance Certificates.

2.1.3. List of Subcontractors by firm name.

2.1.4. Construction Schedule and other required schedules and estimates.

2.1.5. Site Specific Safety Plan/Safety Policy.

2.1.6. Workers' Compensation Board status.

2.2. During Construction:

2.2.1. Weekly progress reports.

2.2.2. Job meeting reports and minutes.

2.2.3. Updated construction schedules.

2.2.4. Shop drawings as required.

2.2.5. Inspection and test reports.

2.2.6. Daily communication of Hot Work Permits as needed.

2.3. Submissions at completion of Work are specified in Section 01 77 00, Contract Closeout.

3. Administrative

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

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

3.3. Present shop drawings, product data, samples and in Imperial units.

3.4. Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has

been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

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

3.6. Verify field measurements and affirm that affected adjacent work is coordinated.

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

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

3.9. Keep one review copy of each submission on site.

4. Construction Schedules

4.1. Submit proposed construction schedule at beginning of Project, as specified in Project Documents.

4.2. As construction progresses, submit up-dated construction schedules as specified in Project documents.

5. Shop Drawings And Product Data

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

5.2. Submit drawings stamped and signed by professional consultant registered or licensed in Province of Nova Scotia of Canada.

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

5.4. Allow seven (7) days for Consultant's review of each submission. Do not proceed with work involving relevant products until completion of shop drawing review.

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

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

Accompany submission with transmittal letter, in duplicate, containing:

5.6.1. Date

5.6.2. Project title and number

5.6.3. Contractor's name and address

5.6.4. Identification and quantity of each shop drawing, product data and sample.

5.6.5. Other pertinent data.

5.7. Submission to include:

5.7.1. Date and revision dates.

5.7.2. Project title and number.

5.7.3. Name and address of:

5.7.3.1. Subcontractor.

5.7.3.2. Supplier.

5.7.3.3. Manufacturer.

5.7.4. Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.

5.7.5. Details of appropriate portions of Work as applicable:

5.7.5.1. Fabrication.

5.7.5.2. Layout, showing dimensions, including identified field dimensions, and clearances.

5.7.5.3. Setting or erection details.

5.7.5.4. Capacities.

5.7.5.5. Performance characteristics.

5.7.5.6. Standards.

5.7.5.7. Relationship to adjacent work.

5.8. After Consultant's review, distribute copies.

5.9. Submit for review one electronic copy in PDF file format of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request.

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

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

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

5.11.2. Testing must have been within three (3) years of date of contract award for project.

5.12. Documentation of testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

5.13. Delete information not applicable to project.

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

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

5.14.2. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of work of sub-trades.

5.15. Shop Drawings are specified for submission under the following:

Section 03 20 00 Concrete Reinforcement
Section 05 12 23 Structural Steel
Section 05 31 00 Steel Deck
Section 05 50 00 Metal Fabrications
Section 06 10 11 Rough Carpentry
Section 06 40 00 Architectural Woodwork
Section 07 41 43 Aluminum Composite Panels
Section 07 46 13 Preformed Metal Siding
Section 07 55 00 Modified Bitumen Roofing System & Flashing
Section 07 84 00 Fire Stopping and Smoke Seals
Section 08 11 14 Steel Doors & Frames
Section 08 11 16 Aluminum Doors & Frames
Section 08 14 10 Wood Doors
Section 08 50 50 Aluminum Windows
Section 08 62 11 Vinyl Windows
Section 08 71 10 Door Hardware
Section 09 22 16 Non-Load Bearing Wall Framing
Section 09 30 13 Ceramic Tile
Section 10 11 13 Communication Boards
Section 10 11 23 Tackboards
Section 10 14 53 Traffic Signs
Section 10 28 10 Toilet & Bath Accessories
Section 10 50 00 Miscellaneous Specialties
Section 11 40 11 Food Services Catalogued & Custom Equipment
Section 12 21 13 Horizontal Blinds
Section 12 21 16 Roller Shades

Section 14 42 13 Wheelchair Platform Lift

All pre-manufactured Mechanical & Electrical items as noted in Mechanical & Electrical Divisions.

6. SAMPLES

6.1. Submit for review samples in duplicate as requested in respective specification Sections, as requested by the Consultant. Label samples with origin and intended use.

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

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

6.4. Adjustments made on samples by Consultant are not intended to change.

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

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

6.7. Samples are specified for submission under the following Sections:

Section 07 41 43 Aluminum Composite Panels
Section 07 46 13 Preformed Metal Siding
Section 08 14 10 Wood Doors
Section 08 50 50 Aluminum Windows
Section 09 30 13 Ceramic Tile
Section 09 51 13 Acoustical Ceiling Units
Section 09 65 19 Resilient Tile Flooring
Section 12 21 13 Horizontal Blinds
Section 12 21 16 Roller Shades
Refer to Mechanical & Electrical Divisions for sample requirements in those Trades.

7. Record Drawings

7.1. Record, as the Work progresses, changes and deviations in the location of Work concealed by the finished Work, and such other approved changes that occur during progress of Work, to ensure that an accurate record is provided for future maintenance and alterations.

7.2. White prints will be provided by the HRCE for use in preparing record drawings. Record changes in the Work on these prints in red ink.

7.3. Dimension location of concealed Work in reference to building walls, and elevation in reference to floor elevation. Indicate at which point dimension is taken to conceal Work. Dimension all terminations and offsets of runs of concealed work.

7.4. Record work constructed differently than shown on Contract Documents, changes in the work caused by site conditions, by Owner, Consultant, Contractor and Subcontractor

originated changes, and by site instructions, supplementary instructions, field orders, change orders, addenda, correspondence and directions of jurisdictional authorities.

7.5. Record location of mechanical and electrical services, piping, valves, conduits, pull boxes, junction boxes and similar work not clearly in view, and position of which is required for maintenance, alteration work and future additions. Do not conceal critical work until its location has been recorded.

7.6. Identify record drawings as a "Project Record Copy". Maintain in good condition, do not use for construction purposes and make available to Consultant at all times.

7.7. Submit record drawings at completion of Work. Final acceptance of the Work will be predicated on receipt and approval of record drawings.

8. Extra Stock

8.1. Supply extra stock at completion of Project as specified in other Sections of the Project Manual.

8.2. Deliver extra stock as directed by the Architect to location he designates.

8.3. Extra stock is specified to be supplied in the following Sections:

Section 09 30 13 Ceramic Tile
Section 09 51 13 Acoustical Ceiling Units
Section 09 65 19 Resilient Tile Flooring
Section 09 91 23 Painting
Refer to Mechanical & Electrical Divisions for Extra Stock requirements in those Trades.

9. Maintenance Manual & Operating Instructions

9.1. Submit three (3) copies of Maintenance Manual with application for completion certificate.

9.2. Include in Maintenance Manual one (1) copy of each final approved shop drawing issued for Project on which have been recorded changes made during fabrication and installation caused by unforeseen conditions.

9.3. Submit extended guarantees together in one (1) report binder.

9.4. The Manuals shall:

9.4.1. Consist of a hard-cover, black, vinyl-covered, loose-leaf, letter-size binder.

9.4.2. Have a title sheet, or sheets preceding data on which shall be recorded Project name, Project number, date, list of contents, and Contractor's and Subcontractors' names.

9.4.3. Be organized into applicable Sections of Work with each Section separated by hard paper dividers with plastic covered tabs marked by Section.

9.4.4. Contain only typed or printed information and notes, and neatly drafted drawings.

9.4.5. Contain maintenance and operating instructions on all building, and mechanical and electrical equipment.

9.4.6. Contain maintenance instructions as specified in various Sections.

9.4.7. Contain brochures and parts lists on all equipment.

9.4.8. Contain sources of supply for all proprietary products used in the Work.

9.4.9. Contain lists of supply sources for maintenance of all equipment in Project of which more detailed information is not included above.

9.4.10. Contain finished hardware schedule.

9.4.11. Contain charts, diagrams and reports specified in Mechanical & Electrical Divisions.

10. Extended Warranties

10.1. Submit the extended warranties listed in this Article and as specified in each applicable Section of this Project Manual.

10.2. Extended warranties shall commence on termination of the standard one-year warranty granted in this Contract.

10.3. Submit each extended warranty on a standard Form of Warranty, a sample of which is included in this Section.

10.4. Secure each extended Warranty by a Maintenance Bond in an amount indicated.

10.5. Submit extended warranties for:

Section 06 40 00 Architectural Woodwork – extended 4 years
Section 07 41 43 Aluminum Composite Panels – extended 10 years (panel finish)
Section 07 55 00 Modified Bitumen Roofing System & Flashing:

- 2 year CRCA materials and workmanship against leaks and blow off
- 10 year material warranty the membrane will perform as a roofing material
- 1 year CRCA warranty against defects of materials and workmanship for the sheet metal work.

Section 07 92 10 Joint Sealants – extended 5 years
Section 08 11 16 Aluminum Doors & Frames – extended 4 years
Section 08 14 10 Wood Doors – extended 4 years
Section 08 50 50 Aluminum Windows – extended 4 years
Section 08 62 11 Vinyl Windows – extended 5 years
Section 08 71 10 Door Hardware – various, refer to that Section
Section 09 30 13 Ceramic Tile – extended 4 years
Section 09 51 13 Acoustical Ceiling Units – extended 4 years
Section 09 65 19 Resilient Tile Flooring – extended 4 years
Section 10 11 13 Communication Boards – extended 24 years
Section 10 11 23 Tackboards – extended 9 years
Section 12 21 13 Horizontal Blinds – extended 5 years

Section 12 21 16 Rollers Shades – extended 5 years
Section 14 42 13 Platform Lift – extended 5 years
Refer to Mechanical & Electrical Divisions for extended Warranty requirements in those trades.

11. Inspection Laboratory Reports

11.1. Submit copies of inspection and test reports obtained by the Contractor and Subcontractors for their Work or for Jurisdictional Authorities, if requested by Consultant.

11.2. Submit reports in accordance with requirements specified in Section 01 41 00.

12. Documentation On Suppliers & Manufacturers

12.1. Provide information under headings identifying the following: Associated Technical Section, Manufacturer, Supplier, Contact Name, and Phone Numbers.

SAMPLE FORM OF WARRANTY FOLLOWS THIS PAGE

Sample Form for Warranty

Date .....

Client .....

Project .....

.....

Warranty .....
(title of work)

We hereby undertake to warrant all materials supplied and installed under our Contracts and include the providing of necessary materials and labour to cover the result of faulty materials or workmanship. Upon written notification from Client or the Architect that the above work is defective any repair or replacement work required shall be to the Architect's satisfaction at no cost to the Client. This Warranty shall not apply to defects caused by the work of others, maltreatment of materials, negligence or Acts of God. This Warranty shall remain in effect for the total period from the acceptance of the Work to (....date....), irrespective of the date of completion or the beneficial use by the Owner.

Signature .....

Authorized Signing Officer .....

Name of Firm .....

Address .....

END OF SECTION 01 33 00

SECTION 01 35 13 – APPENDIX A - SPECIAL PROJECT PROCEDURES

1. Introduction

1.1. School construction, renovation and maintenance projects are scheduled every year as a normal and necessary course of business by operations departments in each Nova Scotia Centre for Education. Building modifications, repairs and additions/demolitions to buildings may impact the school environment without appropriate controls. With increased controls based primarily on the CSA standards implementation, proper scheduling and clear communication on adequate controls can be put into place to eliminate/minimize the impact to all occupants.

1.2. Projects of this nature may generate varying levels of dusts, noises and odors. It is possible, unknown/unforeseeable environmental contaminants, such as spills, mould, fumes, lead or asbestos exposure maybe identified.

1.3. To successfully complete work within the school environment, it is necessary to plan and implement appropriate containment and control strategies. This document is developed to provide a minimum standard for contaminant controls for various types of projects in schools. These standards are in addition to and should complement all legislated protocols for working with regulated materials such as asbestos, lead paints, PCB's etc.

1.4. Executing a successful project will depend primarily on clear, concise communication. This may involve a number of parties (Project Manager, Operations staff, School Administration and Health & Safety staff and Joint Occupational Health & Safety Committee).

2. Communication Plan

2.1. The most critical element of any project management plan is effective communication between all stakeholders. Communication between the Operations project manager/supervisor, the contractor and school administrators before the start of a project is very important. This meeting is meant to explain the scope, schedule and risk assessment for the project. The meeting will also help establish clear expectations when managing planned and unplanned exposure risks associated with contaminant controls.

2.2. The communication plan shall include:

2.2.1. A description of potential contaminants, which may include but is not limited to:

2.2.1.1. Particulates (dirt, concrete/silica, steel, fiberglass, wood dust, ash, cellulose, etc.)

2.2.1.2. Moisture: external water infiltration, internal system leaks (domestic water, sanitary, storm, sprinkler)

2.2.1.3. Noise from equipment/tool operation,

2.2.1.4. Fumes/odors from equipment exhaust, boiler exhaust, septic waste, chemical/adhesives, etc.

2.2.1.5. Hazardous materials including, asbestos, PCB, mercury, lead, fuel oil, fungi/mould, etc.

2.2.1.6. Excessive heat/cold

2.2.2. A description of the control measure which may include but not be limited to:

2.2.2.1. Isolation within an enclosure (water, noise, hazardous materials)

2.2.2.2. Ventilation and filtration

2.2.2.3. Dehumidifiers/blowers (moisture)

2.2.2.4. Personal protective equipment

2.2.2.5. Schedule outside or inside school hours

2.2.2.6. Sound dampeners

2.2.2.7. Monitoring

2.2.2.8. Security

2.2.3. Other Hazards created by the work, including but not limited to fire safety and the need to alter fire safety plans.

2.3. For small routine work orders the communication plan may only involve one tradesperson and the school principal or designate. This communication is equally as important for management of contaminant controls.

3. Contaminant Control Management

3.1. Regardless of the contaminant or control measure used, the following procedures shall apply for every project:

3.1.1. Every project, including all routine work requests, shall be assessed, as per this document, by appropriate personnel for potential contaminant risk.

3.1.2. Clear lines of communication must be established between project personnel, site supervisor or project manager and the school administration.

3.1.3. Control strategies as per this document, shall be, communicated to workers as well as the site JOHSC and implemented prior to starting the work.

3.1.4. Where isolation is used as a control, all entry points must be clearly posted to describe the purpose of the enclosure and limitations of access.

3.1.5. During the execution of the project, the control measures must be regularly inspected and maintained before the start of each work shift, and throughout the shift as required.

3.1.6. A process for stop work and remediation orders must be established to ensure the project manager; site supervisor and school administrator have a means to cease project operations when a contaminant control breach may impact the school environment. Breached control measures must be reported immediately to HRCE project manager upon discovery. He/she will be responsible to communicate to the school principal or designate. Work shall be stopped immediately until the control measures are re-established.

3.1.7. Access to the controlled work site is only permitted by authorized personnel. The project supervisor or designate shall determine appropriate personal protective equipment (PPE) and necessary worker orientation.

4. Particulate Control

4.1. Exposure to minimal levels of dust is a normal condition in most outdoor and indoor environments and is typically controlled inside a building through building ventilation, filtration and routine housekeeping measures. However, as noted, construction projects generally create elevated dust levels in work areas, whether inside or outside of a building.

4.2. Operational Services Managers must ensure maintenance staff and contracted service providers implement dust control measures appropriate for the type and scope of work being performed. This will include assessing the type and amount of dust being created as well as the location of the work being conducted.

4.2.1. Interior Construction Projects:

4.2.2. Construction projects may be described as projects that may include window replacement, wall creation/demolition, etc.

4.3. As a minimum for these types of construction projects, all interior entry points into a construction zone must be effectively sealed. The barrier must prevent contaminants from the work area to be distributed to other areas of the school. Appropriate signage must be posted to indicate only authorized persons are permitted access.

4.4. Entrance design could range from a two flap plastic tarp door to a fully constructed sealed entry door with negative hepa-filtered ventilation on the construction side of the barrier.

4.5. Exterior Construction Projects:

4.5.1. Exterior work shall be performed so as not to affect the safety of building occupants. It will also provide controls to avoid impact to adjacent properties. Depending up on the results identified in the risk assessment, at a minimum consideration must be given to prevent dust from entering into the school environment. This may be controlled through isolation, dampening application, closing building AHU and window/door openings.

5. Noise Control

5.1. Hearing plays an essential role in communication, speech and language development and learning within a school environment. During construction the contractor is responsible for ensuring acceptable noise levels will be adhered to for the HRCE staff and children within the building. Noise related to a project may prove to be very distracting for staff and children. To minimize distractions and interruptions in child learning the following are important to consider:

5.1.1. Contractors are responsible to ensure appropriate noise control measures are taken

5.1.2. "No work" periods may need to be incorporated into construction schedules

5.1.3. Work causing a noise disruption may need to take place during unoccupied times and/or during pre-determined acceptable times of the day (i.e. before and after class times)

5.1.4. It may be necessary for the School Administrator to make a request to the HRCE Project Manager or the Contractor to exclude undertaking certain noisy activities during particular periods and/or activities.

6. Moisture Control

6.1. Moisture levels are to be controlled during construction and maintenance activities. Moisture levels above normal may impact the air in the room and/or building and may also penetrate building materials giving the potential to lead to mould growth.

6.2. Certain activities (i.e. tape and mud of drywall, painting, pressure washing, concrete cutting with water or other water based dust-suppression) introduce high amounts of moisture into the room environment and ventilation and or drying is required to control local moisture.

6.3. An enclosure properly set-up to contain other contaminants will similarly contain/control high levels of airborne moisture. A wet-vac should be available on-site for activities which have a risk of water spillage of more than 5 gallons at any instance.

6.4. Standing and or stagnate water must be avoided on construction sites, for a number of reasons, including, but not limited to; insects breed in these bodies of water, the water may give off odours, it is a nuisance to walk through, and it may be an ice hazard in cold weather.

6.5. It is important that all water leaks and flooding are reported immediately to the HRCE's project manager and building supervisor. Where works to existing "plumbing" is to occur the water lines (potable, heating, fire suppression) must be isolated and drained (de-energized/de-pressurized) following Lock Out - Tag Out procedure. Adequate supplies such as buckets and absorbents should be present when drains are not available to drain a line.

6.6. When an interruption to the water supply, potable or service, is to occur then the "owner's representative" and building supervisor should be notified 24 hours in advance. Bottled water provision may be required.

6.7. Materials used in the construction and or maintenance activities are to be stored in dry areas. The introduction of materials to the activities with moisture levels above the acceptable (XXX%)CNBC states for wood, on dry weight basis, a max of 19%, I can't find info on drywall but assume it is much lower range is prohibited as these materials are highly susceptible to colonization by mould spores.

7. Fumes

7.1. Fumes may be produced on a project site for a variety of reasons such as use of motorized equipment, off gassing of sealants, adhesives and finish products, cutting/torching processes, exposure of sanitary systems, process ignition gases such as propane and acetylene, proximity of project temporary washrooms, radon, etc.

7.2. The impact of fumes on occupants may range from discomfort to health risk, to life safety risk.

7.3. The project manager or supervisor must ensure that all potential fume sources are identified and remedial or control measures included in the scope of work by the contractor.

7.4. Monitoring equipment may be required to determine for example radon exposure or safety of confined space access.

8. Activity Assessment

8.1. Activities that may produce contaminants which require control may be considered as low, medium and high impact.

8.2. Low impact activities include routine maintenance and repairs that may create localized dust or odors or brief periods of noise which are not considered harmful to occupants but may be a nuisance which requires minimal control. These may include activities such as opening ceiling tiles or gyproc walls, replacing a plumbing fixture, paint touch ups, drilling through a wall, etc.

8.3. Medium impact activities include larger repair jobs or longer duration projects that will create more wide spread levels of contaminant which must be controlled to prevent exposure to building occupants. Boiler cleaning, ceiling replacement, long periods of hammer drilling, etc.

8.4. High impact activities include large demolition and construction projects, or jobs with exposure to contaminants that are a risk to health or life safety such as asbestos remediation, mould abatement, lead paint clean up, etc.

9. Hazard Assessment

9.1. A hazardous assessment is required to be completed for each job to ensure hazards are identified and corresponding controls are implemented. Depending upon the circumstances at the site it may be necessary to upgrade and/or add other precautions.

9.2. Determine the most appropriate hazard classification and apply the corresponding protocols. The attached hazard assessment identifies the minimum controls that must be in place during the corresponding activities. Depending on the specific circumstances at a site further controls may be required. When the hazards are deemed to be in the C or F category the form including specific controls must be submitted to the HRCE for review, prior to commencing work. The contractor may still be required to complete their own hazard assessment of the job/work.

10. Contaminant Controls Procedure for initiating work for all Contaminant Controls:

10.1. Contaminant Control I

10.1.1. The tradesperson or project manager for the HRCE will discuss the details, including the scope and any impacts of the job/project with the principal.

10.1.2. Ensure fire exiting requirements and life safety systems are addressed or adequate mitigating plans are implemented for the building, construction staff and building occupants.

10.1.3. Presence of lead paint or ACM's (Asbestos Containing Materials) must be determined prior to the start of any job. Specific protocols or Codes of Practice may apply.

10.1.4. Consideration will be given for work that is anticipated to generate significant noise, odours or VOC's (Volatile Organic Compounds) and this will be scheduled outside of school hours or during times when the noise will not disrupt occupant activities. This will require coordination with the Principal.

10.1.5. The work area shall be isolated where possible. This may be achieved at varying levels, by closing doors and opening outside windows for ventilation or by installing appropriate hoarding and negative pressure units to ensure contaminants are not circulated throughout the school causing further health and safety concerns.

10.1.6. Dust shall be minimized during the activity. When drilling, sanding or cutting is taking place, wetting the area may be necessary to reduce dust.

10.1.7. Good housekeeping practices shall be maintained at all times on the work site. Bag and remove dust and debris from the building as soon as possible.

10.1.8. Possible environmental impacts shall be managed and minimized. If work uncovers environmental contaminants or suspected contaminants such as oil spills (current or historic) or potentially friable asbestos materials (check the school asbestos audit) that may be disturbed, this information shall be brought to the attention of the HRCE's employee responsible for the project so that appropriate actions can be taken.

10.1.9. When the activity is completed the work area shall be inspected and cleaned. Dust and debris shall be removed from the area and all efforts will be made to return items to their pre-maintenance activity location.

10.1.10. The Principal shall be notified that the work is completed.

10.2. Contaminant Control II - All Contaminant Control I measures shall apply, as well as;

10.2.1. Cover furniture, bookshelves and teaching materials with plastic sheets.

10.2.2. Water misting while performing dust generating activities may be required.

10.2.3. Seal un-used doors. Seal wall penetrations, electrical outlets, or any other source of air leaks in the construction area.

10.2.4. Seal exhaust air vents in construction area and open the windows. If possible shut down air handling system in the area for duration of project.

10.2.5. A walk out mat at exterior of exit door to trap dust may be required.

10.3. Contaminant Control III - All Contaminant Control I and II measures shall apply, as well as;

10.3.1. Install an impermeable dust barrier from the true ceiling to the floor consisting of two layers of 6 mil fire retardant polyethylene or solid wall and sealed door. The wall shall remain in place until the job is finished and the clean-up is completed.

10.3.2. Seal all wall penetrations
10.3.3. Seal off all return and supply air handling ducts and close all windows.
10.3.4. Turn off the air handling system in the area of construction.
10.3.5. Maintain negative air pressure in the construction area using HEPA filter equipped exhaust ventilation. The pressure differential between the project area of contamination and the building's occupied areas shall be demonstrable by a means approved by the HRCE employee responsible for the project.
10.3.6. Ensure that the air is exhausted directly outside and away from intake vents.
10.3.7. Vacuum all horizontal surfaces including drop cloths with a hepa vacuum.
10.3.8. Remove drop clothes
10.3.9. Vacuum again all horizontal surfaces with HEPA Vacuum.
10.3.10. Restore ventilation.
10.3.11. Remove enclosure and equipment.

10.4. Control IV: (External Work)
10.4.1. External work may impact building interior or occupants.
10.4.2. To reduce the impact to building interior or occupants, it may be necessary to contain the work area from impacting building interior. This may include closing or opening windows, tarping ceilings to capture debris or water, temporary relocation of occupants or ventilation controls.
10.4.3. The job supervisor shall consider weather conditions and forecast to reduce the effect of any weather impacts to the building materials or building occupants.
10.4.4. It may be necessary to use protective tarps and ground cover sheets below equipment and work areas to contain building debris such as paint chips, materials, dust or oil from equipment.
10.4.5. When the job is completed and the tarps have been lifted, inspect the ground around the job for debris and clean as necessary.

Fire Protection
10.5. Type V: General Fire Protection
10.5.1. Ensure fire exiting requirements and life safety systems are addressed or adequate mitigating plans are implemented for the building, construction staff and building occupants. Staff must be aware of temporary modifications to fire safety plans.
10.5.2. MSDSs for all materials to be used must be reviewed and available on site.
10.5.3. Construction materials stored outside must be a minimum distance of ten feet from the building and be in a secured area.
10.5.4. Flammable or Combustible liquids must be stored as per Fire Code requirements. All flammable and combustible liquids or materials must be kept in a secure area at all times.
10.6. Control VI: Fire Protection (minor hot work) - All Contaminant Control V shall apply as well as;
10.6.1. Notify the Principal that a risk of fire has increased and the area in which the hot work will occur.

10.6.2. Refer and implement the HRCE's hot work permit process. At a minimum the following should be considered;

10.6.2.1. Sweep the work area and remove all unnecessary materials in the vicinity; particularly all combustible and flammable materials and liquids shall be removed from the area (35 feet).

10.6.2.2. Have an appropriate size fire extinguisher available.

10.6.2.3. Inspect the work location for areas (such as a hole in the wall) where hot material or sparks could fall and smolder and close them off so that any hot debris can only fall within your field of view.

10.6.2.4. If it is possible that the flame will go past the object being welded or soldered and excessively heat a flammable or combustible material then either protect that material with a non-flammable material or wet the material and keep it wetted during the use of heat or grinding.

10.6.2.5. Remain in the area while the joint and/or heated materials cool to room temperature (ambient) while checking for the smell or appearance of smoke in the area.

10.6.2.6. Stay in the area for at least Y2 hour and then re-inspect for any smell or appearance of smoke.

10.6.2.7. Ask another staff person to inspect the area for the smell or appearance of smoke. Record who you asked to do the final inspection.

10.6.3. Type VII: Fire Protection (hot work w fire watch) - All Contaminant Control V and VI shall apply as well as;

10.6.4. Notify the Principal that a risk of fire has increased and the area in which the hot work will occur. If any life safety system components (sprinkler, detectors, fire alarms) are not function, hot work should not proceed until these systems are functioning unless fire watch procedures for life systems are followed. See Activation of Fire Watch for Life Safety Systems checklist. Appendix…XX

10.6.5. Refer and implement the HRCE's hot work permit process. At a minimum the following should be considered;

10.6.5.1. Cover all floor openings with fire stop material. Seal duct work openings with metal covers or blankets and close all doors.

10.6.5.2. Ensure that there are no potentially explosive atmospheres in the area.

10.6.5.3. Hot work on vessels, pressure tanks or boilers, use only contractors who are qualified by nationally or internationally recognized boiler and pressure vessel code.

10.6.5.4. Notify the local fire department of the type of work and the work schedule.

10.6.5.5. Before hot work is started, designate one employee responsible to complete the fire watch: while work is in progress, during lunch breaks and other breaks and for one hour after all flames are extinguished for the day and monitor the area for an additional two hours. After three hours after the last flame has been extinguished, have a second employee do a

final survey of the area for smells or evidence of smoldering or fire and record the inspection.

APPENDIX
Fire Watch Activation Checklist

1. Documentation (identify locations to be checked on an hourly basis, provide contact information for relevant HRCE staff and outside agencies} HRCE provided template to be used for documentation.
2. Procedure reviewed with Custodian or individual responsible for fire watch. Any high risk areas shall be identified to be highlighted on the documentation page and checked during the rounds.
3. Staff working in the building have been notified of the Fire Watch and that they are responsible to monitor areas for signs of fire or smoke and have been reminded of required actions to take according to the school fire safety plan.
4. Staff responsible for fire watch have been trained in how to use a fire extinguisher. (PASS)
5. Staff responsible for the fire watch have a means of communication (cell phone or walkie-talkies)
6. Staff responsible for the fire watch are aware of the procedure for initiating fire alarm and what systems are functioning. i.e. systems (sprinklers, alarm panel or if school has monitoring company or if calling 911 is required)
7. The School Insurance Program (SIP) Emergency Information Line has been notified 1-902-448-2840
8. All relevant information has been documented in the school's fire books. Including date, time and reason for fire watch.

Fire Watch De-Activation Checklist

1. Document the date, time and actions taken to remedy the deficiency requiring the fire watch.
2. School Insurance Program (SIP) has been notified
3. Copy of the Fire Watch documentation is kept in the fire book and the original is sent to the HRCE Project Representative.

END OF SECTION 01 35 13

SECTION 01 35 29 - OCCUPATIONAL HEALTH & SAFETY REQUIREMENTS

1. References

1.1. CSA S269.1-1975 Falsework for Construction Purposes.

2. CONSTRUCTION SAFETY MEASURES

2.1. Observe construction safety measures of:

- **2.1.1.** National Building Code 2010, Part 8
- **2.1.2.** National Fire Code of Canada
- **2.1.3.** Provincial Government, including but not limited to the:
  - **2.1.3.1.** Occupational Health & Safety Act revised Statutes of Nova Scotia 1996, Chapter 7 and regulations.
  - **2.1.3.2.** Workers' Compensation Act
  - **2.1.3.3.** Fire Protection Act
  - **2.1.3.4.** Dangerous Goods Transportation Act

2.2. In case of conflict or discrepancy the more stringent requirement shall apply.

2.3. Ensure that employees working on this specific project have met training requirements as legislated by the Nova Scotia Occupational Health & Safety Act and its regulations.

2.4. Where reference is made to jurisdictional authorities, it shall mean all authorities who have within their constituted powers the right to enforce the laws of the place of the building.

3. Equipment & Tools

3.1. Each user of equipment or tools shall be responsible to examine for sufficiency before use. Make equipment and tools safe if necessary.

4. WHMIS

4.1. Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets.

4.2. Have a copy of WHMIS data sheets available at the workplace on delivery of materials.

5. Hazardous Material

5.1. Should material resembling hazardous materials other than those identified with the Contract Documents, including but not limited to spray or trowel applied asbestos, be encountered in course of work; stop work immediately. Do not proceed until written instructions have been received from Consultant.

5.2. Where work entails use, storage, or disposal of toxic or hazardous materials, chemicals and or explosives, or otherwise creates a hazard to life, safety, health, or the environment; work shall be in accordance with the Jurisdictional Authority.

6. Site Cleaning

6.1. Except where special permission is obtained, maintain clear access on public sidewalks and roads.

6.2. Maintain walks and roads clear of construction materials and debris, including excavated material. Clean walks and roads as frequently as required to ensure that they are cleared of materials, debris and excavated material.

7. Fire Safety Requirements

7.1. Enforce fire protection methods, good housekeeping and adherence to local and Underwriter's fire regulations including, but not limited to, Fire Protection Act and the Provincial Building Code Act. Provide UL approved fire extinguishers, and other fire- fighting services and equipment, except where more explicit requirements are specified as the responsibility of individual Sections.

7.2. Smoking is not permitted on school property.

7.3. Advise Fire Chief in the area of Work of any work that would impede fire apparatus response, including but not limited to violation of minimum overhead clearance prescribed by the fire chief, erecting of barricades and digging of trenches and in areas where work is being done.

7.4. Ensure nothing subverts the integrity of fire protection provided for the building structure.

8. Reporting Fires

8.1. Know the location of the nearest fire alarm box and telephone, including the emergency phone number.

8.2. Report immediately all fire incidents to the fire department as follows:

8.2.1. Activate nearest fire alarm box, or

8.2.2. Telephone local fire department

8.2.3. Where fire alarm box is exterior to building, the person activating the fire alarm box shall remain at the box to direct Fire Department to scene of the fire.

8.2.4. When reporting a fire by telephone, give location of fire, name or number of building and be prepared to verify the location.

9. Safety Document Submission

9.1. Ensure Safety Document Submission applies to Work of this specific project and site.

9.2. Submit two (2) copies of Project Safety Document at the Pre-Construction Meeting. Do not commence Work nor deliver material on-site prior to submission.

9.3. Include in Safety Document submission specific information detailing the methods and procedures to be implemented ensuring adherence to the acts, regulations, codes and policies specified in this section and to:

9.3.1. Ensure the Health & Safety of persons at or near the Work; including, but not limited to, the Public.

9.3.2. Ensure the measures and procedures of the regulatory agencies specified are carried out.

9.3.3. Ensure every employee, self-employed person and employer performing Work under this contract complies with the regulatory agencies specified.

9.3.4. Where changes to the methods and procedures in the execution of work change submitted safety methods and procedures, modify submitted Safety Documentation and submit modifications, in writing to the Consultant and Owner prior to implementation.

10. Safety Document Organization

10.1. Organize information in the form of an instructional manual as follows:

10.1.1. Place in binders of commercial quality, accommodating 8½" x 11" paper size.

10.1.2. Cover: Identify binder with typed or printed title 'Project Safety Document' and list the title of project.

10.1.3. Provide tabbed fly leaf for each separate heading, with typed heading on tab.

10.1.4. Where drawings are within the safety document, provide with reinforced punched binder tab. Bind in with text; fold in larger drawings to size of text pages.

10.1.5. Arrange content under Safety Document headings specified herein.

11. Safety Document Headings

11.1. Employee Safety Training

11.1.1. Place, under this heading, a statement indicating employees working on this specific project have met specified training requirements, if required.

11.2. Company Safety Policy

11.2.1. Place, under this heading, information pertaining to the company's policy and commitment to Occupational Health & Safety, including the responsibilities of management, supervisors and workers.

11.3. Company Safety Rules in General Terms

11.3.1. Place, under this heading, information of a general, global nature, applying to every work environment where the company has staff and pertaining to rules directing compliance to policy. For example state company safety rules with respect to use of hard hats, safety glasses, safety foot ware, CSA approval on such items, and use of alcohol or non-prescription drugs.

11.4. Hazard Assessment

11.4.1. Place, under this heading, information identifying possible hazards specific to this project and identify safe methods and procedures for the execution of work to ensure safety in the work place.

11.4.2. Arrange contents of this heading by technical section number of the project manual.

11.5. Emergency Action Plan

11.5.1. Place, under this heading, information detailing action to be taken in the event of various emergencies.

11.5.2. Arrange content under the following sub-headings:

11.5.2.1. First Aid

11.5.2.1.1. Include information concerning establishment of a First Aid Station, related supplies, staff awareness of location and staff training in First Aid Care of Casualties.

11.5.2.2. Contact of Emergency Support Groups:

11.5.2.2.1. Include relative information including phone location for emergency use, the emergency telephone numbers and their location for the various organizations which must be contacted in case of an emergency, and staff training in procedures.

Cessation of Work:

11.5.2.2.2. Include relative information how work cessation during emergencies is handled and communicated to persons present on site.

11.6. Joint Occupational Health & Safety Committee/Representative:

11.6.1. Place under this heading information detailing membership and terms of reference.

OCCUPATIONAL HEALTH & SAFETY SUMMARY FOLLOWS THIS PAGE

Occupational Health & Safety Summary (to be submitted with each monthly Progress estimate)

The following information summarizes Occupational Health & Safety activities on the project conducted by the Contractor during the month and includes activities of Subcontractors. Activities include all matters prescribed by the Occupational Health & Safety Act and Regulations and the submitted Occupational Health & Safety Document for the Project.

Indicate the applicable # number below:

#_____new contractors on site,
#_____orientations
#_____toolbox talks
#_____safety meetings
#_____Joint Occupational Health and Safety Committee meetings
#_____hazard assessments
#_____formal written inspections
#_____warnings issued to employees or subcontractors
#_____other, explain_____

List new Contractors on Site below:

_____
_____
_____
_____
_____
_____

The Contractor certifies that the above noted activity list is accurate and that during the month:

Check

☐ All activities on the Project were found to be in compliance with the Occupational Health & Safety Act and Regulations

☐ Some activities on the Project were not found to be in compliance with the Occupational Health & Safety Act and Regulations but were adequately corrected in an appropriate time frame. Explain _____
_____

Prepared by

_____
(Contractor Project Manager)

Certified by

_____
(Contractor Senior Management)

END OF SECTION 01 35 29

SECTION 01 37 00 - SCHEDULE OF VALUES

1. Related Documents

1.1. General Conditions of Contract.

2. General

2.1. Submit to the Architect, and Owner, Schedule of Values, within twenty (20) days after signing Agreement.

2.2. Use Schedule of Values as basis for Contractor's Progress Claim.

3. Form Of Submittal

3.1. Form included at end of this Section.

4. Preparing Schedule Of Values

4.1. Itemize separate line item cost for work required.

4.2. Round off figures to nearest ten (10) dollars.

4.3. The sum of all values listed in the schedule shall equal the total contract sum.

5. Review And Submittal

5.1. After review by Architect and Owner, revise and resubmit Schedule as directed.

5.2. The form shall be completed and supported by such evidence as to its correctness as the Architect may reasonably direct.

Schedule of Values

To be determined and agreed upon by Owner and Bidder prior to creation of contract.

END OF SECTION 01 37 00

SECTION 01 41 00 - REGULATORY AGENCIES

1. Jurisdictional Authorities

1.1. Where reference is made to jurisdictional authorities, it shall mean all authorities who have within their constituted powers the right to enforce the laws of the place of building.

2. Definitions

2.1. The "Constructor" named in the Construction Safety Act, Chapter 52, Revised Statutes of Nova Scotia, as amended by 1972, Chapter 25; and Construction Safety Regulations, pursuant to Chapter 52 R.S.N.S., including any amendments, shall mean the "Contractor" for the Work performed under this Specification.

3. Fire Prevention, Safety & Protection

3.1. General Construction Safety Measures:

3.1.1. Observe safety measures of the

3.1.1.1. National Building Code 2010, Part 8.

3.1.1.2. National Fire Code of Canada.

3.1.1.3. Provincial Government, including but not limited to the Occupational Health & Safety Act Revised Statutes of Nova Scotia 1996, Chapter 320, and the Construction Safety & Industrial Safety Regulations made pursuant to the Occupational Health and Safety Act, 1996.

3.1.1.4. Workers'/Workmen's Compensation Board.

3.1.2. In case of conflict or discrepancy the more stringent requirement shall apply.

3.1.3. Maintain clear emergency exit paths for personnel.

3.2. Except where special permission is obtained, maintain clear access on public sidewalks and roads.

3.3. Maintain walks and roads clear of construction materials and debris, including excavated materials. Clean walks and roads as frequently as required to ensure that they are cleared of materials, debris and excavated materials.

3.4. WHMIS:

3.4.1. Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada and Health & Welfare Canada.

3.4.2. Have a copy of WHMIS data sheets available at the workplace on delivery of materials.

Blockage of Roadways

3.5. Advise Fire Chief of any work that would impede fire apparatus response. This includes violation of minimum overhead clearance, as prescribed by fire chief, erecting of barricades and the digging of trenches.

4. Smoking Precautions

4.1. Observe, at all times, smoking regulations.

5. Rubbish And Waste Materials

5.1. Rubbish and waste materials are to be kept to a minimum.

5.2. The burning of rubbish is prohibited.

6. Flammable And Combustible Liquids

6.1. The handling, storage and use of flammable and combustible liquids are to be governed by the current National Fire Code of Canada.

6.2. Flammable and combustible liquids such as gasoline, kerosene and naphtha will 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 and combustible liquids exceeding 45 litres for work purposes, requires the permission of the Fire Chief.

6.3. Transfer of flammable and combustible liquids is prohibited within buildings or jetties.

6.4. Transfer of flammable and combustible liquids will not be carried out in the vicinity of open flames or any type of heat-producing devices.

6.5. Flammable liquids having a flash point below 38°C such as naphtha or gasoline will not be used as solvents or cleaning agents.

6.6. Flammable and combustible waste liquids, for disposal, will 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.

7. Hazardous Substances

7.1. Work entailing the use of toxic or hazardous materials, chemicals and/or explosives, otherwise creates a hazard to life, safety or health, will be in accordance with the National Fire Code of Canada.

7.2. Where flammable liquids, such as lacquers or urethanes are to be used, proper ventilation will 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.

8. Questions and/or Clarification

8.1. Direct any questions or clarification on Fire Safety in addition to above requirements to Fire Chief.

9. Fire Inspection

9.1. Site inspections by Fire Chief will be coordinated through HRCE Project Manager.

9.2. Allow Fire Chief unrestricted access to the work site.

9.3. Co-operate with the Fire Chief during routine fire safety inspection of the Work site.

9.4. Immediately remedy all unsafe fire situations observed by the Fire Chief.

10. Reference Standards

10.1. Where edition date is not specified, consider that references to manufacturer's and, published codes, standards and specifications are made to the latest edition, (revision) approved by the issuing organization, current at the date of this Specification.

10.2. Reference standards and specifications are quoted in this Specification to establish minimum standards. Work which in quality exceeds these minimum standards shall be considered to conform.

10.3. Should the Contract Documents conflict with specified reference standards or specifications the General Conditions of the Contract shall govern.

10.4. Where reference is made to manufacturer's directions, instructions or specifications they shall include full information on storing, handling, preparing, mixing, installing, erecting, applying, or other matters concerning the materials pertinent to their use and their relationship to materials with which they are incorporated.

10.5. Have a copy of each code, standard and specification, and manufacturer's directions, instructions and specifications, to which reference is made in this Specification, always available at construction site.

10.6. Standards, specifications, associations, and regulatory bodies are generally referred to throughout the specifications by their abbreviated designations:

AA	The Aluminum Association
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ARI	Air Conditioning & Refrigeration Institute
ASTM	American Society for Testing & Materials
CCA	Canadian Construction Association
CGSB	Canadian General Standards Board
CSA	Canadian Standards Association
NSDTIR	Department of Transportation & Infrastructure Renewal, Province of Nova Scotia
IAO	Insurers Advisory Organization
NBC	National Building Code
NFPA	National Fire Protection Association
CANS	Construction Association of Nova Scotia
ULC	Underwriters Laboratories of Canada
WHMIS	Workplace Hazardous Materials Information System

END OF SECTION 01 41 00

SECTION 01 45 00 - QUALITY CONTROL

1. Section Includes

1.1. Inspection and testing, administrative and enforcement requirements

1.2. Tests and mix designs.

1.3. Mock-ups.

1.4. Mill tests.

1.5. Equipment and system adjust and balance.

1.6. Verification by affidavits and certificates that specified products meet requirements of reference standards: In applicable Sections of the Specification.

1.7. Testing, balancing and adjusting of equipment: In applicable Mechanical and Electrical Sections of the Specification.

1.8. Cutting & Patching: Section 01 11 41.

2. Related Sections

2.1. Section 01 33 00 Submittal Procedures: Submission of samples to confirm product quality.

2.2. Section 01 61 00 Material & Equipment: Material and workmanship quality – reference standards.

2.3. Section 01 77 00 Contract Closeout.

3. REVIEW OF WORK

3.1. The Owner shall have access to the Work. If part of the Work is in preparation at locations other than the Place of the Work, access shall be given to such work whenever it is in progress.

3.2. Give timely notice to the Owner's Representative, requesting review of the Work as indicated in the Contract Documents.

3.3. If the Contractor covers or permits to be covered Work that has been designated for review by the Owner before such is made, uncover such Work, have the review satisfactorily completed and make good such Work at no extra cost to Owner.

4. Inspection, Special Tests, Approvals

4.1. Engage the services of appropriate inspection testing agencies ensuring the Work meets codes, acts and regulations, and lows in force at the place of Work. Include such costs in the Contract Price.

4.2. Give timely notice requesting inspection to those required to provide inspections, special tests, or approvals, where Work is designated, by the Owner's instructions or the law of the place of Work, for special tests.

4.3. If the Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have the inspections or tests satisfactorily completed and make good such Work at no extra cost to the Owner.

4.4. The Owner may order any part of the Work to be examined if the Work is suspected to be not in accordance with the Contract Documents. If, upon examination such Work is found not in accordance with the Contract Documents, correct such Work and pay the cost of examination and correction. If such Work is found in accordance with the Contractor Documents, the Owner shall pay the cost of examination and replacement.

5. Independent Inspection Agencies

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

5.2. Provide access to the Work, and equipment required for executing inspection and testing by the appointed agencies.

5.3. Employment of inspection/testing agencies does not relax the Contractor's responsibility to perform Work, or carry out his own inspections and testing in accordance with the Contract Documents.

5.4. If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Owner at no cost to the Owner. Pay costs for retesting and reinspection.

6. Access To Work

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

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

7. Procedures

7.1. Notify the appropriate agency and Owner in advance of the requirement for tests, in order that attendance arrangements can be made.

7.2. Submit samples and/or materials required for testing, at specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the Work.

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

8. Rejected Work

8.1. Remove defective Work, whether the result of poor workmanship, use of defective products or damage and whether incorporated in the Work or not, which has been rejected, including (but not limited to) defective Work rejected by the Owner as failing to conform to the Contract Documents. Replace or re-execute in accordance with the Contract Documents.

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

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

9. Reports

9.1. Submit four (4) copies of inspection and test reports to the Owner.

9.2. Provide copies to Contractor's Consultant and Subcontractor of Work being inspected or tested.

10. Tests and Mix Designs

10.1. Furnish test results and mix designs as may be requested.

10.2. The cost of tests and mix designs beyond those called for in the Contract Documents or beyond those required by law of the Place of Work shall be appraised by the Owner and may be authorized as recoverable.

11. Mock-Up

11.1. Prepare mock-up for Work for each finish in the Work and other work specifically requested in the specifications. Include for Work of all Sections required to provide mock-ups.

11.2. Construct in all locations as specified in specific Section.

11.3. Prepare mock-up for Owner's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in the Work.

11.4. Failure to prepare mock-up 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.

11.5. If requested the Owner will assist in preparing a schedule fixing the dates for preparation.

11.6. Mock-ups may remain as part of the Work, unless specified otherwise in the Contract Documents.

12. Mill Tests

12.1. Submit mill test certificates as may be requested.

13. Equipment And Systems

13.1. Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

13.2. Refer to Contract Documents for definitive requirements.

END OF SECTION 01 45 00

SECTION 01 52 00 – CONSTRUCTION & TEMPORARY FACILITIES

1. General

1.1. Include in the Work construction and temporary facilities required as construction aids or by jurisdictional authorities or as otherwise specified. Install to meet needs of construction as Work progresses. Maintain construction and temporary facilities during use, relocate them as required by the Work, remove them at completion of need and make good adjacent Work and property affected by their installation.

1.2. Include in the Work construction and temporary facilities to provide for construction safety such as: fences, barricades, bracing, supports, storage, sanitation and first aid facilities, fire protection, stand pipes, electrical supply, construction equipment with its supports and guards, stairs, ramps, platforms, runways, ladders, scaffolds, guardrails, temporary flooring, rubbish chutes, and walkway, morality and guard lights, and as otherwise required of the Constructor by the Construction Safety Act, of the Province of Nova Scotia, as well as all other applicable regulations or jurisdictional authorities.

1.3. Construct temporary Work of new materials unless use of second-hand materials is approved.

1.4. Ensure that structural, mechanical, and electrical characteristics of temporary facilities are suitable and adequate for use intended. Be responsible that no harm is caused to persons and property by failure of temporary facilities because of placing, location, stability, protection, structural sufficiency, removal, or any other cause.

1.5. Locate temporary facilities as directed and coordinated with School Administration and HRCE.

1.6. Relocate construction and temporary facilities as required by the Progress of the Work, and remove at completion of Work.

1.7. Do not permit construction personnel to use new washroom and toilet facilities.

1.8. Interior work zones to be complete with temporary negative air ventilation units to be functioning at all times to control dust migration to occupied areas.

1.9. Refer also to HRCE Policies & Guidelines contained in Appendix A of Section 01 35 13.

2. Services

2.1. Temporary Electric Power:

2.1.1. The Contractor will provide a source of electric power for all construction purposes.

2.1.2. Coordinate with the Building Operator locations of power sources and arrange to connect under his direction.

2.1.3. Install electric service distribution conductors and necessary components. Determine anticipated demand which will be placed on service during normal peak

periods and obtain approval on this basis before making installation. Supply power of characteristics required by the Work. Install a power centre for miscellaneous tools and equipment for each major building floor area with distribution box, a minimum of four 20 amp grounded outlets, and circuit breaker protection for each outlet. Make connections available to any part of the Work within distance of a 100'-0" extension.

2.2. Temporary Lighting:

2.2.1. Install lighting for

2.2.1.1. emergency evacuation, safety and security throughout the Project at intensity levels required by jurisdictional authorities.

2.2.1.2. performance of Work throughout Work areas as required, evenly distributed, and at intensities to ensure that proper installations and applications are achieved.

2.2.1.3. performance of finishing Work in areas as required, evenly distributed and of an intensity of at least 15 foot candles.

2.2.2. Permanent fluorescent lighting may be used during construction, provided that fixtures, lamps and lenses are completely cleaned. Incandescent sources may be used during construction to the extent of 20% of the total. Electrical Division Contractor to provide 20% spare lamps to the Owner for replacement purposes.

2.3. Temporary Sanitary Facilities:

2.3.1. Provide sanitary facilities for persons on the Work site. Facilities in areas of the building are only to be used under extraordinary circumstances and with prior approval.

2.4. Maintain fire protection as required by jurisdictional authorities. The Contractor is responsible for de-activating and re-activating Fire Alarm zones as required by the Work of the Contract and to maintain protection in the existing building.

3. Construction Aids

3.1. Hoists & Cranes:

3.1.1. Select, operate and maintain hoisting equipment and cranes as may be required. Operate such equipment only by qualified hoist or crane operators. Make hoist available for Work of each Section.

3.2. Building Enclosure:

3.2.1. Include in Work temporary enclosure for building as required to protect it, in its entirety or in its parts, against the elements, to maintain environmental conditions required for Work. Design enclosures to withstand wind pressures required for the building by jurisdictional authorities. Erect enclosures to allow complete accessibility for installation of materials during the time enclosures remain in place.

3.3. Scaffolding:

3.3.1. Each user of scaffolding shall be responsible for its examination and testing for sufficiency before using it. He shall make it secure if necessary, or shall notify the Contractor in writing that he will not commence work until it is made secure; otherwise he will be held responsible for accidents due to its insufficiency.

4. Barriers

4.1. Install barricades for traffic control, and to prevent damaging traffic over exterior and interior finished areas, as well as safety barricades and otherwise, as may be required.

4.2. Construct hoardings and walkways as required by HRCE or jurisdictional authorities.

5. Protection

5.1. Protect roofs and podiums by substantial temporary construction to ensure that no damage occurs. Provide protection by materials of sufficient thickness to prevent all damage to structure and finish, and to waterproofing qualities of membranes, whenever each of these individual components are exposed. Damage shall include harm resulting from all construction work, such as falling objects, wheel and foot traffic, failure to remove debris, operation of machinery and equipment, and scaffolding and hoisting operations. Positively secure protection to prevent displacement from any cause.

5.2. Box with wood or otherwise protect from damage, by continuing construction, finished sills, jambs, corners, and the like.

END OF SECTION 01 52 00

SECTION 01 61 00 - MATERIAL & EQUIPMENT

1. General

1.1. Products refer to materials, manufactured components and assemblies, fixtures and equipment incorporated in the Work.

1.2. Use only products of Canadian manufacture unless such products are not manufactured in Canada, are specified otherwise, or are not competitive.

1.3. Products for use in the Project and on which the Tender was based shall be in production at that time, with a precise model and shop drawings available for viewing.

1.4. Where equivalent products are specified, or where alternatives are proposed under "substitution of products", these products claimed by the Contractor as equivalent shall be comparable in construction, type, function, quality, performance, and, where applicable, in appearance, as approved. Where specified equivalents are used in the tendered bulk sum price for the Work, they shall be subject to final approval.

1.5. Incorporate products in the Work in strict accordance with manufacturers' directions unless specified otherwise.

1.6. Products delivered to the Project site for incorporation in the Work shall be considered the property of the Owner. Maintain protection and security of products stored on the site after payment has been made for them.

1.7. Do not install permanently incorporated labels, trademarks and nameplates, in visible locations unless required for operating instructions or by jurisdictional authorities.

2. Specified Products

2.1. Products specified by manufacturer's name, brand name or catalogue reference shall be the basis of the bid and shall be supplied for the Work without exception in any detail, subject to allowable substitutions as specified.

2.2. Where several proprietary products are specified, any one of the several will be acceptable.

2.3. For products specified by reference standards, the onus shall be on the supplier to establish that such products meet reference standard requirements. The Architect may require affidavits from the supplier, as specified in Section 01 33 00, or inspection and testing at the expense of the supplier, or both, to prove compliance. Products exceeding minimum requirements established by reference standards will be accepted for the Work if such products are compatible with and harmless to Work with which they are incorporated.

3. Substitution Of Products During Progress Of Work

3.1. Products substituted for those specified or approved, or both, shall be permitted only if the listed product cannot be delivered to maintain construction schedule and if the delay is caused by conditions beyond the Contractor's control.

3.2. Obtain approval for substitutions. Application for approval of substitutions shall be made only by Contractor. Process proposals for substituted Work in accordance with procedures established for changes in the Work.

3.3. Submit, with request for substitution, documentary evidence that substituted products are equal to, or superior to, approved products, and a comparison of price and delivery factors for both specified or approved products, and proposed substitute.

3.4. Ensure that substituted products can be both physically and dimensionally incorporated in the Work with no loss of intended function, performance, space or construction time, and that spare parts and service are readily available. The Contractor shall be responsible for additional installation costs, including architectural and engineering fees, required by incorporation of substituted products, and for adaptations made otherwise necessary to ensure that above requirements are satisfied.

4. Product Handling

4.1. Manufacture, pack, ship, deliver and store products so that no damage occurs to structural qualities and finish appearance, nor in any other way detrimental to their function or appearance, or both.

4.2. Ensure that products, while transported, stored or installed, are not exposed to an environment which would increase their moisture content beyond the maximum specified.

4.3. Schedule early delivery of products to enable Work to be executed without delay. Before delivery, arrange for receiving at site.

4.4. Deliver package products, and store until use, in original unopened wrapping or containers, with manufacturer's seals and labels intact.

4.5. Label packaged products to describe contents, quantity and other information as specified.

4.6. Product handling requirements may be repeated and additional requirements specified, in other Sections.

5. Storage & Protection

5.1. Coordinate material delivery to ensure that areas within or on building are available to receive them.

5.2. Store manufactured products in accordance with manufacturer's instructions, when such instructions are attached to products or submitted by him.

5.3. Store finished products and woodwork under cover at all times.

5.4. Store and handle flammable liquids and other hazardous materials in approved safety containers and as otherwise prescribed by safety authorities. Store no flammable liquids or other hazardous materials in bulk within the Project.

5.5. Storage and special protection requirements may be repeated, and additional requirements specified, in other Sections.

6. Defective Products & Work

6.1. Products and Work found defective; not in accordance with the Specifications; or defaced or injured through negligence of the Contractor, his employees or subcontractors, or by fire, weather or any other cause will be rejected for incorporation in the Work.

6.2. Remove rejected products and Work from the premises immediately.

6.3. Replace rejected products and Work with no delay after rejection. Provide replacement products and execute replacement Work precisely as required by the Specification for the defective Work replaced. Previous inspection and payment shall not relieve the Contractor from the obligation of providing sound and satisfactory Work in compliance with this Project Manual.

7. Workers, Suppliers & Subcontractors

7.1. Assign Work only to workers, suppliers, and Subcontractors who have complete knowledge, not only of the conditions of this Project Manual, but of jurisdictional requirements, and reference standards and specifications.

7.2. Give preference to use of local workers, suppliers, and Subcontractors wherever possible.

8. Workmanship

8.1. Unless otherwise specified in a more detailed manner, workmanship shall be of the highest quality recognized by trade executing the Work in accordance with standard practices, by the best methods recommended by the manufacturer of the Product, and as approved by the Architect.

END OF SECTION 01 61 00

SECTION 01 77 00 – CONTRACT CLOSEOUT

1. Section Includes

1.1. Final cleaning.

1.2. Spare parts and maintenance materials.

1.3. Take over procedures.

2. Related Sections

2.1. Individual Specifications Sections: Specific requirements for operation and maintenance data.

3. Final Cleaning

3.1. Refer to the General Conditions of Contract.

3.2. Before final inspection, replace glass and mirrors broken, damaged and etched during construction, or which are otherwise defective.

3.3. In addition to requirements for cleaning-up specified in General Conditions of the Contract, include in Work final cleaning by skilled cleaning specialists on completion of construction.

3.4. Remove temporary protections and make good defects before commencement of final cleaning.

3.5. Remove waste products and debris other than that caused by the Owner, other contractors or their employees, and leave the Work clean and suitable for occupancy by Owner.

3.6. Remove surplus products, tools, construction machinery and equipment. Remove waste products and debris other than that caused by the Owner or other Contractors.

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

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

3.9. Vacuum clean and dust building interiors, behind grilles, louvres and screens as affected by Work.

3.10. Wax, seal, shampoo, buff or prepare floor finishes, as recommended by the manufacturer. Use products compatible with products used by building maintenance staff.

3.11. Broom clean and wash all horizontal and vertical surfaces as affected by Work.

3.12. Clean up and make good exterior grades, lawns, planting and surfaces after removal of temporary access and facilities.

3.13. Removing of visible labels left on materials, components, and equipment.

3.14. Maintain cleaning until Owner has taken possession of building or portions thereof.

4. Spare Parts And Maintenance Materials

4.1. Spare parts and maintenance materials provided shall be new, not damaged or defective, and of the same quality and manufacture as Products provided in the Work. If requested, furnish evidence as to type, source and quality of Products provided.

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

4.3. Store spare parts and maintenance materials in a manner to prevent damage, or deterioration.

4.4. Provide spare parts, special tools, maintenance and extra materials in quantities specified in individual specification Sections.

4.5. Provide items of same manufacture and quality as items in the Work.

5. Demonstration Of Systems & Equipment

5.1. Give a complete demonstration of all systems and equipment in the presence of the Consultant at the following times:

5.2. When each is 100% completed at the request of the Contractor.

5.3. At time of inspection to validate final completion.

5.4. At final completion for the benefit of the maintenance staff for the Project.

5.5. Responsible personnel representing the Subcontractor responsible for the Work being demonstrated shall be present at each demonstration.

6. Submittals

6.1. Submit with application for substantial performance certificate.

6.1.1. Certificate of Substantial Performance inspection report from electrical utility or inspection.

6.1.2. Certificate of verification of fire alarm system.

6.1.3. Certificate from the Fire Marshal's Office and I.A.O. of final inspection of sprinkler system.

6.1.4. Air balance reports.

6.1.5. Other reports required or specified.

6.1.6. Maintenance Manuals and Operating Instructions.

6.2. Submit with application for release of final payment:

6.2.1. Final project record drawings.

6.2.2. Extra stock.

6.2.3. Performance bonds which shall remain in effect for one (1) year after take-over date.

6.2.4. Completed Liability Insurance Policy extended for one (1) year from take-over date.

6.2.5. Written guarantee covering all workmanship and materials used in the Work.
6.2.6. Maintenance bonds as specified.
6.2.7. Extended Warranties as specified
6.2.8. Certificate from Workers' Compensation Board.
6.2.9. Certificate from Health Services Tax Division.

7. Final Inspection Procedures

7.1. Schedule, make arrangements for and administer final inspections and close out in the following stages.

7.2. Contractor's Inspection:

7.2.1. Determination that Project meets requirements for substantial performance and inspection is the responsibility of the Contractor.

7.2.2. The Contractor and all Subcontractors shall conduct an inspection of the work, identify deficiencies and defects; repair as required. Notify the Consultant in writing of satisfactory completion of the contractor's Inspection and that corrections have been made. Request a Consultant's Substantial Performance Inspection.

7.3. Consultant's Inspection: Consultants and the Contractor will perform an inspection of the Work to identify obvious defects or deficiencies. The contractor shall correct Work accordingly.

7.4. Substantial Performance Inspection:

7.4.1. When the items noted above are complete, request a substantial performance inspection of the Work by the Consultant, and the Contractor. If Work is deemed incomplete by the Consultant, complete the outstanding items and request a re-inspection.

7.4.2. Substantial performance inspections shall be scheduled to begin within eight working days of the Contractor's request.

7.4.3. Present at the substantial performance inspection will be:

7.4.3.1. The Consultant and his Sub-consultants that he requires and notifies.
7.4.3.2. The Owner's representatives, upon notification by the Consultant.
7.4.3.3. The Contractor and such Subcontractors that he considers are required.
7.4.3.4. The Contractor will compile a substantial performance deficiency list at this inspection and issue it to the Consultant and Owner.
7.4.3.5. The Contractor shall correct substantial performance deficiencies before a date agreed upon by the Contractor and Consultant.
7.4.3.6. Upon the Consultant's approval of substantial performance, the Contractor shall submit an application for a substantial performance certificate.
7.4.3.7. When the Contractor has satisfied himself that these corrections have been completed in a satisfactory manner by his inspection he shall schedule a

final Contractor's inspection by the Consultant, and the Owner's representatives if required, within five working days of the Contractor's request.

7.4.3.8. Upon the Consultant's approval of completion, the Contractor shall submit an application for a completion certificate.

8. Substantial Performance

8.1. The Consultant will issue a Certificate of Substantial Performance when satisfied outstanding deficiencies noted during inspections prior to the Substantial Performance inspection have been corrected, the Work is substantially complete and is so certified by the Owner.

8.2. A list of remaining deficiencies to be rectified before final acceptance will be attached to the Certificate of Substantial Performance.

8.3. Make submissions specified in Subparagraph 1.06 of this Section.

9. Certificate For Release Of Amount Due At Substantial performance

9.1. The Consultant will issue to the Owner a certificate for release of money in an amount equal to the amount due the Contractor under the Agreement providing he is satisfied the Work has been substantially completed.

9.2. The certificate shall indicate the date of substantial performance.

9.3. Payment shall be due upon date of substantial performance.

10. Completion Certificate

10.1. The Consultant will issue a Certificate of Completion (DSS Document DC670-92) when he is satisfied that outstanding deficiencies noted during inspections have been corrected and the Work is completed and is so certified by the Owner.

10.2. The date of the completion certificate will commence the required sixty (60) day period before release of final payment.

11. Certificate For Release Of Final Payment

11.1. The Consultant will issue to the Owner a certificate for release of final payment sixty (60) days after date of completion certificate providing he is satisfied the Work has been completed.

11.2. The certificate will be in an amount equal to the remaining money due the Contractor under the Contract, and shall indicate the date of final completion.

11.3. Payment shall be due upon date of final completion.

12. Warranties

12.1. Establishment of Warranties:

12.1.1. Warranties shall commence on date of substantial performance certificate.

12.2. Warranty Period:

12.2.1. The Owner will advise the Consultant of defects observed during warranty periods.

12.2.2. The Consultant will notify the Contractor of defects observed during warranty period and request him to remedy the defects in accordance with the Contractor documents.

12.2.3. Thirty (30) days before expiration of warranties the Owner's representatives, the Consultant and the Contractor will inspect the Work as arranged by the Contractor noting defects of products and workmanship.

12.2.4. The Contractor shall immediately remedy such noted defects.

END OF SECTION 01 77 00

CONTRACTOR'S CHECKLIST

Pre-Closing Reminder to Proponents:

- This Request for Proposals (RFP) is a **two envelope process.** Please ensure that the submission instructions are followed carefully as noted in Section 00 21 13 – Information to Proponents to ensure your submission is compliant.

- Required Bid Security – (10% of the Contract price before HST) – Bid security documentation shall be included within your sealed Price Submission envelope.

Post Award Document Requirements to be provided (within 10 business days of award, when requested by HRCE):

- Certificate of Recognition from one of the seven safety audit companies that jointly sign with the WCB
- Workers' Compensation Board Letter of Good Standing.
- Contract Security documentation – required on all contracts valued over 100K.
- All required insurance documentation
- Completed Schedule of Values – Provided in the RFP package
- Completed HRCE Safety Plan – Attached with the RFP package
- A detailed listing of subcontractors to be used.
- Any applicable warranty information

1 General

1.1 RELATED WORK

.1 Section 09 90 00: Painting

1.2 REFERENCES

.1 ASTM A53_87b Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

.2 ASTM A269_87a Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

.3 ASTM A307_87 Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.

.4 CGSB 1_GP_40M_79 Primer, Structural Steel, Oil Alkyd Type.

.5 CGSB 1_GP_181M_77 Coating, Zinc_Rich, Organic, Ready Mixed.

.6 CAN/CSA_G40.21_M87 Structural Quality Steels.

.7 CSA G164_M1981 Hot Dip Galvanizing of Irregularly Shaped Articles.

.8 CAN/CSA_S16.1_M89 Limit States Design of Steel Structures.

.9 CSA W47.1_1983 Certification of Companies for Fusion Welding of Steel Structures.

.10 CSA W55.3_1965 Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.

.11 CSA W59_1989 Welded Steel Construction Metal Arc Welding.

1.3 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 30 00-Submittals.

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

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Collect, separate and recycle all site generated waste materials.

2 Products

2.1 MATERIALS

.1 Steel sections and plates: to CAN/CSA_G40.21, Grade 300W and 350W.

.2 Steel pipe: to ASTM A53 galvanized finish.

.3 Welding materials: to CSA W59.

.4 Bolts and anchor bolts: to ASTM A307.

.5 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m^2 to CSA G164.

.6 Stainless steel tubing: to ASTM A269, Type 302 Commercial grade.

.7 Chromium plating: chrome on steel with plating sequence of 0.009 mm thickness of copper, 0.010 mm thickness of nickel and 0.0025 mm thickness of chromium.

.8 Shop coat primer: to CGSB 1_GP_40M.

.9 Zinc primer: zinc rich, ready mix to CGSB 1_ GP_181M.

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

2.2 FABRICATION

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

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

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

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

2.3 SHOP PAINTING

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

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

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

3 Execution

3.1 ERECTION

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

.2 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding, CSA W55.3 for resistance welding.

.3 Provide certification that all welded joints are certified by Canadian Welding Bureau.

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

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

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

.7 Provide components for building by other sections in accordance with shop drawings and schedule.

.8 Make field connections with high tensile bolts to CAN/CSA_S16.1, or weld.

.9 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.

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

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

.12 Promptly as the work proceeds and on completion, clean up and remove from the premises all rubbish and surplus materials resulting from the work of this section.

3.2 SCHEDULE OF MISCELLANEOUS ITEMS

.1 General: This section includes work to complete metal items manufactured to detail, not specified in other sections and summarized but not restricted to the following:

.2 Steel Railings: Other than stairs, sized and formed to shapes as indicated on drawings joined by flush type fittings and welding, or by fully notching intersecting members to pipe contour and welding minimum pipe diameter: 1 ½ “. Installed as detailed. Finish: Prime paint at interior, galvanized (after fabrication) at exterior.

.3 Steel mesh protection for windows:

.1 1"x1"x1/8" galvanized frame, bolted to window trim.

.2 Mesh sized to protect entire window.

.4 3/8" galvanized checker plate at base of ramp.

.5 Miscellaneous Metals: Provide and install all miscellaneous angles, channels, plates and brackets required to complete the project and any miscellaneous steel not specified or noted on the structural drawings.

END OF SECTION

1 General

1.1 GENERAL CONDITIONS

.1 The General Conditions of the contract as well as provisions of Division 1 at the beginning of these specifications shall be deemed to apply and be a part of this section of the specification.

1.2 WORK INCLUDED

.1 To complete rough carpentry as shown or specified and summarized but not restricted to the following:

- .1 Building framing
- .2 Roof framing and related carpentry
- .3 Eave, fascia, rake trim
- .4 Window and door blocking
- .5 Installation of door frames in wood stud walls.
- .6 Ramps and stairs
- .7 Rough carpentry as required to complete the project

1.3 RELATED WORK

.1	Painting	Section 09 91 10
.2	Pressed steel Frames	Section 08 11 10

1.4 SOURCE QUALITY CONTROL

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

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

.3 All wood products used in this section shall be FSC certified.

2 Products

2.1 LUMBER MATERIAL

.1 In conformance with minimum lumber grades for specific end uses of the NBC-Latest Edition.

.2 Moisture content of lumber at time of building in shall not exceed 19%.

.3 Provide pressure treated lumber and pressure treated plywood for all window and louver blocking, roof curbs, cants and all other exterior blocking.

2.2 PLYWOOD

.1 Douglas Fir plywood (DFP): to CSA 0121-M1978, standard construction.

.2 Canadian softwood plywood (CSP): to CSA 0151-M1978, standard construction.

2.3 BLOCKING

.1 Shall be ¾" plywood.

2.4 FASTENERS

.1 Nails, spikes and staples: to CSA B111-1974. Galvanized.

.2 Bolts: 1/2" diameter galvanized unless indicated otherwise, complete with nuts and washers.

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

.4 Galvanizing: to CSA G164-M92, use galvanized fasteners for all work.

2.5 WOOD PRESERVATIVE

.1 Surface applied wood preservative: coloured, copper napthenate or 5% pentachlorophenol solution, water repellent preservative to meet specified requirements of CSA 080-1983.

2.6 DAMP PROOF MEMBRANE

.1 6 mils polyethylene film.

3 Execution

3.1 CONSTRUCTION

.1 Comply with requirements of NBC, Part 9, Latest Edition supplemented by the following paragraphs.

3.2 ERECTION

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

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

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

3.3 NAILING STRIPS, GROUNDS & ROUGH BUCKS

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

3.4 CANTS, CURBS, BACKING

.1 Install wood cants, fascia backing, nailers, curbs and other wood fascia supports as indicated on drawings and secure using galvanized fasteners.

3.5 SURFACE-APPLIED WOOD PRESERVATIVE

.1 Treat all cut surfaces of pressure treated lumber and plywood with wood preservative, before installation.

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

.3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

3.6 DAMPPROOFING

.1 Install dampproof membrane between wood members and concrete in contact with earth or on grade.

3.7 ADJUSTMENT

.1 Ensure that bolted fasteners are drawn up tightly.

3.8 INSTALLATION OF PRESSED STEEL FRAMES

.1 Install pressed steel frames supplied under Section 08 11 10.

.2 Set in place for building into wood frame, and anchor frames to floor as provided by anchor clips.

.3 Brace frames in place to prevent displacement until anchored into wood frame and remove spreaders at floor after frames are anchored.

END OF SECTION

1 General

1.1 GENERAL CONDITIONS

.1 The General Conditions of the contract as well as provisions of Division 1 at the beginning of these specifications shall be deemed to apply and be a part of this section of the specification.

1.2 DESCRIPTION

.1 Work Included: to complete prefabricated structural wood as shown or specified herein and on drawings and details and summarized but not restricted to:

.1 Supply and install prefabricated structural wood trusses, wood beams, parallam beams, etc.

.2 Design of trusses, beams, etc. in accordance with N.B. C., latest edition, and the Truss Plate Institute of Canada (T.I.P.C.)

.2 Related Work Specified in Other Sections

.1 Section 05 50 00: Metal Fabrications

.2 Section 06 10 00 : Rough Carpentry

1.3 QUALITY ASSURANCE

.1 Allowable Tolerances:

.1 Ensure that dimensions of finished Work are within the following tolerances.

.2 Connector Locations:

.1 Toothed connectors: 1/4" from location shown on shop drawings.

.3 Square end cuts: Square within 1/16" in 1'-0" of depth and width.

.4 Openings Between Members of Assembled Trusses:

.1 Tension members: Maximum 1/16"

.2 Compression members: Maximum 1/32"

1.4 SUBMITTALS (SEE ALSO 1.7)

.1 Shop Drawings

.1 Submit shop drawings to show wood species, loading design assumptions, connections and other construction details.

.2 Affix to shop drawings and design calculations seal of structural design engineer registered to practice in Nova Scotia who is responsible for Work.

.2 Design Calculations: Submit, with shop drawings, calculations pertaining to the design of structural members, including anchorage and connections, and in the same manner as for shop drawings.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

.1 Handle, transport and store the Work of this Section by methods devised or approved, or both, by fabricator to prevent staining, soiling and damage.

.2 Store Work of this Section to clear ground or other bearing surfaces, to prevent overstress, warp, twist, accumulation of water and snow, and to afford free movement of air on all sides of each unit.

2 Products

2.1 GENERAL

.1 All wood products in this section shall be FSC certified.

.2 Include in Work of Section all hardware required for its execution.

.3 Moisture content of wood at time of installation shall be kiln dried.

2.2 MATERIALS

.1 Conform to requirements of: National Building Code of Canada, Latest Edition, Section 4.3 for lumber and fastenings.

.2 Lumber:

.1 Minimum chord size for all trusses shall be 2" x 4".

.2 All trusses shall be manufactured using lumber graded by NLGA rules, with allowable unit stresses as per latest edition of CSA 086.

.3 Roof trusses shall be manufactured with No. 1 or No. 2 grade lumber or better for top and bottom chords.

.3 Connector Plates:

.1 Metal connector plates shall be prime commercial quality steel, meeting the mechanical requirements as established in ASTM A 446, for Grade A or higher grade steel.

.2 Corrosion resistant coating shall be to ASTM A 525 "specification for steel sheet, zinc coated by the hot dip process", and ASTM A 591 "standards specification for electrolytic coated steel sheets".

.3 Provide hold down clips, etc., as per drawings and as per NBCC where not shown on drawings.

2.3 FABRICATION

.1 Wood Trusses: to meet specified requirements of CSA Standard 086-M84.

.2 Cut members to accurate length, angle, and size to assure tight joints for finished Work of this Section.

.3 Assemble members in design configuration by securing tightly in jigs or with clamps.

.4 Include design camber when positioning members.

.5 Fabricate end joints of plain scarf joints not less than 8" in length, or finger joints of a type that conform to CSA 0122-M89.

.6 Shop coat prefabricated structural wood with one coat of sealer to all sides and to ends after final cutting. Apply sealer after all working and cutting has been completed.

.7 Fabricate structural steel hardware in accordance with CSA Standard CAN3-S16.1 and welded in accordance with CSA Standard W59-M89 to details indicated on Drawings.

3 Execution

3.1 EXAMINATION

.1 Ensure that surfaces to receive Work of this Section are free of irregularities and debris.

.2 Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 ERECTION

.1 Erect prefabricated structural wood members in accordance with manufacturer's instructions.

.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 bolthead and nut bearings. Turn up bolts tightly when installed, and again just before concealed by other Work or at completion of Work.

.3 Supply anchors, bearing plates, 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.

.4 Include in Work rough hardware such as bolts, nuts, washers, connectors, and strap iron required for installation of Work of this Section for temporary use.

.5 Install structural wood members with cables, spreader bars or strongbacks as required at designated lift points.

.6 Exercise care to keep out-of-plane bending of structural wood members to minimum.

.7 Install temporary horizontal and cross bracing to hold structural wood members plumb and in safe condition until permanent bracing is installed.

.8 Install permanent horizontal and cross bracing and related components before application of loads to prefabricated structural wood members.

.9 Tighten loose connectors.

.10 Restrict construction loads to prevent overstressing of structural wood members.

.11 Do not cut or bore holes in structural wood members without approval.

3.3 ADJUSTMENT AND CLEANING

.1 Refinish damaged and defective Work before completion of Project, and to ensure that no discernible variation in appearance results.

.2 Verify that bolted connections and anchors are drawn up tightly.

END OF SECTION

1 General

1.1 RELATED WORK

.1	Rough Carpentry	Section 06 10 00
.2	Building Insulation	Section 07 21 00
.3	Sealants	Section 07 90 00
.4	Pressed Steel Frames	Section 08 11 00
.5	Vinyl Windows	Section 08 61 00

2 Products

2.1 MEMBRANE AIR BARRIER

.1 Non-Permeable air barrier membrane. Blueskin 40 mil thick as manufactured by Henry. See drawings for locations.

.2 Permeable air barrier membrane. Blueskin VP 160 as manufactured by Henry. See drawings for locations.

.3 SPRAY-ON AIR BARRIER (only for hard to access areas or where membrane air barrier cannot be applied)

.1 Bakor Airbloc 16MR, 90 Mil

.4 Approved Manufacturers: Provide equivalent products to architects satisfaction. Sopra Seal; W.R Grace; Nord- Bitumi; Fibreglas

2.2 SHEET VAPOUR BARRIER

.1 Polyethylene Film: to CAN2-51.34-M86, Type CMHC approved, Milrol-2000, 0.15 mm thick.

2.3 ACCESSORIES

.1 Joint sealing tape: air resistant pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, 2" wide for lap joints and perimeter seals.

.2 Sealant: in accordance with Section 07 90 00.

.3 Primer: asphalt based solvent primer for use with air barrier membrane.

.4 Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.

3 Execution

3.1 AIR BARRIER INSTALLATION

.1 Apply air barrier where indicated, including to walls and roof sheathing.

.2 Apply an additional 6” band of non permeable membrane air barrier around all window openings. Connect air barrier to thermal break of window and to adjacent air barrier.

.3 Apply in strict accordance with manufacturer's instructions.

.4 Roll completely after each sheet is applied.

.5 Prime substrate as per manufacturer's recommendations for the intended application.

.6 All side laps to be min. 2" and end laps min. 6".

.7 Lap air barrier with vapour barrier at all openings.

.8 Connect air barrier to window frames and door frames to provide air tight seals.

.9 Apply spray on air barrier to any difficult detail areas which do not allow for easy installation of the sheet membrane.

.10 Ensure continuity of air barrier by lapping spray on and roll on membrane air barriers.

3.2 SHEET VAPOUR BARRIER INSTALLATION

.1 Install sheet vapour barrier on warm side of exterior wall and ceiling assemblies prior to installation of gypsum board to form continuous barrier.

.2 Use sheets of largest practical size to minimize joints.

.3 Inspect sheets for continuity. Repair punctures and tears with sealing tape before work is concealed.

.4 Cut sheet vapour barrier to form openings and ensure material is lapped and sealed to door and window frames.

.5 Lap and seal air barrier membrane over vapour barrier at openings to provide continuity.

.6 Seal perimeter of sheet vapour barrier as follows:

.7 Apply continuous bead of sealant to substrate at perimeter of sheets.

.8 Lap sheet over sealant and press into sealant bead.

.9 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

.10 Seal lap joints of sheet vapour barrier as follows:

.1 Attach first sheet to substrate.

.2 Apply continuous bead of sealant over solid backing at joint.

.3 Lap adjoining sheet minimum 6" and press into sealant bead.

.4 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring over sealant.

.11 Seal electrical switch and outlet device boxes that penetrate vapour barrier as follows:

.1 For sheet-type vapour barriers, install moulded box vapour barrier.

.2 Apply sealant to seal edges of flange to main vapour barrier and seal wiring penetrations through box cover.

END OF SECTION

1 General

1.1 WORK INCLUDED

.1 To complete thermal insulation for resistance of heat transfer as shown or specified and summarized but not restricted to:

.1 Rigid insulation other than noted in Mechanical Division 15 and other than roof insulation.

.2 Exterior stud Mineral Wool batt cavity wall insulation

.3 Exterior continuous insulation c/w strapping system

.4 Roof truss insulation.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

.1 Section 09 21 16: Gypsum Board Assemblies

.2 Section 31 23 10: Earthwork

1.3 PRODUCT DELIVERY, STORAGE AND HANDLING

.1 Package insulation materials and label them to designate manufacturer, type, density and insulation value, and reference standard specification number if applicable.

.2 Store insulation materials in dry areas, protected from wetting and traffic.

.3 Store insulation board flat, on a flat surface, and to prevent edge damage and placing of materials on top of stored boards.

.4 Protect polystyrene insulation from sunlight at all times until permanent cover is installed.

2 Products

2.1 GENERAL

.1 Ensure that all materials of an insulation system, and the construction with which it is in contact, are compatible.

2.2 FOUNDATION WALL AND SLAB INSULATION

Not Used.

2.3 EXTERIOR STUD WALL INSULATION

.1 Cavity Fill: Mineral Wool insulation to meet specified requirements of ASTM-C-612, Class 1 with a thermal resistance as noted on the drawings as manufactured by Rockwool or approved alternate.

2.4 EXTERIOR CONTINUOUS INSULATION

.1 Non-combustible, rigid, water repellent, mineral wool insulation board to ASTM C612, Type IVB.

.1 Size: 24 x 48 inches.

.2 Thickness: 1.25 inches.

.3 Acceptable Material: Roxul Inc., COMFORTBOARD™ 110.

.2 Strapping:

.1 1”x 4” wood.

.3 Fasteners

.1 Screws shall be stainless steel, compatible with strapping and cladding material.

.2 Screws shall be sized to accommodate all loads including torque loads and shall have a countersunk head.

2.5 ROOF TRUSS INSULATION

.1 Blown in fiberglass insulation to r-value as noted on drawings.

.2 Acceptable Material: AtticCat Expanding Blown-In Insulation by Owens Corning or approved alternate.

3 Execution

3.1 EXAMINATION

.1 Ensure that all surfaces to which insulation is applied are clean, reasonably smooth with no abrupt changes in plane, free of grease and with protruding fins of mortar or concrete removed, and that the surfaces are otherwise acceptable for insulation application as specified.

.2 Ensure that furring is installed to suit insulation sizes and thicknesses, and to ensure proper support.

3.2 INSTALLATION

.1 Exterior Stud Wall Insulation

.1 Ensure that insulation is supported to prevent settlement.

.2 Install friction fit batts snugly between framing members.

.3 Fit batt insulation snugly and without compression into every void to ensure full thickness for full length of construction, and to prevent air movement simultaneously on both sides of insulation.

.2 Exterior Continuous Insulation

.1 Install in strict accordance with manufacturer's instructions unless specified otherwise.

.2 Strapping : Vertical

.1 Spacing to match stud spacing, maximum spacing 16" o/c.

.3 Fastening:

.1 Minimum #12 stainless steel screws.

.2 Minimum embedment in stud back up: 1-1/2"

.3 Maximum screw spacing: 12" vertical

.3 Roof truss insulation:

.1 Provide continuous installation .

.2 Provide installers certificate to confirm that final installed thickness meets or exceed R values shown on drawings.

3.3 ADJUSTMENT AND CLEANING

.1 Fill all voids in insulation systems with insulation.

.2 Remove adhesive from finish surfaces before it sets and clean them. Do not mar surfaces while removing and cleaning.

END OF SECTION

1 General

1.1 WORK INCLUDED

.1 To complete gutters, downspouts, fascias and soffits summarized but not restricted to:

- .1 Prefinished aluminum fascia, soffit and rake trim
- .2 Seamless Aluminum Gutter & Downspouts
- .3 Miscellaneous trim associated with roof, eaves and soffits.

1.2 RELATED WORK

.1 Rough Carpentry: Section 06 10 00

1.3 SAMPLES

.1 Submit metal samples and profiles to Architect prior to manufacturing

2 Products

2.1 MATERIALS

.1 Drip Edge: Aluminum drip edge on eaves and rake.

.2 Eave Troughs and Down spouts

- .1 Form eaves troughs and down spouts from 0.032 gauge thick aluminum.
- .2 Sizes and profiles as shown on drawings, minimum size 5”
- .3 Provide 6” PVC pipe to protect and extend base of downspout
  - .1 Pipe to extend min. 12” up vertical portion of downspout
  - .2 Provide elbow to match bend in downspout
  - .3 Extend min 36” along horizontal
- .4 Provide aluminum support brackets @24” o/c for eaves troughs.
- .5 Form eaves troughs and gutters continuous lengths.
- .6 Colors: Boncor white #701

.3 Sheet Metal Flashing: for eave and rake trim and all other trim 0.032" thick aluminum embossed sheet. Colour: White. Note: Separate pieces are required, one for each horizontal "plank" in the fascia detail. Maximum length of aluminium without a joint is 8’ - 0".

.4 Soffits: Perforated aluminum soffit, colour: white.

- .1 Solid and perforated aluminum soffit where indicated
- .2 Minimum thickness: 0.025 in.

3 Execution

3.1 APPLICATION

.1 Workmanship shall be of best standard area practice and done in accordance with applicable Manufacturer's Written Instructions for the items of roofing specified herein.

.2 Metal Drip Edge: Install metal drip edge along eaves and up rakes. Lap joints 4" and set in Selvage Roofing Cement. Nail at 10" centres maximum

.3 Flashings: Application of Metal Trim and Flashings

.1 Flashings shall be as detailed with "West Coast" or "S" lock to provide for expansion, and with clip strips.

.2 Flashing shall meet best CRCA Specs as noted or required.

.3 Sheet metal work and metal counter flashing shall be as detailed and to CRCA Standard Details FL-500, FL-600 series as applicable.

.4 Metal flashings shall have concealed fasteners wherever possible. Exposed fasteners shall be compatible type screws c/w watertight gaskets to the approval of the Architect, including location of fasteners.

.5 Exposed edges of all sheet metal work shall be doubled back ½" in such a manner as to conceal them from view and to provide stiffeners.

.4 Install metal flashing and trim to best CRCA Standards.

3.2 PROTECTION

.1 Protect the surrounding surfaces from damage resulting from the work of this section.

3.3 CLEANING

.1 Promptly, as the work proceeds, and on completion, clean up and remove from the premises all rubbish and surplus materials resulting from the foregoing work.

.2 Clean metal flashing at completion of work.

.3 Remove deposits of cement from adjacent surfaces completely.

END OF SECTION

1 General

1.1 GENERAL CONDITIONS

.1 The General Conditions of the contract as well as provisions of Division 1 at the beginning of these specifications shall be deemed to apply and be a part of this section of the specification.

1.2 WORK INCLUDED

.1 Complete installation of prefinished siding and Trim as shown or specified and summarized but not restricted to the following:

- .1 Building Cladding.
- .2 All related trim.
- .3 Sheet vinyl cladding for plywood skirt
- .4 Caulking as per Section 07 90 00

1.3 RELATED WORK

.1	Sealants:	Section 07 90 00

1.4 SUBMITTALS

.1 Submit under provisions of Section 01 30 00.

.2 Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

.3 Shop Drawings: Provide detailed drawings of atypical non-standard applications of siding materials which are outside the scope of the standard details and specifications provided by the manufacturer.

.4 Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

.5 Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches (100 by 150 mm),representing actual product, color, and patterns.

1.6 DELIVERY, STORAGE, AND HANDLING

.1 The product must be stored, handled, treated and installed as per manufacturer's instructions

.2 Store products in manufacturer's unopened packaging until ready for installation.

.3 Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.

.4 Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

.1 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

.1 Product Warranty: Limited product warranty against manufacturing defects.

1. Siding for 30 years.
2. Trim for 15 years.

.2 Finish Warranty: Limited product warranty against manufacturing finish defects.

1. For a period of 15 years from the date of purchase: will not peel; will not crack; and will not chip.

.3 Workmanship Warranty: Application limited warranty for 2 years.

2 Products

2.1 SIDING

.1 Vinyl Siding: Sentry 44, Double 4" Horizontal manufactured by Ply Gem®

1. Type: Double 4" width, .044" Thick

.2 Trim & Corner Boards: Azek® Trim as manufactured by Azek® Building Products,Inc. Minimum thickness 5/4 ", width as per drawings.

.3 Skirt: Ply Gem vertical soffit siding on exterior grade plywood substrate.

2.2 FINISH

1. Color:
    1. To Architect's selection from full range of colours including accent colours.
    2. Trim and flashing: White.

2.3 FASTENERS

.1 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, recommended for purpose by manufacturer, Stainless Steel, with heads coloured to match siding and trim. Sized to penetrate at least 1¼" into wood studs.

.2 Nails, spikes and staples where not exposed: to CSA B111-1974. Galvanized.

.3 Bolts: 1/2" diameter galvanized unless indicated otherwise, complete with nuts and washers.

.4 Galvanizing: to CSA G164-M92, use galvanized fasteners for all work.

2.4 TOUCH UP PAINT

.1 As recommended and supplied by Manufacturer.

2.5 CAULKING

.1 One part thermoplastic, elastomeric sealant to meet specified requirements of CGSB 10-M14.6 Tremco 830.

2.6 SPACER STRAPPING

.1 1” x 3” strapping, kiln dried and pressure treated

2.7 ACCESSORIES

1. Provide a full line of color matching accessories including, but not limited to, nails, caulking, touch-up paint, metal accessories, aluminum J & H trims, manufacturers standard flashing trim, etc.

2.8 FLASHINGS

.1 Zinc where concealed, aluminum where exposed

3 Execution

3.1 CONSTRUCTION

.1 Comply with requirements of NBC, Latest Edition, Part 9.

3.2 ERECTION

.1 Install siding and trim true to line, levels and elevations.

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

3.3 NAILING STRIPS, GROUNDS & ROUGH BUCKS

.1 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work. Apply felt paper against exterior masonry walls before installation of strapping.

.2 Install all backing, nailers, curbs and other wood supports as indicated on drawings and secure using galvanized fasteners.

3.4 DAMPPROOFING

.1 Install dampproof membrane between wood members and concrete in contact with earth or on grade.

3.5 INSTALLATION - PREFINISHED CLAPBOARD SIDING

.1 Install Sentry 44 and Vertical Soffit Vinyl siding as per manufacturer's instructions.

3.6 INSTALLATION - CELLULAR PVC MOULDINGS & TRIM

.1 Manufacturers instructions:
- .1 Comply with manufacturer's product catalog installation instructions and product technical bulletin instructions.

.2 Cutting:
- .1 AZEK products can be cut using the same tools used to cut lumber.
- .2 Carbide tipped blades designed to cut wood work well. Avoid fine tooth metal cutting blades.
- .3 Rough edges from cutting may be caused by excessive friction, poor board support, or worn or improper tooling.

.3 Drilling:
- .1 AZEK products can be drilled using the same tools used to drill lumber

  avoid frictional heat buildup.
- .3 Use standard woodworking drills. Do not use drills made for normal rigid pvc.
- .4 Periodic removal of AZEK shavings from the drill hole may be necessary. D

.4 Milling:
- .1 AZEK products can be milled using standard milling machines used to mill lumber.
- .2 Relief Angle 20˚ to 30˚
- .3 Cutting speed to be optimized with the number of knives and feed rate.

.5 Routing:
- .1 Drilling AZEK products is similar to drilling a hardwood. Care should be taken to
- .2 AZEK products can be routed using standard router bits and the same tools used to rout lumber.
- .3 Carbide tipped router bits are recommended.

.6 Edge Finishing:
- .1 Edges can be finished by sanding, grinding or filing with traditional woodworking tools.

.7 Nail Location:
- .1 Use 2 fasteners per every framing member for trimboard applications.
- .2 Trimboards over 12" or wider, as well as sheets, will require additional fasteners.
- .3 Fasteners must be installed no more than 2" from the end of each board.

.8 Thermal Expansion and Contraction
- .1 AZEK products expand and contract with changes in temperature.
- .2 Properly fastening AZEK material along its entire length will minimize expansion and contraction.
- .3 When properly fastened, allow for 1/8" per 18 foot of AZEK product for expansion and contraction.
- .4 Joints between pieces of AZEK should be glued to eliminate joint separation. When gaps are glued on a long run of AZEK, allow expansion and contraction at ends of the run.

3.7 ADJUSTMENT

.1 Ensure that bolted fasteners are drawn up tightly.

3.8 FINISHING

.1 Include Manufactured Finish Ends Abutting products. Where a Cut is required, the Raw Cut must be touched up with Touch Up Paint.

3.9 PROTECTION

.1 Protect installed products until completion of project.

.2 Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

1 General

1.1 GENERAL CONDITION

1. The General Conditions of the contract as well as provisions of Division 1 at the beginning of these specifications shall be deemed to apply and be a part of this section of the specification.

1.2 WORK INCLUDED

1. To complete the two ply modified bitumen roofing system including flashings in strict accordance with the manufacturer's instructions, the drawings and specifications.
2. All other work as called for on the drawings as required to complete the roofing project, including but not restricted to:
3. Installation of fascia, gutters, flashing, etc.
   .1 Caulking as shown on the drawings and as required to complete the work. Caulking shall be as per Section 07 90 00.
4. As-built drawings, warranties and literature to Architect's approval.

1.3 RELATED WORK

Rough Carpentry	Section 06 10 00
Sealants	Section 07 90 00

1.4 ACCEPTABLE MANUFACTURERS

.1 The following manufacturers of modified bitumen systems will be approved for use on this project, provided they meet the design criteria as specified herein and as shown on the drawings and can meet the I-90 Factory Mutual Underwriters wind requirements and CSA-A123.21:

.1 GAF

.2 IKO

.3 Soprema

.4 Tremco

.5 Siplast

.5 Bakor

1.5 REFERENCE STANDARDS

.1 Where CSA, CRCA or CGSB Standards of Specifications are named in this Section, it shall refer to the latest edition.

.2 CRCA, latest edition.

1.6 QUALITY ASSURANCE

.1 This roofing system must be applied by a roofing contractor authorized by the roofing manufacturer, and approved by the Architect.

.2 At least two inspections shall be made by a representative of the roofing manufacturer complete with inspection reports to ascertain the roofing system has been installed in accordance to the specifications and details.

.2 Upon completion of the installation, an inspection shall be made by a representative of roofing manufacturer to ascertain that the roofing system has been installed according to the applicable specifications and details. Written interm and final inspection reports from the manufacturer shall be made available to the Architect.

.3 There shall be no deviation made from this specification or the approved shop drawings without prior written approval by the Architect.

1.7 SUBMITTALS

.1 Submit complete shop drawings. Do not order materials until shop drawings have been reviewed by the Architect.

.2 Shop drawings shall include:

.1 Outline of roof and roof size to scale.

.2 Location and type of all penetrations.

.3 Number of membrane sheets and their respective sizes and proposed joints.

.4 Number of flashing rolls by width and length.

.5 Insulation type, brand, thickness, and tapers.

.6 Layout and size of tapered insulation members.

.7 Slope of roof to each roof drain.

.8 Roof drains.

.9 Warranty type and period.

.3 Be approved by the roofing manufacturer in writing.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

.1 Deliver materials in original unopened containers labelled with manufacturer's name, brand name, installation instructions, and identification of various items.

.2 Store materials, between 60° and 80°F. If exposed to lower temperature, restore to 60°F minimum temperature before using.

.3 Store materials in dry area and protect from water and direct sunlight. Store membrane rolls on end, one pallet high, selvage edge up. Do not store in a leaning position.

1.9 STANDARDS FOR UPLIFT

.1 The finished roof shall meet or exceed CSA-A123.21 and the Factory Mutual I-90 for standards for uplift as approved in writing by Factory Mutual, as to assembly and materials.

1.10 EXTENDED WARRANTY

1. Extended warranties will not extend to existing roofing.
2. Submit a warranty of the Work of this Section covering the period for four years beyond the expiration of the performance bond specified in General Conditions.
3. Defective work shall include but not be restricted to leaking through the roof or related flashings. Remedial work shall include replacement of work damaged by failure of the roofing.
4. In addition to the above, provide a manufacturer’s warranty extending the warranty for all roofing materials and labour for a period of nine (9) years beyond the expiration of the Performance Assurance requirements specified in the General Conditions.
5. Replacement shall include, where applicable, removal of all defective roof assembly materials, installation of new roofing assembly in affected area, and repair and making good of displaced and adjacent Work damaged during replacement. Defective work will include, but not be limited to leaking, wind uplift, delamination of roofing material, reduction of thermal value due to moisture in insulation, crazing, or ridging.
6. Extended Warranties shall be non-prorated.

2 Products

2.1 GENERAL

.1 The components of this roofing system are to be products of the manufacturer's modified bitumen roofing system or accepted by the manufacturer in writing, and approved by the Architect.

.2 The combined thickness of the base sheet and cap sheet shall be at least 6 mm.

2.2 VAPOUR BARRIER

.1 Not Used.

2.3 ADHESIVES

.1 Base Sheet

.1 Product: IKO S.A.M. Adhesive or approved equal.

.2 Cap Sheet

.1 Product: IKO S.A.M. Adhesive or approved equal.

2.4 INSULATION

.1 Not Used.

2.5 PRIMERS

.1 Provide primers for base sheet and cap sheet membranes as per the manufacturer's instructions.

2.6 GYPSUM SUPPORT PANELS

.1 Not Used.

2.7 MEMBRANES

.1 Base Sheet

.1 Reinforcement: Fiberglass

.2 Elastomeric asphalt: mix of selected bitumen and thermoplastic polymer.

.3 Top face covered with a thermofusible plastic film.

.4 Underface lightly sanded.

.5 Min. thickness 3mm.

.6 Acceptable Products:

.1 Roof Fast Base MA by IKO

.2 Base Flashing:

.1 Have a non-woven polyester reinforcement and thermofusible elastomeric asphalt. Both sides shall be protected by a thermofusible plastic film. This membrane is to be applied by torching only.

.2 Reinforcement: non-woven polyester, 180 g\m^2.

.3 Thermofusible elastomeric asphalt: mix of selected bitumen and SBS thermoplastic polymer.

.4 Minimum thickness: 3 mm.

.3 Cap Sheet and cap sheet flashing.

.1 Reinforcement: Fiberglass

.2 Elastomeric asphalt: mix of selected bitumen and SBS thermoplastic polymer.

.3 Minimum thickness 3.8 mm. Note: combined thickness of base sheet and cap sheet must be a minimum of 6mm.

.4 Top face protection: ceramic granules, colour from Manufacturer's standard selection.

.5 Expansion joint membrane:

.1 Elastomeric modified bitumen waterproofing membrane.

.2 Reinforcing: polyester tissue.

.3 Surfaced with thermoplastic foil and a protective silicon paper.

.4 Minimum thickness 3.8 mm.

.5 Minimum width 18".

.6 Provide purpose made gussets, etc. as recommended by the manufacturer and as shown on the drawings, all to Architect's approval.

.7 Provide all other membrane fittings, termination bars, etc. as required to complete the project.

.8 Product: Roof Fast Cap by IKO

2.8 SHEET METAL

.1 As detailed on the drawings and to the following specifications:

1. Exposed flashing shall be 24 ga. prefinished aluminum with western lock and concealed fastenings, maximum length to be 8'-0".
    1. Colour to be selected by Architect from full range of colours.
2. See drawings for other specific flashing types.

2.9 SLIP SHEET

.1 Not Used.

2.10 ACCESSORIES

.1 Provide all other accessories, termination bars, etc. as required to complete the project.

2.11 CAULKING

.1 Caulking to be elastomeric or approved equal.

3 Execution

3.1 GENERAL

.1 All work in this strict accordance with the manufacturer's instructions, the drawings and specifications to Architect's approval.

3.2 SUBSTRATE PREPARATION

.1 Before any membrane is laid, install all roof hoppers, sleeves, anchors and other items to be secured to or pass through the roof.

.2 Repair any substrate joints, cracks, or any substrate to wall junctions and any other substrate to penetration gaps, which are greater than 1/4" with pourable sealer. Take measures necessary to contain the pourable sealer.

.3 Substrate surfaces shall be dry and clear of any foreign materials.

3.3 EQUIPMENT

.1 Maintain all equipment and tools in good working order.

.2 Use torch types recommended by the manufacturer of the elastomeric asphalt membranes.

3.4 GYPSUM SUPPORT PANELS

.1 Not Used.

3.5 VAPOUR BARRIER

.1 Not Used.

3.6 INSULATION

.1 Not Used.

3.7 BASE SHEET

.1 Base sheet membrane shall be unrolled dry on gypsum support panels to alignment. Each strip shall have 3" side laps and 6" end laps.

.2 Apply adhesive in strict accordance with manufacturers instructions and as required to achieve I-90 uplift resistance.

.3 Base sheet turn-ups on vertical surfaces to be as shown on the drawings, or at least 4" above the top of the cant.

.4 All laps etc., as per details attached.

3.8 BASE FLASHING

.1 Primer coating must be dry before application of the base sheet stripping.

.2 Provide membrane gussets, etc., as shown on the drawings.

.3 Base flashing shall be laid in strips one meter wide to the vertical surfaces, extending on to the flat surface of the roof a minimum of 4". Side laps shall be 3" and shall be staggered a minimum of 4" with the laps of the base sheet.

.4 Follow drain manufacturer's recommended installation procedure.

.5 All laps etc., as per details attached.

3.9 CAP SHEET

.1 Install cap sheet once the base sheet and base flashing have been applied and does not show any defects.

.2 Cap sheet shall be unrolled starting from the low point of the roof. Cap sheet shall be re-rolled from both ends prior to torching. Care must be taken to ensure alignment of the first roll (parallel with the edge of the roof).

.3 Base sheet and cap sheet seams shall be staggered a minimum of 300 mm.

.4 Cap sheet shall have side laps of 75 mm and end laps 150 mm. Surface granules on end laps must be embedded prior to installation of following sheet.

.5 After installation of the cap sheet, check all lap seams on the cap sheet.

.9 Embed granules on all side and end laps to achieve a uniform appearance over the entire roof.

.10 Apply a second layer of cap sheet where indicated on the drawings, to achieve a wearing surface on the maintenance walkways.

.11 All laps etc., as per details attached.

3.10 APPLICATION OF METAL FLASHINGS

.1 Flashings shall be as detailed, with "West Coast" or "S" lock to

provide for expansion, and with clip strips.

.2 Flashing shall meet CRCA Specs as noted or required.

.3 Sheet metal work and metal counter flashing shall be as detailed and to CRCA Standard Details FL-500, FL-600 series as applicable.

.4 Membrane flashing shall be covered with metal counter flashing as

shown on the drawings.

.5 Metal flashings shall have concealed fasteners wherever possible. Exposed fasteners shall be compatible type screws c/w watertight gaskets to the approval of the Architect, including location of fasteners.

.6 Exposed edges of all sheet metal work shall be doubled back ½" in such a manner as to conceal them from view and to provide stiffeners.

.7 All metal joints and reglets, cap flashings shall be caulked to the approval of the Architect by the Contractor. All reglets shall be 3/4" deep. Secure metal in reglets with lead wool. Bend metal to permit wedging into reglets.

.8 This Trade Contractor shall caulk the perimeter joint between the exterior wall and the roofing flashing.

END OF SECTION

1 General

1.1 SECTION INCLUDES

.1 Sealants and caulking.

.2 Backer rods.

1.2 WORK INCLUDED

.1 To complete joint sealants as shown or specified and summarized but not restricted to the following:

.1 Caulking between door frames and adjacent material, interior and exterior.

.2 Caulking between members of vinyl windows.

.3 Caulking in connection with roof flashing.

.4 Caulking of control joints.

.5 Caulking of metal flashing.

.6 Joints between water closets, urinals, walls and floor.

.7 Exposed joints, between dissimilar materials and not concealed from view.

.8 Miscellaneous construction joints.

.9 Exterior caulking as required.

1.3 RELATED WORK

.1 Section 08 61 00 - Vinyl Windows

.2 Section 07 46 00 - Siding & Trim

1.4 REFERENCES

.1 ASTM C 321-00 - Standard Test Method for Bond Strength of Chemical-Resistant Mortars.

.2 ASTM C 834-05 - Standard Specification for Latex Sealants.

.3 ASTM C 919-98 - Standard Practice for Use of Sealants in Acoustical Applications.

.4 ASTM C 920-05 - Standard Specification for Elastomeric Joint Sealants.

.5 ASTM C 1330-02 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.

.6 ASTM C 882-05 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.

1.5 SUBMITTALS

.1 Manufacturer's Technical Data Guides and application procedures.

.2 Submit samples illustrating colors selected.

.3 Submit laboratory tests or data validating product compliance with performance criteria specified. Include SWRI validation certificate where required.

.4 Upon completion of the project the sealant applicator must submit copies of the

.1 Manufacturer’s Weather-seal and the Warranty Applicator’s Workmanship

.2 Warranty.

1.6 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company regularly engaged in manufacturing and marketing of products specified in this section.

.2 Installer Qualifications: Qualified to perform work specified by reason of experience or training provided by the product manufacturer.

.3 Installer must submit a reference list including a minimum of three projects of similar size and scope.

.4 Mock-Ups: Include a minimum of 5 linear feet of sealant to show compatibility with substrate, proper adhesion to substrate and chosen color.

.1 Apply mock-up with specified joint filler types and with other components noted. Installer must provide both primed and un-primed mock up to asses whether a primer is required for the project.

.2 Locate where directed by architect.

.3 Mock-up may remain as part of work if acceptable to architect.

.5 Adhesion pull tests: the number of adhesion pull tests is to be determined by the manufacturer’s weather seal warranty. Adhesion pull tests are to be conducted by or in the presence of the manufacturer’s representative. The manufacturer is to supply the architect / owner with the results of the adhesion pull tests. The sealant installer is responsible for repairing areas where adhesion pull tests are conducted.

.6 Access: Installer must coordinate with manufacturer’s representative to provide access to completed work areas until such time as adhesion pull tests can be completed.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Deliver products in original factory packaging bearing identification of product, manufacturer, and batch number. Provide Material Safety Data Sheets for each product.

.2 Store products in a location protected from freezing, damage, construction activity, precipitation, and direct sunlight in strict accordance with manufacturer's recommendations.

.3 Condition products to approximately 60 to 70 degrees F (16 to 21 degrees C) for use in accordance with manufacturer's recommendations.

.4 Handle all products with appropriate precautions and care as stated on Material Safety Data Sheet.

1.8 PROJECT CONDITIONS

.1 Do not use products under conditions of precipitation or freezing weather. Use appropriate measures for protection and supplementary heating to ensure proper curing conditions in accordance with manufacturer's recommendations if application during inclement weather occurs.

.2 Ensure substrate is dry.

.3 Protect adjacent work from contamination due to mixing, handling, and application.

1.9 WASTE MANAGEMENT AND DISPOSAL

.1 Coordinate all work related to Section 01 35 50 Waste Management Disposal with Contractor.

1.10 LEED DOCUMENTATION

.1 Not Used.

2 Products

2.1 MANUFACTURERS

.1 Acceptable Manufacturers:

.1 BASF Building Systems

.2 Tremco Sealant and Waterproofing.

.3 Sika Canada Inc.

.4 Dow Corning

.2 Provide all joint materials of the same type from a single manufacturer.

2.2 MATERIALS

.1 Single Component, Non-Sag Polyurethane Sealant with plus or minus 25 percent movement capability for vertical joints; ASTM C 920, Type S, Grade NS, Class 25, uses NT, M, A, O & I; SWRI validated. Acceptable material:

.1 Sonolastic NP1 by BASF Building Systems

.2 Tremco Dymonic by Tremco Sealant & Waterproofing

.3 Sikaflex 1a by Sika Canada Inc.

.2 Single component texturized polyurethane sealant with plus or minus 25 percent joint movement capability for horizontal or vertical joints; ASTM C 920, Type S, Grade NS, Class 25, uses NT, M, A, O. Acceptable material:

.1 Sonolastic TX1 by BASF Building Systems

.2 Vulkem 116 by Tremco Sealant & Waterproofing

.3 Single component security sealant with plus or minus 25 percent joint movement capability; ASTM C 920, Type S, Grade NS, Class 25, uses NT, T, M, A, G, I; SWRI validated. Acceptable materials:

.1 Sonolastic Ultra by BASF Building Systems

.4 Single component low modulus high movement fast-curing silyl terminated polyether sealant with plus 100 and minus 50 percent joint movement capability; ASTM C 920, Type S, Grade NS, Class 100/50, uses NT, M, A, G, O; ASTM C 1382. Acceptable materials:

.1 Sonolastic 150 with VLM technology by BASF Building Systems

.5 Multi-component tintable low modulus high movement fast-curing silyl terminated polyether sealant with plus 100 and minus 50 percent joint movement capability; ASTM C 920, Type M, Grade NS, Class 100/50, uses NT, M, A, G, O. Acceptable materials:

.1 Sonolastic 150 Tint Base by BASF Building Systems

.6 Multi-Component, Polyurethane Sealant with Plus or minus 50 percent joint movement capability; ASTM C 920, Type M, Grade NS, Class 25, uses NT,T, M, A, O, G and I; UL classified (fire resistance). Acceptable materials:

.1 Sonolastic NP2 by BASF Building Systems

.2 Dymeric 240 by Tremco Sealant & Waterproofing

.3 Sikaflex 2C NS by Sika Canada Inc.

.7 Single component self-leveling polyurethane sealant with plus or minus 25 percent movement capability for horizontal joints; ASTM C 920, Type S, Grade P, Class 25 uses T & M. Acceptable materials:

.1 Sonolastic SL1 by BASF Building Systems

.2 Vulkem 45 by Tremco Sealant & Waterproofing

.3 Sikaflex 1C SL by Sika Canada Inc.

.8 Multi-Component, Self-Leveling Polyurethane Sealant with plus or minus 25 percent movement capability for horizontal joints; ASTM C 920, Type M, Grade P, Class 25 uses NT, T, A, I & M. Acceptable materials:

.1 Sonolastic SL2 by BASF Building Systems

.2 Vulkem THC 900 by Tremco Sealant & Waterproofing

.3 Sikaflex 2C SL by Sika Canada Inc.

.9 Two component polysulfide sealant with plus or minus 25 percent joint movement capability; ASTM C 920, Type M, Grade NS Grade NS, Class 25 uses T, G, M, A, O. Acceptable material:

.1 Sonolastic Polysulfide Sealant by BASF Building Systems

.2 Duoflex NS by Sika Canada Inc. Acceptable material:

.10 Single component synthetic rubber sealant purpose made for use in acoustical applications. Acceptable material:

.1 Tremco Acoustical Sealant

.11 Poured flexible 100% solids epoxy joint filler: properties.

.1 Shore A Hardness: greater than 75.

.2 Shore D Hardness: greater than 30.

.3 Elongation: 75 percent.

.4 Tensile Strength: 4.5 MPa

.5 Acceptable material:

.1 Epolith-P by BASF Building Systems

.2 Loadflex 2 by Sika Canada Inc.

.12 Gunned flexible 100% solids epoxy joint filler. Two component gun-grade epoxy joint filler with flexible, pick-proof properties for sloped or vertical areas.

.1 Shore A Hardness: 90.

.2 Shore D Hardness: 50.

.3 Elongation: 50 percent.

.4 Tensile Strength: 6.2 MPa plus or minus 0.07 MPa

.5 Slant Shear Strength: 6.0 MPa per square inch per ASTM C 882.

.6 Slant Shear Strength: 0.8 MPa per square inch per ASTM C 321.

.7 Acceptable material:

.1 Epolith-G by BASF Building Systems

2.3 ACCESSORIES

.1 Primer: Type recommended by the sealant manufacturer and compatible with joint forming materials.

.1 NOTE: It must be assumed that all surfaces are to be primed for bidding purposes.

.2 Joint Cleaner: Non-corrosive and non-staining type recommended by sealant manufacturer and compatible with joint forming materials.

.3 Soft Backer Rod: non-gassing, reticulated closed-cell polyethylene rod designed for use with cold-applied joint sealants.

.1 Comply with ASTM C 1330.

.2 Size required for joint design.

.4 Closed-Cell Backer Rod: closed-cell polyethylene rod designed for use with cold-applied joint sealants for on-grade or below-grade applications.

.1 Comply with ASTM C 1330.

.2 Size required for joint design.

.5 Joint Filler: closed-cell polyethylene joint filler designed for use in cold joints, construction joints, or isolation joints wider than 1/4 inch (6 mm).

.1 Size required for joint design.

.6 Bond Breaker: Pressure-sensitive tape recommended by sealant manufacturer to suit application.

2.4 COLOR

.1 Sealant Colors: Selected by architect/owner/engineer:

.1 Manufacturer's "Rainbow of Colors" range.

.2 Custom color matching submittal of job site substrate samples.

3 Execution

3.1 EXAMINATION

.1 Inspect all areas involved in work to establish extent of work, access, and need for protection of surrounding construction.

.2 Conduct pre application inspection of site verification with an authorized manufacturer's representative.

.3 Occupied areas: where high VOC materials are utilized investigate occupants to determine the measures to be taken to accommodate them.

3.2 PREPARATION

.1 Remove loose materials and foreign matter which could impair adhesion of the sealant.

.2 Clean joints and saw cuts by grinding, sandblasting, or wire brushing to expose a sound surface free of contamination and laitance.

.3 Ensure structurally sound surfaces are, dry, clean, free of dirt, moisture, loose particles, oil, grease, asphalt, tar, paint, wax, rust, waterproofing, curing and parting compounds, membrane materials, and other foreign matter.

.4 Where the possibility of sealants staining adjacent areas or materials exists, mask joints prior to application.

.1 Do not remove masking tape before joints have been tooled and initial cure of joint filler has taken place.

.2 Work stained due to failure of proper masking precautions will not be accepted.

3.3 INSTALLATION

.1 Priming:

.1 Prime all surfaces to receive sealant with recommended primer unless the mock-up proves otherwise.

.2 Back-Up Material:

.1 Install appropriate size backer rod, larger than joint where necessary according to manufacturer's recommendations.

.2 Install polyethylene joint filler in joints wider than 1/4 inch (6 mm) to back-up material per manufacturer's recommendations.

.3 Bond Breaker:

.1 Install bond-breaker strip in joint to be sealed on top of back-up material to prevent adhesion of sealant to back-up material; install per manufacturer's recommendations.

.4 Sealant:

.1 Prepare sealants that require mixing; follow manufacturer's recommended procedures, mixing thoroughly.

.2 Mix only as much material as can be applied within manufacturer's recommended application time period.

.3 Apply materials in accordance with manufacturer's recommendations; take care to produce beads of proper width and depth, tool as recommended by manufacturer, and immediately remove surplus sealant.

.4 Apply materials only within manufacturer's specified application life period. Discard sealant after application life is expired or if prescribed application period has elapsed.

3.4 CLEANING

.1 Remove uncured sealant with Reducer 990, xylene, toluene, or MEK. Remove cured sealant by razor, scraping, or mechanically.

.2 Remove all debris related to application of sealants from job site in accordance with all applicable regulations for hazardous waste disposal.

END OF SECTION

1 General

1.1 RELATED WORK

.1	Steel door frames	Section 08 11 10
.2	Glazing:	Section 08 80 00
.3	Painting:	Section 09 90 00

1.2 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 30 00.

.2 Indicate door types and cutouts for glazing and louvres.

1.3 WASTE MANAGEMENT AND DISPOSAL

Not Used.

2 Products

2.1 MATERIALS

.1 Sheet steel: 18 ga. base thickness, commercial grade steel to ASTM A366-72, Class 1 finished to ASTM A526(1975) W25 wiped zinc finish.

.2 Glazing stops: minimum 20 ga. base thickness sheet steel with W25 wiped zinc finish to ASTM A525-80a screw fixed.

.3 Door Core:

.1 Exterior Doors: Hollow steel, vertically stiffened with steel ribs and all voids filled with incombustible, semi-rigid fibrous insulation or urethane, 1.5 lb./cu.ft., minimum density.

.2 Interior Doors: Honeycomb, structural core consisting of kraft paper having 3/4" cell size to thickness indicated.

.4 Fire Doors: Fire doors shall carry a Fire Underwriter's Laboratory label of classes as required by the drawings.

.5 Primer: for touch up to CGSB 1-GP-181M+Amdt-Mar-78.

2.2 FABRICATION

.1 The following fabricators are approved to perform work of this section:

Apex Machine Works Ltd., S.W. Flemming Ltd., Macotta Co. of Canada Ltd., Daybar Industries Ltd., Artek.

.2 Fabricate steel doors as detailed, in accordance, with Canadian Steel Door and Frame Manufacturer's Association, "Canadian Manufacturing Specifications for Steel Doors and Frames", 1978 for hollow steel construction, except where specified otherwise.

.3 Mortise, reinforce, drill and tap doors and reinforcements to receive hardware using templates provided by finish hardware supplier. Reinforcement gauges to meet or exceed CSDFMA specification.

.4 Make provision for louvres and glazing as indicated and provide necessary glazing stops.

.5 Construct rail and stile doors in same manner as flush doors.

.6 Conceal weld where possible; if exposed, grind and buff smooth to match adjacent surfaces.

.7 Touch up doors with primer where galvanized finish damaged during fabrication.

.8 All exterior door joints to be sealed to prevent moisture penetration.

.9 Top of all exterior doors to be fitted with vinyl cap.

.10 Weep holes to be provided in bottom closure channel of all exterior doors.

3 Execution

3.1 INSTALLATION

.1 Installation of hollow metal doors supplied by this Section and finishing hardware supplied under Work of Section 08 71 00 is specified under Work of Section 06 20 00.

3.2 ADJUSTMENT AND CLEANING

.1 Refinish damaged and defective work before completion of project.

.2 Adjust operable parts for correct function.

END OF SECTION

1 General

1.1 RELATED WORK SPECIFIED ELSEWHERE

.1	Rough Carpentry	Section 06 10 00
.2	Sealants	Section 07 90 00
.3	Steel hollow metal doors	Section 08 11 00
.4	Wood doors	Section 08 21 00
.5	Door Hardware	Section 08 71 00
.6	Glazing	Section 08 80 00
.7	Gypsum Board Assemblies	Section 09 21 16
.8	Painting	Section 09 90 00

1.2 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 30 00.

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Coordinate all work related to Section 01355 Waste Management Disposal with Contractor.

2 Products

2.1 MATERIALS

.1 Sheet steel: commercial grade steel to ASTM A366-72, Class 1 finished to ASTM A526(1975) W25 wiped zinc finish.

- .1 Frames: generally 16 ga. base thickness steel.
- .2 Floor anchors, channel spreaders and wall anchors: minimum 16 ga. base thickness steel.
- .3 Guard boxes: minimum 22 ga. base thickness steel.
- .5 Glazing stops: minimum 20 ga. base thickness steel, tamperproof.

.2 Reinforcing channel: to CSA G40.21-M1978, type 300W.

.3 Door bumpers: black neoprene single stud.

.4 Primer: to CGSB 1-GP-181M+Amdt-Mar-78.

2.2 FABRICATION

.1 The following fabricators are approved to perform work of this section:

Apex Machine Works Ltd., S.W. Fleming, Macotta Co. of Canada Ltd., Daybar Industries Ltd., Artek

.2 Fabricate frames as detailed, to Canadian Steel Door and Frame Manufacturer's Association, "Canadian Manufacturing Specifications for Steel Doors and Frames", 1978; except where specified otherwise.

.3 Exterior door frames to be thermally broken.

.4 Cut mitres and joints accurately and weld continuously on inside of frame profile.

.5 Grind welded corners and joints to flat plane, fill with metallic paste filler and sand to uniform smooth finish.

.6 Touch up frames with primer where galvanized finish damaged during

fabrication.

.7 Provide adjustable jamb anchors for fixing at floor.

.8 Prepare frames for specified hardware with mortises and reinforcement. Drill and tap to template information.

.9 Construct thermally broken frames using steel core, separating exterior portion of frame from interior portion with polyvinyl chloride thermal breaks.

.10 Install 3 bumpers on strike jamb for each single door.

.11 Reinforce head of frames wider than 4'-0" in unsupported width.

.12 Provide labelled fire rated frames where required.

3 Execution

3.1 INSTALLATION

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 4'-0" wide. Remove temporary spreaders after frames are built-in.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

3.2 CLEANING AND ADJUSTMENT

.1 Refinish damaged and deflective Work before completion of Project. Refinish exposed surfaces to ensure that no variation in appearance is discernible.

.2 Clean Work for specified finishing at completion of installation.

END OF SECTION

1 General

1.1 RELATED WORK

.1	Pressed Steel Frames	Section 08 11 10
.2	Door Hardware	Section 08 71 00
.3	Glazing	Section 08 80 00
.4	Painting	Section 09 90 00

1.2 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 30 00.
.2 Indicate door types and cutouts for glazing and louvers consistent with door schedule and elevations.

2 PRODUCTS

2.1 MATERIALS

1. Door Materials: to CSA 0132.2-Series 90.
2. All wood doors to be solid core or fire-rated core as per drawings.
3. All wood doors to receive factory applied clear finish to all faces including top and bottom of doors.
4. Acceptable Products:
    1. Non Fire Rated Wood Interior Doors: Baillargeon 8600-ME Series.
    2. 45min (3/4 Hour) Fire Rated Flush Wood Interior Doors: Baillargeon AF45-ME.
    3. Requests for substitutions and evaluation of alternate products will be considered in accordance with the provisions of Section 01600

2.2 INTERIOR DOORS

.1 Non Fire Rated Wood Interior Doors:

1. Construction:
    1. Stiles: 1/8 inch hardwood or thick veneer, longitudinally laminated by hot pressing with type 1 structural glue, as per ASTM-D5456-93 (LVL or LSL), including a 7/8 inch piece of hardwood, matched with faces, for a total width of 1-3/16 inches.
    2. Top and bottom rails: 1/8 inch hardwood or thick veneer longitudinally laminated by hot pressing with type 1 structural glue, as per ASTM-D5456-
    93 (LVL or LSL), for a total width of 1-3/16 inches.
    3. Core: Solid Particleboard. Density of 28-32 lb per cubic foot.
    4. Glue: Type 1 PVA Cross-link (NAUF)
2. Faces: White Maple veneer, flat cut, book matched.
3. Grade: Stain grade.
4. Finish: Manufacturers factory applied clear finish as per finish schedule.
5. Warranty: Lifetime.
6. Lite Moulding: Baillargeon type ‘F’, sizes as per door schedule.
7. Factory prepared and pre-machined for all hardware c/w pilot holes for all hinges.

.2 45min (3/4 Hour) Fire Rated Flush Wood Interior Doors:

1. Construction:
    1. Stiles: Special construction compliant with W/H labeling requirements. High density mineral and/or SCL and untreated hardwood and/or SCL for a total minimum width of 1-7/16", bonded to core.
    2. Top and bottom rails: Special construction compliant with W/H label requirements. High density mineral or SCL for a total minimum width of 2",
    bonded to core.
    3. Core: Low combustible agrifibre. Density of 28-32 lb per cubic foot.
    4. Glue: Type 1 PVA Cross-link (NAUF)
2. Faces: White Maple veneer, flat cut, book matched.
3. Grade: Stain grade.
4. Finish: Manufacturers factory applied clear finish as per finish schedule.
5. Warranty: Lifetime.
6. Lite Moulding: Baillargeon type 'LXS', sizes as per door schedule.
7. Factory prepared and pre-machined for all hardware c/w pilot holes for all hinges.

2.3 FABRICATION

.1 Fabricate doors and in accordance with CSA 0132.2-M1977 and as indicated on drawings.

.2 Vertical edge strips to match face veneer.

.3 Prepare doors for grilles and glazing, as indicated on drawings and schedules.

.4 Bevel vertical edges of single acting doors on lock side and on hinge side.

3 Execution

3.1 INSTALLATION

.1 Installation of wood doors is included under the work of Section 06 20 00.

.2 Install wood doors in accordance with manufacturer's instructions.

.3 Install wood door hardware in accordance with door and hardware manufacturer's instructions. Adjust hardware for proper door function and latching, and for smooth operation without excessive force or excessive clearance.

END OF SECTION

1 General

1.1 GENERAL CONDITIONS

.1 The General Conditions of the contract as well as provisions of Division 1 at the beginning of these specifications shall be deemed to apply and be a part of this section of the specification.

1.2 RELATED WORK

.3	Rough Carpentry	Section 06 10 00
.4	Finish Carpentry	Section 06 20 00
.5	Sheet Vapour &Air Barrier	Section 07 19 00
.6	Sealants	Section 07 90 00

1.5 REFERENCE STANDARDS

.1 Do windows in accordance with CSA 0132.1-M1977 except where specified otherwise. PVC windows to meet A440, M90, A3 B5, C5, F2.

1.6 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 30 00.

.2 Indicate materials and large scale details for head, jamb, and sill, profiles of components, elevations of unit, anchorage details, description of related components.

1.7 SAMPLE WINDOWS

.1 Submit a full size sample window with the Shop Drawings complete with sash restrictor and pre- painted vinyl.

.2 Do not manufacture windows until the Architect approves sample.

1.8 APPROVED WINDOWS

.1 Atlantic Windows, Designer Series, High Performance

.2 Kohltech Supreme

.3 Alternate manufacturers able to meet all of the requirements of this Section will be considered by the Architect prior to tender closing upon submittal of sample window and frame cut away.

Note: Windows must have NAFS certification & meet or exceed all local requirements.

2 Products

2.1 MATERIALS

.1 Windows generally comprising: Single hung, all with insulating lites. Window units shall be of size, layout and fenestrations as shown on the drawings. Fixed windows to have sash profile to match manufacturer's single hung windows.

.1 Frame and sash shall be welded PVC, reinforced to meet C5, assembled and with operating hardware installed.

.1 Frame depth shall be 3 1/4"

.2 Frame shall have a minimum of 9 closed wall chambers

.2 Multiple weather stripping.

.3 Dry glazing, complete with an exterior point bead of caulking - GE Brand SCS2800 "Silglaze II"

.4 Inside glass stop.

.5 Galvanized steel installation brackets

.6 Glazing: insulating glass with 1/2" air space with low E argon glass, solar ban 60 or equivalent (or ES72) on number 3 surface and warm edge spacer. Both lites to be tempered.

.7 Jamb extensions to be all PVC ¾ " return, supplied by window manufacturer, as per drawings.

.8 Brick mould to be all PVC supplied by window manufacturer, as per drawings and to be large enough to cover rough buck. Secure with acrylic adhesive.

.9 Colour: White vinyl exterior and interior finish.

.2 Sealants: in accordance with Section 07 90 00, colour selected by Architect.

.3 Air seal interface gasket: 60 mil self-adhering membrane of rubberized asphalt. (Blueskin or Architect approved equal.)

2.2 FABRICATION

.1 Fabricate fixed, and single hung windows as indicated on drawings and to requirements of CSA as per 1.3 Reference Standards.

.2 Brace frames to maintain squareness and rigidity during shipment and installation.

2.3 GLAZING

.1 Factory glaze windows.

.2 Provide exterior point bead caulking to exterior face of sealed units as per manufacturer's instructions.

3 Execution

3.1 INSTALLATION

.1 Set window units in prepared openings plumb, square and level, free from warp, twist or superimposed loads.

.2 Install windows in strict accordance with Manufacturer's instructions.

.3 Back caulk all windows with a generous bead of caulking.

.4 Secure work adequately and accurately to structure in required position, in manner not restricting normal movement of PVC windows. Use galvanized installation brackets.

.5 Secure rubberized asphalt air seal (Bueskin) to window frame and wall sheathing as per details on drawings. Seal Blueskin to building air barrier. Note special detail for carrying Blueskin under window sills.

.6 Fill void between wood framing and window frame with low expansion spray foam insulation and caulk between interior side of window frame and wood framing, all as per details on drawings.

3.2 CAULKING

.1 Seal joints between frame members, fixed window units and other non-operating components of window assembly with sealant to provide weather tight seal at outside and air vapour seal at inside. Provide backer rods and caulking as per drawings.

.2 Apply sealant in accordance with Section 07 90 00. Conceal sealant within window components except where exposed use is permitted by Architect.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

.1 Section 08 11 00 Steel Hollow Metal Doors

.2 Section 08 21 00 Wood Doors

1.2 REFERENCES

.1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)

1. ANSI/BHMA A156.1, American National Standard for Butts and Hinges.
2. ANSI/BHMA A156.2, Bored and Preassembled Locks and Latches.
3. ANSI/BHMA A156.3, Exit Devices.
4. ANSI/BHMA A156.4, Door Controls - Closers.
5. ANSI/BHMA A156.5, Auxiliary Locks and Associated Products.
6. ANSI/BHMA A156.6, Architectural Door Trim.
7. ANSI/BHMA A156.8, Door Controls - Overhead Stops and Holders...
8. ANSI/BHMA A156.13, Mortise Locks and Latches Series 1000.
9. ANSI/BHMA A156.14, Sliding and Folding Door Hardware.
10. ANSI/BHMA A156.15, Release Devices - Closer Holder, Electromagnetic and Electromechanical.
11. ANSI/BHMA A156.16, Auxiliary Hardware.
12. ANSI/BHMA A156.18, Materials and Finishes.
13. ANSI/BHMA A156.19, Power Assist and Low Energy Power - Operated Doors.

.2 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA)

1. CSDFMA Recommended Dimensional Standards for Commercial Steel Doors and Frames.

.3 UL - Underwriters Laboratories

1. UL 10B - Fire Test of Door Assemblies

2. UL 305 - Panic Hardware

.4 DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule

2. Recommended Locations for Builders Hardware

3. Key Systems and Nomenclature

1.3 SUBMITTALS

.1 Product Data:

1. Submit in accordance with Conditions of Contract and Division 01 requirements.

2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

.2 Samples:

1. If requested by Architect, submit production sample or sample installations of each type of exposed hardware unit in finish indicated, and tagged with full description for coordination with schedule.

2. After approval samples will be returned for incorporation in the Work.

.3 Hardware List:

1. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:

.1 Door Index; include door number, heading number, and Architects hardware set number.

.2 Type, style, function, size, and finish of each hardware item.

.3 Name and manufacturer of each item.

.4 Fastenings and other pertinent information.

.5 Location of each hardware set cross-referenced to indications on Drawings.

.6 Explanation of all abbreviations, symbols, and codes contained in schedule.

.7 Mounting locations for hardware.

.8 Door and frame sizes and materials.

.9 Operational Description of openings with any electrified hardware Operational description should include how door will operate on egress, ingress, and fire and smoke alarm connection.

.1 Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.

2. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory prepared for door hardware installation.

.4 Informational Submittals:

1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.

2. Product Certificates for electrified door hardware, signed by manufacturer:

.1 Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.

3. Certificates of Compliance:

.1 Certificates of compliance for fire-rated hardware and installation instructions if requested by Architect or Authority Having Jurisdiction.

.5 Manufacturer's Instructions:

1. Submit manufacturer's installation instructions.

.6 Closeout Submittals:

1. Provide operation and maintenance data for door closers, locksets, door holders' electrified hardware and fire exit hardware for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

.1 Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.

.2 Catalog pages for each product.

.3 Name, address, and phone number of local representative for each manufacturer.

.4 Parts list for each product.

.5 Final approved hardware schedule, edited to reflect conditions as-installed.

.6 Final keying schedule

.7 Copies of floor plans with keying nomenclature, if provided for keying.

.8 As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

.9 Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.4 MAINTENANCE MATERIALS

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Supply two sets of wrenches for door closers, locksets and fire exit hardware.

.3 See Miscellaneous Hardware Set for items not listed for a specific door but required.

1.5 WARRANTY

.1 Provide a written manufacturer's warranty for work of this Section for failure due to defective materials for one (1) year, dated from substantial completion certificate.

.2 Provide a written Contractor's warranty for work of this Section for failure due to defective installation workmanship for one (1) year, dated from submittal completion certificate.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements:

1. Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.

.2 Only products meeting ANSI/BHMA standards are acceptable. Items that are equal in design, function and quality may be accepted upon approval of the Owner's Representative. Submit detailed cross reference list and samples for review prior to tender.

.3 Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.

1. Warehousing Facilities: In Project's vicinity.

2. Scheduling Responsibility: Preparation of door hardware and keying schedules.

3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

4. Coordination Responsibility: Coordinate installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.

    .1 Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

5. Suppliers Architectural Hardware Consultant (AHC) to review submittal for Life Safety Code and Fire Code Compliance. Alert Architect of any conflicts or issues that need discussion.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Store finishing hardware in locked, clean and dry area.

.3 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

1.8 MAINTENANCE SERVICE

.1 Provide maintenance service for one year during warranty period to maintain the barrier free entrance exit to Garden automatic operators as follows:

1. Qualified service personal approved by manufacturer of operators.

2. Cost of this service will be included as part of this Section and is not covered by any allowance amount.

PART 2 PRODUCTS

2.1 HARDWARE ITEMS

.1 Approval of manufacturers and/or products other than those listed as “Scheduled Manufacturer” or “Acceptable Manufacturers” in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein. Products shall match existing product designs, models, Lockset brand, keyway and factory keying per original.

.2 Approval of products from manufacturers indicated in “Acceptable Manufacturers” is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer’s product.

.3 Non-conforming products shall be replaced with specified products at no cost to Owner

.4 Use one manufacturer's products only for similar items.

2.2 DOOR HARDWARE

.1 Hinges:

1. Butts and hinges: to ANSI/BHMA A156.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.

    .1 Scheduled Manufacturer and Product: Canaropa Standard Weight 183 for 1-3/4 inch thick interior doors, up to and including 36 inches wide:

    .2 Provide three hinges per door leaf for doors 90 inches or less in height, and one additional hinge for each 30 inches of additional door height.

    .3 Out-Swinging Exterior Doors: Non-removable pins

    .4 Out-Swinging Interior Lockable Doors: Non-removable pins

.2 Locks and latches:

1. Bored and preassembled locks and latches: to ANSI/BHMA A156.2, 4000 bored lock, grade 1, designed for function and keyed as stated in Hardware Sets for heavy duty areas

2. Mortise locks and latches: to ANSI/BHMA A156.13, series 1000 mortise lock, designed for function and keyed as stated in Hardware Sets.

3. Lever handles: Matching existing styles

    .1 Bored Locks grade 1 to be Best 48H series

    .2 Mortise Locks grade 1 to be Best 45H series

4. Normal strikes: box type, lip projection not beyond jamb except at kitchen provide for wood frame with dust box

5. Cylinders: key into the existing keying system as directed. Submit a proposal for review and editing

6. All corresponding cylinders to be small format interchangeable core. Provide construction cores during construction period.

7. Finished to BHMA 32D

.3 Door Closers and Accessories:

1. Manufacturers and Products:

.1 Scheduled Manufacturer and Product: LCN 1461 series, standard arm.

.4 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers listed in Hardware Schedule.

1. Door protection plates: .05. inches (1.27 mm) thick stainless steel, finished to BMHA 630.

.5 Auxiliary hardware: to ANSI/BHMA A156.16, designated by letter L and numeral identifiers listed in Hardware Schedule.

1. Combination stop and automatic holder, floor mounted: Ives FS40 finished to BMHA 626.

2. At interior doors provide dome floor stops Standard Metal model S102L satin chrome.

.6 Door bottom seal: interior mortised automatic door seal of extruded aluminum frame and felt seal, recessed mounted KN Crowder CT51F, clear anodized finish. Exterior door. At exterior barrier free entrance provide National Guard door bottom 95 WH

.7 Thresholds: ADA compliant extruded aluminum mill finish, serrated surface, with lip and silicone door seal insert. National Guard 896S ADA model.

.8 Weatherstripping:

1. Head and jamb seal:

.1 At exterior jambs and head of frame provide extruded aluminum frame and Neoprene insert, clear anodized finish. KN Crowder W-49.

.2 At exterior top of door frame provide interlocking Pemko 347A full with of frame with hook strip 68A full width of door

.3 At interior jambs and head provide sound seal, Santoprene self-adhesive KN Crowder W-66

2.3 FASTENINGS

.1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

.2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.3 Exposed fastening devices to match finish of hardware.

.4 Use fasteners compatible with material through which they pass.

2.4 KEYING

.1 Doors locks to be master keyed to existing system as directed. Prepare detailed keying schedule in conjunction with Owner's Representative and owner.

.2 Provide keys in duplicate for every lock in this Contract.

2.5 FINISHES

.1 Following finishes are indicated in hardware groups.

BHMA	CAN MATERIAL	FINISH
626	26D Brass/Bronze	Satin Chrome
628	28 Aluminum	Satin Alum, Anodized
630	32D Stainless Steel	Satin Stainless Steel
652	26D Steel	Plated Satin Chrome
689	Al Aluminum	Painted Aluminum
	Alum Aluminum	Mill Finish

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

.3 Furnish manufacturers' instructions for proper installation of each hardware component.

3.2 INSTALLATION

.1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.

.2 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.3 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

.4 Remove construction when directed by Owner’s Representative; install permanent cores and check operation of locks.

3.3 EXAMINATION

.1 Visit will include examination of openings, site conditions and materials for conditions that prevent proper application of finish hardware.

.2 Installation will imply conditions for installation acceptable hardware contractor to accept responsibility.

3.4 FIELD QUALITY CONTROL

.1 Hardware contractor to have a qualified AHC representative from the manufacturer/supplier on site at Substantial Completion Inspection and at commissioning of the finished hardware. Cost of the visits to be included in contract.

3.5 ADJUSTING

.1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.

.2 Lubricate hardware, operating equipment and other moving parts.

.3 Adjust door hardware to provide tight fit at contact points with frames.

.4 Where hardware is found defective, repair or replace or correct as desired by inspection reports.

3.6 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.

.3 Remove protective material from hardware items where present.

.4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.7 PROTECTION

.1 All hardware shall be protected against damage from paint, plaster or other defacing materials. Whenever possible manufacturers protective covering when applied, shall not be removed until final project cleaning takes place. Material not protected by manufacture shall be covered or removed from door during painting or any other adjustments that can cause damage to hardware.

3.8 HARDWARE SETS

.1 Provide hardware to function properly as indicated by the products specified in the previous articles in sets according to the following groups. Supplier to provide all products to suit opening.

.2 Cylinders and cam models to suit locking device. Review cylinder model, cam, size, type and supply as required. Size Weatherstrip, sweeps, thresholds, and hook strips to suit inside frame sizing. Interlock gasketting at frame head, sized outside of frame to outside of frame. Kickplates 50mm less than door width.

.3 Hardware Sets:

SET #001, Type C

Doors: 001, 002

3 Hinge	183 4 ½" X4" NRP	C32D	MCCN
1 Lockset	45H-7TA15H STD	630	CBE
1Mortise Cylinder	30-001 1 ¼" Everest T-Restricted Kwy	626	CSC
1 Closer	1461 REG W/PA	689	CLC
1 Kick Plate	K10A 10"x34 ½"	32D	CSM
1 Floor Stop/Holder	FS40	US26D	CIV
1 Weatherstrip Set	W-49 1X36", 2X84"	AL	CKN
1 Weatherstrip	68 AR 36"		CPE
1 Weatherstrip	347 A 60"		CPE
1 Door Bottom	95 WH36"		NA
1 Threshold	896 S 36"	AL	NA

SET #003 Type M, E

Doors: 003,004,

6 Hinge	183 4 ½"X4"	C26D	MCCN
2 Flush Bolt	FB458 (UL)	US26D	CIV
1 Deadlock	48H-7R STD	626	CBE
1 Mortise Cylinder	30-001 ¼" Everest T-Restricted Kwy	626	CSC
1 Gasket	W-66 20'	BLK	CKN
1 Astragal	W-8P 84"	AL	CKN
2. Auto. Door Bottom	CT-51 W/SHIM 36"		CKN
1 Threshold	896 S72"	AL	NA

3.9 COMMISSIONING

.1 Site inspection or visit at Substantial Completion and training follow up and inspection at commissioning as directed by Owner's Representative.

END OF SECTION

1 GENERAL

1.1 GENERAL CONDITIONS

.1 The General Conditions of the contract as well as provisions of Division 1 at the beginning of these specifications shall be deemed to apply and be a part of this section of the specification.

1.2 WORK INCLUDED

.1 The intent of this section of the specification is to complement the drawings in describing all of the glass and glazing work for the project.

1.3 EXTENDED WARRANTY

.1 Submit a warranty of the Work of this Section covering the period for four years beyond the expiration of the performance bond specified in the General Conditions.

.2 Defective Work shall include, but not be restricted to: leaking, loosening of whole or of parts of units, breakage or deformation of work, glass breakage (other than by accidental cause), seal failure and fading or discolouration of factory applied finishes.

2 PRODUCTS

2.1 WORK INCLUDED

.1 Vision Glass, Insulating Glass Units: Factory sealed double glazed units.

2.2 GLAZING AND SEALING COMPOUND MATERIALS

.1 Glazing Compound: oil base, to CGSB 19-GP-6M, Type 1.

.2 Sealant Compound: one component acrylic base, to CGSB 19-GP-5M+Amdt-Nov-79, gun grade.

.3 Glazing Tape: glazing gaskets, 10-15 durometer hardness, paper release.

.4 Setting Blocks: neoprene, Shore "A" durometer hardness 70-90.

.5 Spacer shims: neoprene, Shore "A" durometer hardness 40-50.

.6 Primer-sealers and cleaners: to glass manufacturer's standard.

3 EXECUTION

3.1 WORKMANSHIP

.1 Remove protective coatings and clean contact surfaces with solvent and wipe dry.

.2 Apply primer-sealer to contact surfaces.

.3 Place setting blocks as per manufacturer's instructions.

.4 Install glass, rest on setting blocks, ensure full contact and adhesion at perimeter.

.5 Install removable stops, without displacing tape or sealant.

.6 Provide edge clearance of 1/8" minimum.

.7 Insert space shims to center glass in space. Place shims at 2'-0" o.c. and keep 1/4" below sight line.

.8 Apply cap bead of sealant at exterior void.

.9 Apply sealant to uniform and level line, flush with sightline and tooled or wiped with solvent to smooth appearance.

.10 Do not cut or abrade tempered glass.

3.2 INSTALLATION

.1 All glass units will be glazed using one of the two methods described below:

.1 Glass units shall be bedded to the exterior with Butyl tape; a heel bead of acoustic sealant shall be applied to the complete interior perimeter of the glass unit to seal the unit to the sash or frame. An interior finish of removable vinyl "Vision Strip" shall be applied and inserted into the open channel and anchored into the acoustic heel bead.

.2 Glass units shall be bedded to the exterior with Butyl tape, recessed 1/8" minimum. Fill the recess with a bead of Silglaze. Glass unit to be further bedded in a seal of acoustic sealant around the complete interior perimeter to seal glass unit to the sash or frame. An interior finish of Butyl tape shall be used to bed the interior stop to the glazing unit.

3.3 ADJUSTMENT AND CLEANING

.1 Replace scratched, etched, or defective glazing resulting from manufacture, setting, handling, or storage before or during installation.

.2 Immediately remove sealant and compound droppings from finished surfaces. Remove labels after work is completed.

END OF SECTION

1 General

1.1 GENERAL CONDITIONS

.1 The General Conditions of the contract as well as provisions of Division 1 at the beginning of these specifications shall be deemed to apply and be a part of this section of the specification.

1.2 WORK INCLUDED

.1 To complete all interior & exterior gypsum board & steel stud on walls and ceilings as shown or specified and summarized but not restricted to:

.1 Gypsum board ceilings, walls and bulkheads.

.2 Furring systems and enclosures as described herein and indicated on drawings.

.3 Installation of pressed steel frames in wood stud partitions.

.4 Miscellaneous drywall as required to complete the project.

1.3 RELATED WORK

.1 Section 06 10 00: Rough Carpentry

.2 Section 08 11 10: Pressed Steel Frames

1.4 REFERENCE STANDARDS

.1 Do work in accordance with CSA A82.31-M1980 except where specified otherwise.

1.5 LEED DOCUMENTATION

.1 Not Used.

2 Products

2.1 GYPSUM BOARD

.1 Plain: to CSA A82.27-M1977 standard and Type X, thickness as noted on drawings, 4'-0" wide x maximum practical length, ends square cut, edges tapered.

.2 Water resistant board: to CSA A82.27-M1977 Standard ½" thick, 4'-0" wide x maximum practical length.

.3 Abuse resistant drywall to be Fiberock VHI, 5/8" thick.

.1 Acceptable Alternate: Comfort Guard IR by Temple Inland.

2.2 METAL FURRING AND SUSPENSION SYSTEMS

.1 Not Used.

2.3 FASTENINGS AND TIES

.1 Screws: to CSA A82.31-M1980. Self-drilling, self-tapping, case hardened, Philips head, drywall screws, with corrosion resistant finish.

.2 Hangers: 9 ga. galvanized soft annealed steel wire.

2.4 ACCESSORIES

.1 Casing beads, corner beads fill type: 0.5 mm base thickness commercial grade sheet steel with Z275 zinc finish to ASTM A525M-80, perforated flanges; one piece length per location.

.2 Acoustic Sealant: to CGSB 19-GP-21M as manufactured by Tremco Manufacturing Co. or Inmont Presstite Ltd.

.3 Polyethylene: to Can 2-51.33-M80, 6 mil.

.4 Joint Compound: to CSA A82.31-M1980, asbestos free.

.5 Joint Tape: 2" x 0.012" thick, perforated paper with chamfered edges.

.6 Control Joists: Crimped rolled-formed zinc, with flanges for tape reinforcement, or two casing beads, set with gap for movement and backed with flexible air seal membrane.

.7 Special purpose made angles and channels as required and as detailed to support radiant heating panels.

2.5 PARTITION SYSTEM

.1 Not Used.

2.6 ACOUSTIC INSULATION

.1 Type: Unfaced glass fiber acoustical insulation complying with ASTM C665, Type I.

.2 Size: to fill stud cavity.

.3 Surface Burning Characteristics:

.1 Maximum flame spread: 10

.2 Maximum smoke developed: 10

.4 Combustion Characteristics:

.1 Passes ASTM E 119 test.

.5 Sound Transmission Class: STC 45.

3 Execution

3.1 METAL STUD SYSTEM

.1 Align partition tracks at floor and ceiling and secure at 2'-0" o.c. maximum.

.2 Install damproof course under stud shoe tracks of partitions on slabs on grade.

.3 Place studs vertically at 16" o.c. and not more than 2" from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace studs as required to provide rigid installation to manufacturer's instructions.

.4 Erect metal studding to tolerance of 1:1000.

.5 Attach studs to bottom and ceiling track using screws.

.6 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.7 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.

.8 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 2" apart using column clips or other approved means of fastening place alongside frame anchor clips.

.9 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.

.10 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

.11 Provide 1 1/2" stud or furring channel secured between studs for attachment of fixtures behind laboratory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.

.12 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.13 Extend partitions from floor to underside of structure except where noted otherwise on drawings.

.14 Install two continuous beads of acoustical sealant under studs and tracks around perimeter of sound control partition.

.15 Install mineral wood insulation to fill steel stud cavity in exterior wall assembly.

3.2 SUSPENDED AND FURRED CEILINGS

.1 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with CSA A82.31-M1980 except where specified otherwise.

.2 Support light fixtures by providing additional ceiling suspension hangers within 6" of each corner and at maximum 2'- 0" around perimeter of fixture.

.3 Support heating panels as per mechanical details.

.4 Install work level to tolerance of 1:1200.

.5 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.

.6 Install furring channels parallel to, and at exact locations of steel stud partition header tracks.

.7 Fur for gypsum board faced vertical bulkheads within or at termination of ceilings.

.8 Fur above suspended ceilings for gypsum board fire and sound stops as indicated.

3.3 WALL FURRING

.1 Install wall furring for gypsum board wall finishes in accordance with CSA A82.31-M1980, except where specified otherwise.

.2 Fur openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

.3 Fur beams, duct shafts, columns, pipes and exposed services where indicated.

3.4 GYPSUM BOARD APPLICATION

.1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.

.2 Apply gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 12" o.c.

.3 Extend all drywall to u/s of structure except where noted otherwise on the drawings.

.4 Where partitions call for acoustic insulation, apply 1/2" diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, etc., in partitions where perimeter sealed with acoustical sealant.

3.5 ACCESSORIES

.1 Erect accessories straight, plum or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 6"o.c.

.2 Install casing beads around perimeter of suspended ceilings.

.3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

.4 Install insulating strips continuously at edges of gypsum board or casing beads abutting metal window or exterior door frames, to provide thermal break.

.5 Install acoustic insulation where indicated on drawings.

3.6 CONTROL JOINTS

.1 Not Used.

3.7 TRIM

.1 Install trim as indicated.

.2 Minimize joints; use corner pieces and splicers.

3.8 ACCESS DOORS

.1 Install access doors to electrical and mechanical fixtures specified in respective Sections.

.2 Rigidly secure frames to furring or framing systems.

3.9 ACOUSTIC INSULATION AND APPLICATION

.1 Obtain installer's written report listing conditions detrimental to performance of work in this section. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.

.2 Comply with manufacturer's instructions for particular conditions of installation in each case.

.3 Sound Attenuation Batts may be friction-fit in place until the interior finish is applied. Install batts to fill entire stud cavity. If stud cavity is less than 96" in height, cut lengths to friction-fit against floor and ceiling tracks. Walls with penetrations require that insulation be carefully cut to fit around outlets, junction boxes and other irregularities.

.4 Where walls are not finished on both sides of insulation does not fill the cavity depth, supplementary support must be provided to hold product in place.

.5 Where insulation must extend higher than 8 feet, temporary support shall be provided to hold product in place until the finish material is applied.

3.10 INSTALLATION OF PRESSED STEEL FRAMES IN STEEL STUD PARTITIONS

.1 Not Used.

.2 Brace frames in place to prevent displacement until anchored into masonry and remove spreaders at floor after frames are anchored.

3.11 TAPING AND FILLING

.1 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

.2 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.

.3 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after painting is completed.

.4 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.5 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for painting.

3.12 ADJUSTMENT AND CLEANING

.1 Remove droppings and excess of joint compound from Work of others, and from Work of this Section, before it sets.

.2 Make good to cut-outs for services and other Work, fill in defective joints, holes and other depressions with joint compound.

.3 Make good defective work, and ensure that surfaces are smooth, evenly textured and within specified tolerances to receive finish treatments.

END OF SECTION

1 General

1.1 SAMPLES

.1 Submit samples of each specified flooring, base and stair material.

.2 Submit full size tile of each colour specified.

1.2 MAINTENANCE DATA

.1 Provide maintenance data for resilient flooring for incorporation into Operation and Maintenance Manual specified in Section 01700.

1.3 EXTRA STOCK

.1 Deliver to Owner on completion of Work, and as he directs, 2% of the quantity of flooring installed of each material and colour (including base), in labelled packages.

1.4 ENVIRONMENTAL REQUIREMENTS

.1 Maintain air temperature and structural base temperature at flooring installation area above 20°C for 48 h before, and for 48 h after installation.

2 Products

2.1 MATERIALS

.1 Vinyl composition tile: to CSA A126.1-1977 1/8" thick, 12" x 12" size.

.2 Acceptable Manufacturers: Armstrong.

.3 Colour field will be from manufacturer's standard colour selection.

.4 Resilient base: top set coved rubber, minimum 4'-0" length and 4" high, including premoulded end stops and external corners. Colour to be selected from manufacturer's standard colours.

.1 Acceptable Material: Flextile; Johnsonite.

.5 Accessories:

.1 Reducer Strips: Provide 1/8" thick vinyl reducer strips, in same colour as tile, where tile flooring terminates.

.6 Primers and adhesives: recommended by flooring manufacturer for specific material on applicable substrate.

.7 Sub-floor filler and leveller: white premix latex requiring water only to produce cementitious paste as recommended by flooring manufacturer for use with their product.

.8 It is this responsibly of this section to ensure that sub floor is suitable to receive flooring no matter the amount or type of floor filler required.

.9 Sealer: type recommended by flooring manufacturer.

.10 Wax: type recommended by flooring manufacturer.

3 Execution

3.1 INSPECTION

.1 Ensure floors are dry, by using test methods recommended by tile manufacturer, and exhibit negative alkalinity, carbonization or dusting.

3.2 SUB-FLOOR TREATMENT

.1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.

.2 Prime concrete to flooring manufacturer's printed instructions.

.3 Existing conditions:

.1 Some portions of existing floor is vinyl tile to be removed by the demolition section.

.2 Other portions of the floor are painted concrete.

.3 It is responsibly of this section to ensure that sub floor is suitable to receive tile flooring no matter the amount preparation or type/amount of floor filler required.

.4 Sandblast if required at discretion of architect.

3.3 TILE APPLICATION

.1 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.2 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.

.3 Install flooring to square grid pattern with all joints aligned with pattern grain alternating, all to Architect's approval.

.4 Cut tile and fit neatly around fixed objects.

.5 Terminate flooring at center line of door in openings where adjacent floor finish or colour is dissimilar.

3.4 BASE APPLICATION

.1 Lay out base to keep number of joints at minimum.

.2 Set base in full bed of adhesive, tightly against wall and floor surfaces.

.3 Install straight and level to variation of 1:1000.

.4 Scribe and fit to door frames and other obstructions. Use premoulded end pieces at flush door frames.

.5 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles.

.6 Install toeless type base before installation of carpet on floors.

3.5 ACCESSORIES

.1 Install reducer strips at terminations of resilient tile flooring where edges are exposed to view.

.2 At door openings, install reducer strips and carpet adapters under doors.

.3 Secure strips and adapters to subfloor with contact bond adhesive to ensure complete bond.

3.6 CLEANING AND WAXING

.1 Remove excess adhesive from floor, base and wall surfaces without damage.

.2 Thoroughly clean floor using a large heavy duty automated floor scrubber.

.3 Seal floor and base surface. Provide 3 coats of sealer. Successive coats can be applied as soon as floor is dry. In carpeted areas, clean, seal and wax base surface before carpet installation.

.4 Provide two coats of wax following the sealing of the floor.

.5 Spray clean and buff floor and base surface for final inspection before building takeover by Owner.

3.7 PROTECTION OF FINISHED WORK

.1 Prohibit traffic on floor for 48 hours after installation.

.2 Final cleaning is specified in Section 01700.

END OF SECTION

1 General

1.1 RELATED WORK

.1 Finish Carpentry — Section 06 20 00

.2 Doors and frames: — Section 08 11 10

.3 Gypsum Board Assemblies: — Section 09 21 16

.4 Colour code marking bands for identification of piping: — Division 15

1.2 WASTE MANAGEMENT AND DISPOSAL

.1 Collect, separate and recycle all site generated waste materials.

1.3 LEED DOCUMENTATION

.1 Not Used.

1.4 REFERENCE STANDARDS

.1 The best practices specified or recommended in CAN2-85.100-M81 shall govern for materials, methods and procedures.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Do not apply paint finish in areas where dust is being generated.

.2 Ensure that all areas in which paint is applied are well-ventilated and broom clean.

.3 Do not apply paint unless a uniform minimum 50°F air temperature has been achieved in the installation area for 24 hours prior to and after application.

1.6 PROTECTION

.1 Cover or mask surface adjacent to those receiving finish to protect work of others from damage and soil.

1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

.1 Deliver to site each container sealed and labelled with manufacturer's name, catalogue number or brand name, colour, formulation type, reducing instructions, and reference standard specification number if applicable.

.2 Store only acceptable project materials at site, and in an area specifically set aside for purpose that is locked, ventilated, maintained at a temperature of over 4°C, and protected from direct rays of sun. Ensure that health and fire regulations are complied with in storage area.

1.8 EXTRA STOCK

.1 Deliver to Owner on completion of Work, and as he directs, sealed containers of each finish painting material applied, and in each colour. Label each container as for original, including mixing formula. Provide one litre of extra stock when less than 40 litres are used for project, 4 litres of extra stock when 40 to 50 litres are used, and 8 litres of extra stock when over 150 litres are used.

1.9 ECO-LOGO

.1 All paint products are to be "Eco-Logo" approved products. Supply appropriate certificate from manufacturer.

.2 All paints to be premium low order, zero VOC.

1.10 TECHNICAL REPRESENTATION

.1 Manufacturer's Obligations

.1 The manufacturer shall play an active role in the application of his product during the period of this contract. The manufacturer shall be represented at all these meetings by a qualified technical representative, trained as a paint inspector with a minimum of 5 years experience. The technical representative shall be approved by the Architect.

.2 The project shall be subdivided into "Sectors of Work":

.1 A minimum of three inspections per sector from the Manufacturer's representative must be made prior to and during application of this work to ensure proper application.

.2 After each visit provide a written report to the Architect within 5 working days.

.3 30 days prior to any painting, a prejob conference shall be held to confirm methods, materials, etc. for this contract. Items to be present: specifications, finish schedule, colour schedule, product data sheets - MSDS.

1.11 PREJOB CONFERENCE

.1 After the award of this contract and prior to the preparation of a mock sample area, a pre-job conference shall be held with the following people present:

.1 The Architect, Owner and Project Manager

.2 The applicator and his designated inspectors and crew supervisors who will be working on site on this project

.3 The paint manufacturer's trained paint inspector.

1.12 COLOUR SELECTION

.1 Colours will be selected by the Architect.

.2 There is no limit to the number of colours that will be selected.

2 Products

2.1 MATERIALS

.1 Acceptable Manufacturers: Benjamin Moore or approved equal.

.2 Stain and varnish finish on wood doors and millwork only flame retardant.

.3 Paint materials: to Ecologo and CGSB Standards listed in Finishing Formulae.

.4 Paint materials for each coating formulae to be products of a single manufacturer.

3 Execution

3.1 EXAMINATION

.1 Ensure that surfaces to receive finishing materials are satisfactory for specified materials; have been provided as specified in the Work of other Sections; will not adversely affect execution, permanence, or quality of Work; and can be put into an acceptable condition by means of preparation specified in this section.

.2 Defective painting and finishing Work resulting from application to unsatisfactory surfaces will be considered the responsibility of those performing the Work of this Section.

3.2 EXTENT OF WORK

.1 All new work in finished areas is to be painted.

.2 Where a room or surface is called to be painted, all work in the room or surface other than pre-finished work is to be painted.

3.3 PREPARATION OF SURFACES

.1 General:

.1 Vacuum clean interior areas immediately before finishing work commences.

.2 Remove from surfaces: grease, oil, dirt, dust, ridges, and other soil and materials that would adversely affect the adhesion or appearance of finish coatings.

.3 Rust on surfaces primed under work of other Sections shall be removed and the areas re-primed under the Work of these Sections.

.4 Finish, patch and smooth surfaces to remove cracks, holes, ridges, and similar blemishes.

.5 Touch-up damaged prime coats on shop primed metals with same priming material. Feather out edges of shop coat and smooth repair coat into shop coat surfaces.

.6 Scrub mildewed surfaces with a solution of tri-sodium phosphate, bleach with a solution of one part sodium hypochlorite (Javex) to three parts water, and rinse with clear water.

.2 Masonry:

.1 Fill minor holes and cracks in concrete, and concrete masonry with Portland cement grout.

.2 Remove dirt, scale, loose mortar, and similar foreign matter by brushing.

.3 Touch up shop paint primer on steel with CGSB 1-GP-40M to CGSB 85-GP-14M.

.4 Prepare galvanized steel and zinc coated surfaces to CGSB 85-GP-16M.

.5 Gypsum Board:

.1 Fill minor holes and depressions, caused by accidental damage, with drywall joint compound, and sand smooth when it is set, taking care not to raise nap of paper cover.

.6 Wood:

.1 For existing exterior wood: Remove all existing paint.

.2 Sand finish surfaces smooth with No. 00 sandpaper.

.3 Clean soiled surfaces with an alcohol wash.

.4 Wipe off dust and other loose dirt, or vacuum clean before application of coatings.

.5 Seal knots, pitch, and sapwood with two coats of uncut orange shellac, or an application of special sealer. Use only sealer that is compatible with transparent finish.

.6 After prime coat is dry and sanded, fill nail and screw holes, and cracks with wood filler, or with putty for interior work and caulking compound for exterior work. Colour fillers to match wood or stain if surfaces are given clear final coatings. Smooth, sand and prime fillers when set.

3.4 APPLICATION

.1 Consult with Architect before proceeding with application of finishes to surfaces for which a formula is given in specification.

.2 Apply paint to concrete block by spray and back roll method.

.3 Sand and dust between each coat to remove defects.

.4 Finish bottoms, edges, tops and cutouts of doors after fitting as specified for door surfaces.

.5 Finish closets and alcoves as specified for adjoining rooms.

.6 Apply each coat only after preceding coat is dry and hard, or as otherwise directed by material manufacturer.

.7 Priming and Back Priming:

.1 Verify, by review of other sections of this specification, the extent of surfaces primed under work of other sections. Priming of un-primed surfaces shall be included in Work of this Section.

.2 Back-prime exterior and interior woodwork, frames, fitments and similar work as soon as it is delivered and before installed. Use exterior primer compatible to finish coat for exterior work, and enamel under-coater for interior work to receive paint or enamel finishes. Prevent primer from running over faces.

.3 Back-prime exterior and interior woodwork receiving clear finishes with gloss varnish reduced 25% by mineral spirits. Prime all exterior doors and frames.

.4 Prime tops and bottoms of painted wood doors with enamel under-coater, and tops and bottoms of clear finished doors with gloss varnish. When doors are stained apply varnish after staining. Remove doors to prime and finish.

.5 Brush out and force primers into grain of wood, and into crevices, cracks and joints in all materials.

3.5 MECHANICAL AND ELECTRICAL EQUIPMENT

.1 Paint exposed conduits, pipes, hangers and other mechanical and electrical equipment occurring in finished areas. Colour and texture to match adjacent surfaces, except as noted otherwise.

.2 Paint all rooftop mechanical and electrical units and equipment, and exterior louvres, etc.

.3 Keep sprinkler heads free from paint.

.4 Paint both sides of plywood backboards for equipment before installation.

3.6 COLOURS

.1 Colours of paints, including shades of stains, shall be applied to match approved samples.

.2 Colours will be selected by the Architect.

3.7 INTERIOR FINISHES

.1 Formula 7: for gypsum board walls apply: one coat latex primer-sealer ICI #8130 Spedwall primer, two coats latex eggshell enamel. ICI #59311 No VOC Lifemaster

.2 Formula 9: for gypsum board ceilings, apply: one coat primer sealer ICI # 8130 Spedwall primer one coat flat paint ICI #59170 No VOC Lifemaster

.3 Formula 16: for primed ferrous metal surfaces apply: one coat enamel undercoat ICI # 9431 Ultra, two coats gloss enamel Devoe #4208 Devflex

.4 Formula 18: for woodwork to receive natural finish apply: one coat shellac CGSB 1-GP-16M-Amdt-Feb-81, Type 2; two coats varnish gloss CGSB 1-GP-36M, Type 1, PPG #77-5 series; one coat varnish satin finish CGSM 1-GP-36M, Type 2, PPG #77-9

.5 Formula 17: for galvanized and zinc coated metal apply (after etching): one coat galvanized metal primer two coats enamel semi-gloss enamel Devoe #4216 Devflex one coat varnish satin finish ICI #1880 Varnish

.6 Formula 20: for metal doors: one coat enamel undercoat primer Devoe # 4020 Devflex primer, two coats finish coats Devoe #4216 Devflex acrylic

.7 Formula 22: Interior metal door frames: spray two coats Devoe #4216 Devflex in desired colour-satin finish

.8 Formula 24: for insulation covering apply: one coat tinted enamel undercoat ICI # 250 Gripper, one coat egg shell enamel ICI # 59311 No VOC Lifemaster

3.8 EXTERIOR FINISHES

.1 Formula 30: for galvanized and zinc coated metal apply: New spancaled galvanized metal - Abrade with fine sand paper to remove passivation. Apply: 1 coat Pitt-Tech Primer, Devoe # 4020 Devflex Primer, 2 coats Pitt-Tech Gloss, Devoe #4208 Devflex

.2 Formula 31: for all exterior doors, frames, miscellaneous trim, mechanical and electrical equipment: 1 coat Pitt-Tech Primer, Devoe #4020 Devflex Primer, 2 coats Pitt-Tech Gloss, Devoe #4208 Devflex

END OF SECTION

1 General

1.1 GENERAL CONDITIONS

.1 The General Conditions outlined in Section 15 01 00 apply to work performed under this section.

1.2 REFERENCES

.1 National Fire Prevention (NFPA)

.1 NFPA 10-1998, Portable Fire Extinguishers

.2 NFPA 13-1999, Installation of Sprinkler Systems.

.2 Canadian Building Code – Latest Edition

.3 National Fire Code – Latest Edition

.4 Authority having Jurisdiction

.1 Conform to the requirements of the Authority having Jurisdiction. The Authority having Jurisdiction for this project is The Provincial Fire Marshal.

.5 Approvals

.1 Obtain approval from the Authority Having Jurisdiction and from the before beginning installation.

.2 Pay all costs associated with such approvals and checking.

1.3 SHOP DRAWINGS, PRODUCT DATE AND RECORD DRAWINGS

.1 Submit shop drawings and product data in accordance with Section 01 30 00 – Submittals and in accordance with NFPA 13, working plans and design requirements.

.2 Show extinguisher locations on piping layout drawings done using latest version of AutoCAD®.

.3 Provide shop drawings for the following system components:

.1 Fire Extinguishers

.2 Fire Extinguisher Cabinets

.4 Contractor to maintain record drawings on site showing significant deviation from the contract documents and shop drawings as required in Section 15 01 00.

1.4 ENGINEERING DESIGN CRITERIA

.1 System is designed in accordance with NFPA 10, Ordinary Hazard except for the Hydraulic Equipment Repair Area which is to Extra Hazard.

1.5 CLOSEOUT SUBMITTALS

.1 Provide maintenance data for system equipment for incorporation into maintenance manual specified in Section 01 70 00 – Contract Closeout including MSDA for any extinguishing agent.

.2 Provide updated, approved shop drawings for inclusion in the maintenance manuals.

.1 Drawings to indicate “as-built” conditions.

1.6 PROTECTION

.1 Provide fire safety protection in accordance with NBC requirements during construction.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Collect, separate and recycle all site generated waste materials in accordance with Section 01 35 50 Waste Management Disposal.

2 Products

2.1 FIRE EXTINGUISHER

.1 All extinguishers to be 10 lb. ABC as manufactured by CanadianFire Hose-Corp. Ltd.

.2 Mounted in full recessed cabinet

.3 Install one per portable class room.

.4 Fire extinguishers shall be supplied and installed by this Contractor.

3 Execution

3.1 INSTALLATION

.1 All installation work to be in accordance with the rules and regulations of the Authority Having Jurisdiction, and the I.A.O.

.2 Install fire extinguishers so top is within 72” of floor.

END OF SECTION

CSIO

CERTIFICATE OF LIABILITY INSURANCE

This certificate is issued as a matter of information only and confers no rights upon the certificate holder and imposes no liability on the insurer. This certificate does not amend, extend or alter the coverage afforded by the policies below.

1. CERTIFICATE HOLDER - NAME AND MAILING ADDRESS		2. INSURED'S FULL NAME AND MAILING ADDRESS	
Halifax Regional Centre for Education		Contractors Name and Address	
33 Spectacle Lake Drive			
Dartmouth, NS	POSTAL CODE B3B 1X7		POSTAL CODE

3. DESCRIPTION OF OPERATIONS/LOCATIONS/AUTOMOBILES/SPECIAL ITEMS TO WHICH THIS CERTIFICATE APPLIES (but only with respect to the operations of the Named Insured)

Insured project details and address: (List specific Project details)

Policy Includes: Contractual Liability, Primary and Non-Contributory, Waiver of Subrogation, Broad Form Property Damage

4. COVERAGES

This is to certify that the policies of insurance listed below have been issued to the insured named above for the policy period indicated notwithstanding any requirements, terms or conditions of any contract or other document with respect to which this certificate may be issued or may pertain. The insurance afforded by the policies described herein is subject to all terms, exclusions and conditions of such policies.

LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS

TYPE OF INSURANCE	INSURANCE COMPANY AND POLICY NUMBER	EFFECTIVE DATE YYYY/MM/DD	EXPIRY DATE YYYY/MM/DD	LIMITS OF LIABILITY (Canadian dollars unless indicated otherwise)		
				COVERAGE	DED.	AMOUNT OF INSURANCE
COMMERCIAL GENERAL LIABILITY ☐ CLAIMS MADE OR ☑ OCCURRENCE ☑ PRODUCTS AND / OR COMPLETED OPERATIONS ☑ EMPLOYER'S LIABILITY ☑ CROSS LIABILITY ☑ TENANTS LEGAL LIABILITY ☑ POLLUTION LIABILITY EXTENSION	XX Insuance 123Binder (Wrap - Up Liability)	2017/11/20	2018/11/20	COMMERCIAL GENERAL LIABILITY BODILY INJURY AND PROPERTY DAMAGE LIABILITY - GENERAL AGGREGATE		$5,000,000
				- EACH OCCURRENCE		$5,000,000
				PRODUCTS AND COMPLETED OPERATIONS AGGREGATE		$5,000,000
				☐ PERSONAL INJURY LIABILITY OR ☑ PERSONAL AND ADVERTISING INJURY LIABILITY		$1,000,000
				MEDICAL PAYMENTS		$25,000
				TENANTS LEGAL LIABILITY		$1,000,000
				POLLUTION LIABILITY EXTENSION		$2,000,000
☑ NON-OWNED AUTOMOBILES ☐ HIRED AUTOMOBILES	XX Insurance 123 Binder	2017/11/20	2018/11/20	NON OWNED AUTOMOBILE		$2,000,000
AUTOMOBILE LIABILITY ☑ DESCRIBED AUTOMOBILES ☐ ALL OWNED AUTOMOBILES ☐ LEASED AUTOMOBILES ** ** ALL AUTOMOBILES LEASED IN EXCESS OF 30 DAYS WHERE THE INSURED IS REQUIRED TO PROVIDE INSURANCE	XX Insurance 123 Binder	2017/11/20	2018/11/20	BODILY INJURY AND PROPERTY DAMAGE COMBINED		$2,000,000
				BODILY INJURY (PER PERSON)		
				BODILY INJURY (PER ACCIDENT)		
				PROPERTY DAMAGE		
EXCESS LIABILITY ☐ UMBRELLA FORM ☐				EACH OCCURRENCE		
				AGGREGATE		
OTHER LIABILITY (SPECIFY) ☑ Builders Risk - All Risk	XX Insurance 123 Binder	2017/11/20	2018/11/20	Limit - (Project Limit)		
☐				Extra Expense		$1,000,000
☑ Professional Liability	XX Insurance 123 Binder	2017/11/20	2018/11/20	Limit of Liability - Per Claim		$5,000,000

5. CANCELLATION

Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 30 days written notice to the certificate holder named above, but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives.

6. BROKERAGE/AGENCY FULL NAME AND MAILING ADDRESS		7. ADDITIONAL INSURED NAME AND MAILING ADDRESS (but only with respect to the operations of the Named Insured)	
		Halifax Regional Centre for Education	
		33 Spectacle Lake Drive	
	POSTAL CODE		
BROKER CLIENT ID:		Dartmouth, NS	POSTAL CODE B3B 1X7

8. CERTIFICATE AUTHORIZATION

ISSUER	CONTACT NUMBER(S)			
	TYPE	NO.	TYPE	NO.
AUTHORIZED REPRESENTATIVE	TYPE	NO.	TYPE	NO.
SIGNATURE OF AUTHORIZED REPRESENTATIVE	DATE 2017/11/20		EMAIL ADDRESS	

HALIFAX REGIONAL CENTRE FOR EDUCATION

Project Safety Plan Outline

During the planning of each project, environmental and occupational health and safety issues will be assessed like any other key project component.

Prior to beginning a new project, tendering contractors shall examine the work area to identify potentially hazardous site specific situations.

Once identified, these hazards should be prioritized on this Hazard Assessments/Project Safety Plan Outline and corrective *actions* noted to eliminate or control each hazard. The dates of when and names of the persons who are responsible for completing the *action* should also be assigned.

Copies of the completed Safety Plan Outline shall be submitted post award, sent to the HRCE Operations Services Regional Manager, made available on the job site and communicated to the workers.

Project Name: _____

Project Location: _____

Project Start date: _____

Project End date: _____

Company Name: _____

Completed by: _____
(Contractor's project manager)

Date: _____

Copy to: _____

PLANNING:

Does the Contractor's Occupational Health and Safety Program deal with the work activities associated with this project? ☐ Yes ☐ No

Describe tasks to be undertaken:_____

_____

_____

_____

HAZARDS ASSESSMENT:

Identify the hazards that could present themselves on this project (e.g. live electrical wires, over water, confined space, etc) and describe what steps will be taken to prevent an incident (e.g. cover up, de-energize, safe work practices, netting, etc). Prioritize from #1 as needing immediate action.

#	Hazard	Required Action	Completed by	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

ENVIRONMENTAL ASSESSMENT:

Identify the environmental issues that could present themselves on this project (e.g. oil spills, asbestos, etc.) and describe the action that will betaken to eliminate or reduce the risk of occurrence (e.g. mop kits, air sampling, etc.)

#	Hazard	Required Action	Completed by	Date
1				
2				
3				
4				
5				

EMERGENCY RESPONSE:

In the event of an incident, pre-plan the response and write up the procedures. Minimally, the following list should be completed and posted on site:

Contact	Phone #	Contact	Phone #
Fire	911	Poison Control	428-8161
Ambulance	911	Dangerous Goods	1-800-565-1633
Doctor	911	Waste Disposal	
Police	911	Insurance	
HRCE Office	493-5110	Min/Dept of Labour	1-800-952-2687
Min./Dept.of Transport.		Min/Dept of Environment	1-800-565-1633

- Identify and arrange source of first aid, ambulance and rescue.
- Accidents will be reported to: _____
- Accidents will be investigated by: _____
- Back-up call to: _____
- HRCE # emergency/after hours: day 493-5110 after 4:00 pm 442-2476

SAFETY MEETINGS:

On this project, given the nature of the work and the anticipated size of the work force, the following frequency will apply:

Site meetings _____

Site Audits _____

Follow up with HRCE Manager: _____

SITE IMPLEMENTATION:

- Health and Safety Rep & Safety Committee:
  Establish liaison between HRCE, contractor, site administration
  First Aid, PPE, other safety items as required.

- Documentation:
  Applicable MSDS
  Safety program
  Applicable work procedures
  Permits
  First Aid Certification

TRAINING:

The following training/testing will be mandatory on site:

1) _____

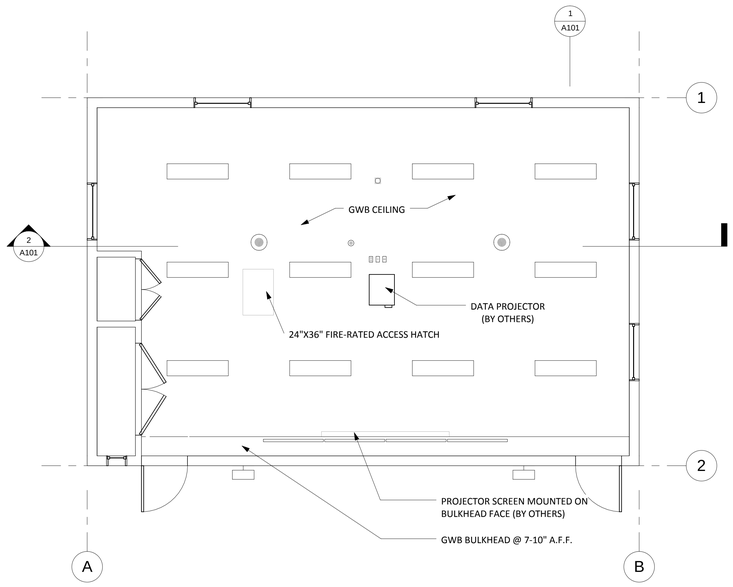
_____

2) _____

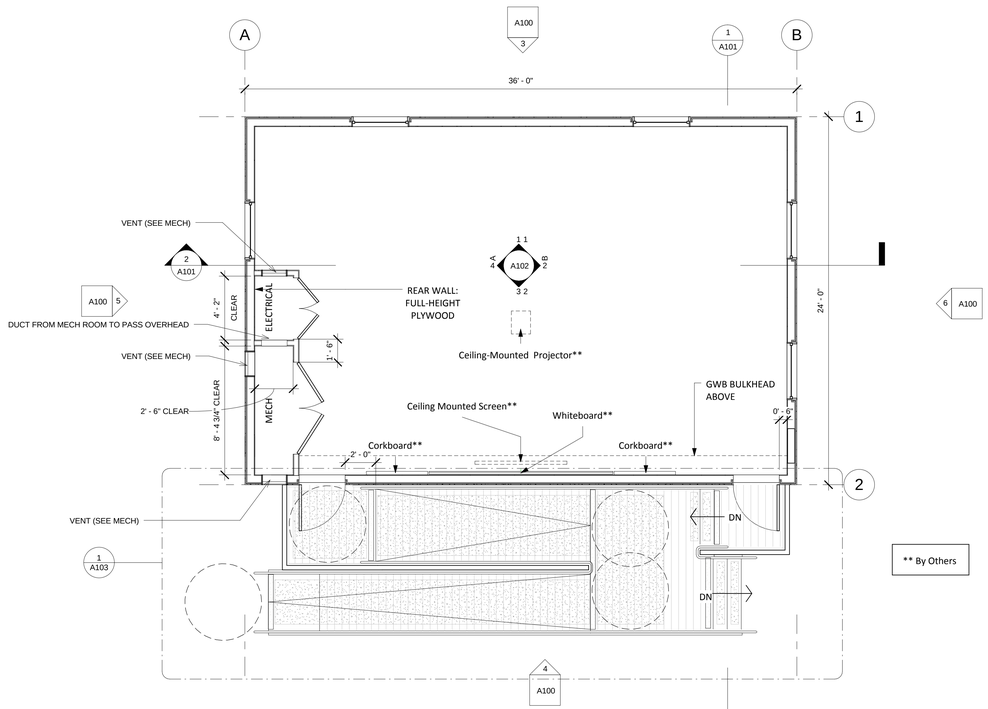
_____

3) _____

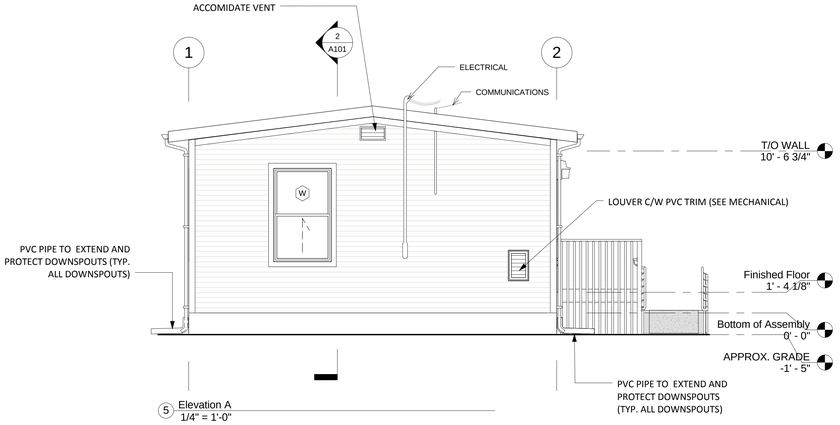
_____



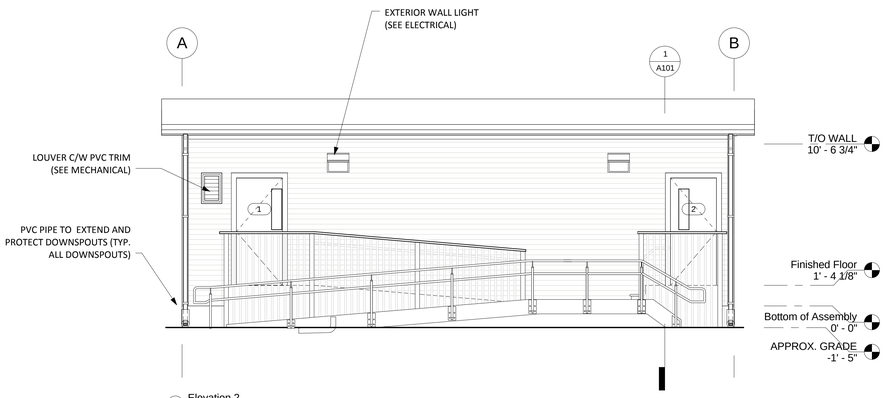
2 REFLECTED CEILING PLAN
1/4" = 1'-0"



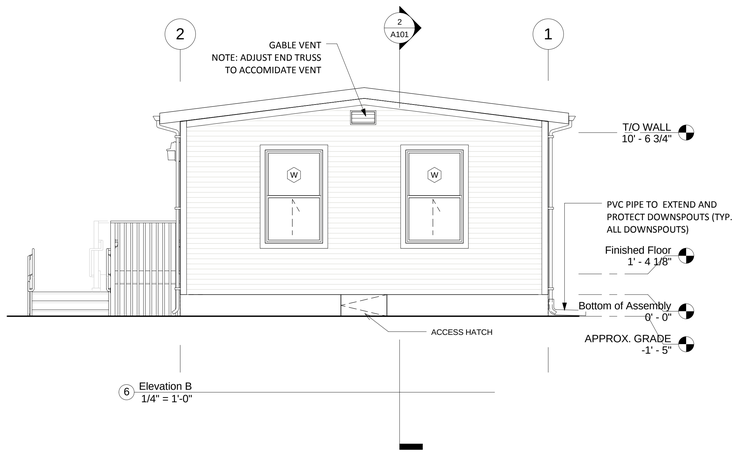
1 Floorplan
1/4" = 1'-0"



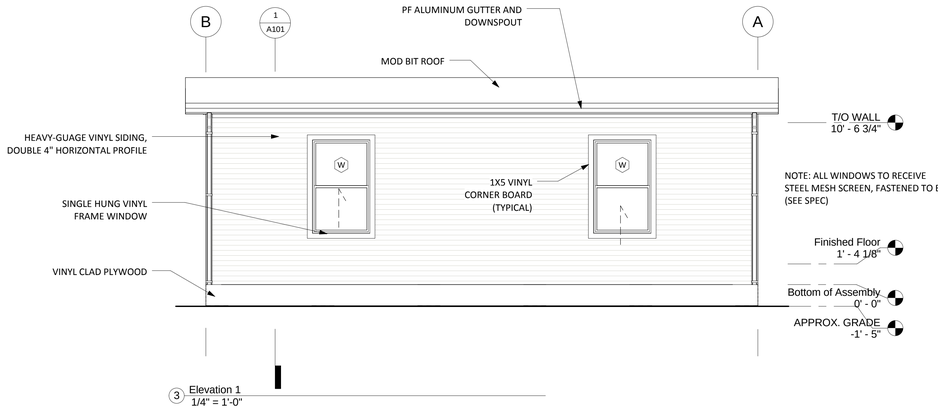
5 Elevation A
1/4" = 1'-0"



4 Elevation 2
1/4" = 1'-0"



6 Elevation B
1/4" = 1'-0"



3 Elevation 1
1/4" = 1'-0"

SP DUMARESQ ARCHITECT LTD

Halifax Regional Centre for Education

DUMAC ENERGY LIMITED CONSULTING ENGINEERS

BMR Structural|Engineering

KEY PLAN

GENERAL NOTES

DRAWING IS PRINTED TO SCALE WHEN DIMENSION MEASURES 1"

1"

DATE	#	ISSUE
JUNE 17 2019	1	FOR TENDER

REGISTERED MEMBER
S.D. DUMARESQ
ASSOCIATION OF ARCHITECTS

SCALE:	1/4" = 1'-0"
DRAWN BY:	CF
REVIEWED BY:	
DATE:	17 JUNE 2018

PROJECT TITLE

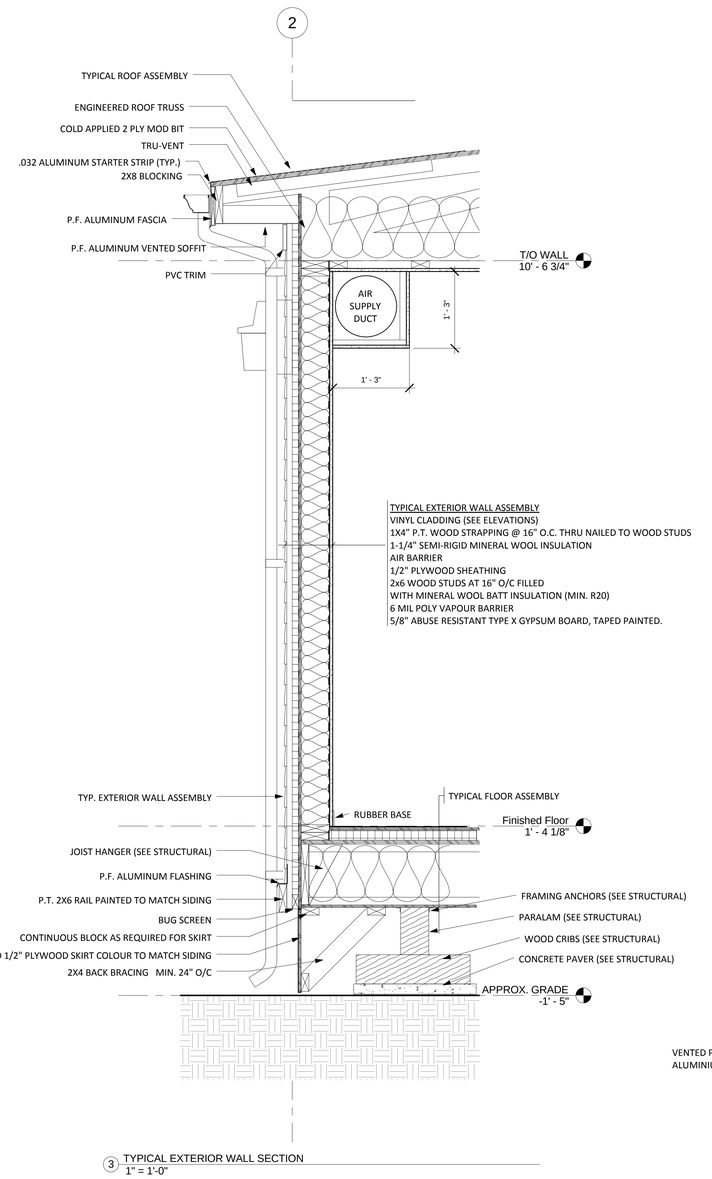
H.R.C.E. Portables 2019

Project Number

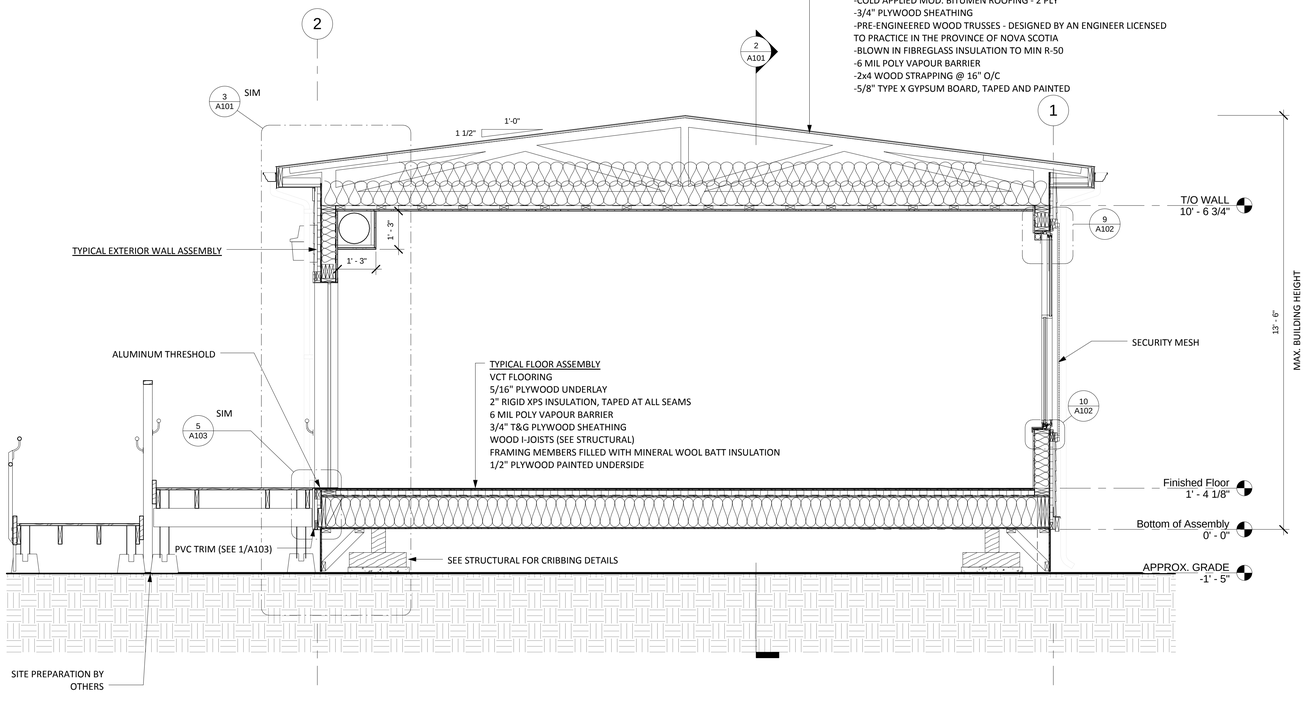
SHEET TITLE

FLOOR PLAN AND EXTERIOR ELEVATIONS

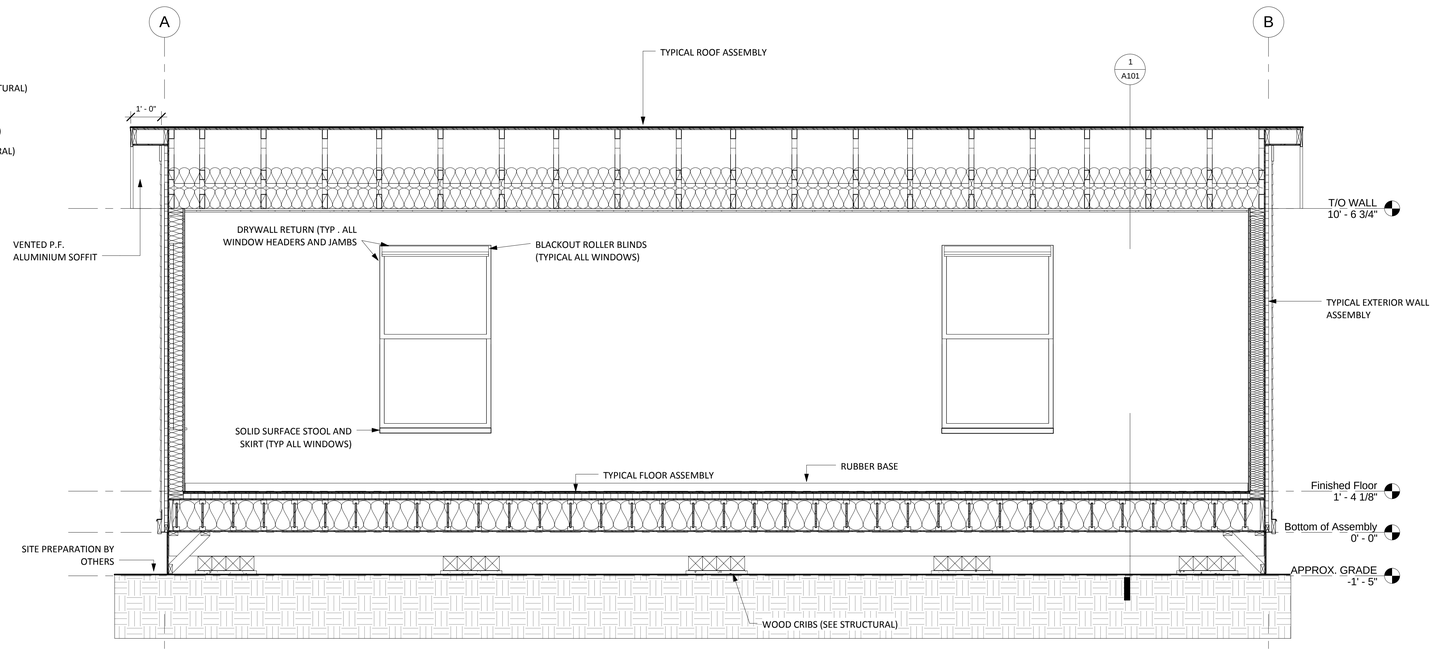
A100



3 TYPICAL EXTERIOR WALL SECTION
1" = 1'-0"



1 CROSS SECTION 1
1/2" = 1'-0"



2 CROSS SECTION 2
1/2" = 1'-0"

SP DUMARESQ ARCHITECT LTD
WORK · DEVELOPED · PEOPLE · SYDNEY FLOOR · HALIFAX, N.S.

Halifax Regional Centre for Education

DUMAC ENERGY LIMITED CONSULTING ENGINEERS

BMR Structural|Engineering

KEY PLAN

GENERAL NOTES

DRAWING IS PRINTED TO SCALE WHEN DIMENSION MEASURES 1"

DATE	#	ISSUE
JUNE 17 2019	1	FOR TENDER

REGISTERED MEMBER S.P. DUMARESQ THE ASSOCIATION OF ARCHITECTS

SCALE:	As indicated
DRAWN BY:	STAFF
REVIEWED BY:	
DATE:	17 JUNE 2018

PROJECT TITLE

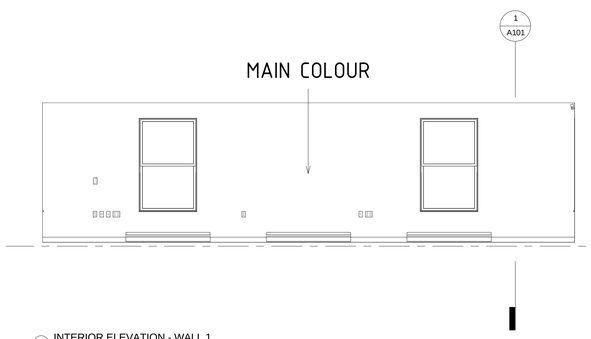
H.R.C.E. Portables 2019

Project Number

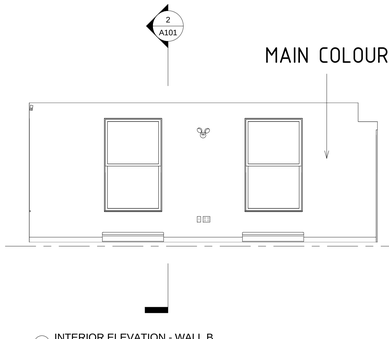
SHEET TITLE

SECTIONS AND DETAILS

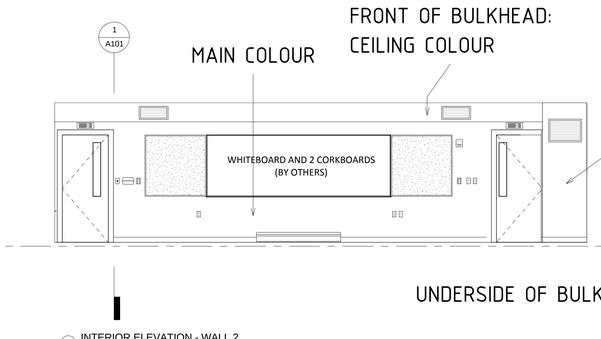
A101



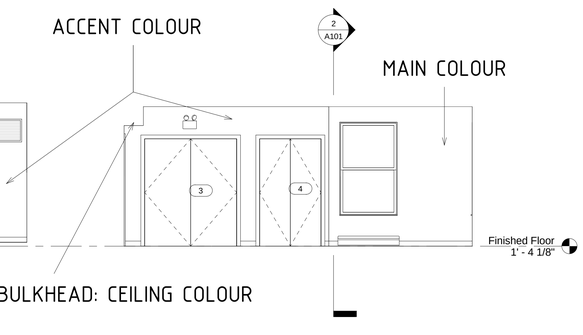
1 INTERIOR ELEVATION - WALL 1
1/4" = 1'-0"



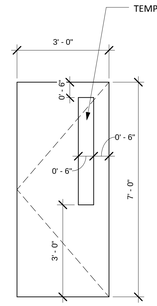
2 INTERIOR ELEVATION - WALL B
1/4" = 1'-0"



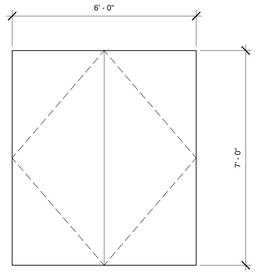
3 INTERIOR ELEVATION - WALL 2
1/4" = 1'-0"



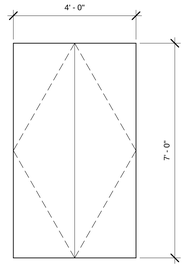
4 INTERIOR ELEVATION - WALL A
1/4" = 1'-0"



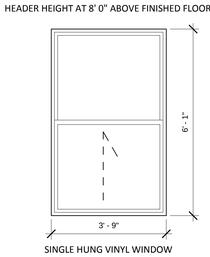
5 TYPE "C" DOOR
1/2" = 1'-0"



6 TYPE "M" DOOR
1/2" = 1'-0"

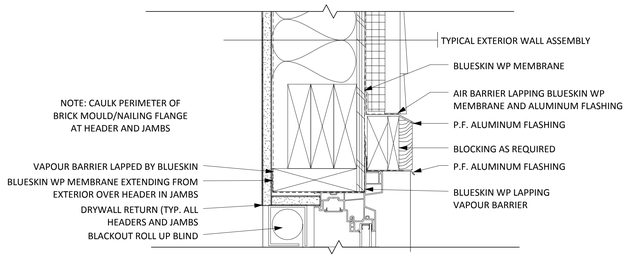


7 TYPE "E" DOOR
1/2" = 1'-0"

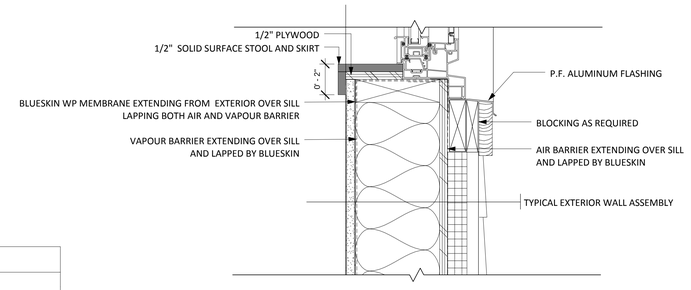


8 TYPE "W" WINDOW
1/2" = 1'-0"

PROVIDE ROLL UP BLACKOUT BLIND. FIELD MEASURED TO FIT OPENING (TYP. ALL OPENINGS): ACTABLE MANUFACTURER: HUNTER DOUGLAS. MANUAL CHAIN CONTROLLED WITH STAINLESS STEEL BEAD CHAIN (90LB TEST) WITH CORD "TENSIONIZED"WINDOW FRAME MOUNTED BRACKET. FABRIC TO BE 0% OPACITY C/W EXTRUDED ALUMINUM FABRIC WRAPPED BOTTOM BAR. COLOUR TO BE SELECTED BY ARCHITECT.



9 WINDOW HEADER DETAIL (JAMB SIM.)
3" = 1'-0"



10 WINDOW SILL DETAILS
3" = 1'-0"

DOOR SCHEDULE												
MARK	DOOR TYPE	WIDTH	HEIGHT	THICKNESS	DOOR MATERIAL	DOOR FINISH	DOOR COLOUR	FRAME MATERIAL	FRAME FINISH	FRAME COLOUR	FIRE RATING	REMARKS
1	TYPE C	3' - 0"	7' - 0"	0' - 1 3/4"	PS	P	MAIN C	PS	P	MAIN C	-	SAME FRAME AND DOOR COLOUR FOR INTERIOR AND EXTERIOR THERMALLY BROKEN FRAME
2	TYPE C	3' - 0"	7' - 0"	0' - 1 3/4"	PS	P	MAIN C	PS	P	MAIN C	-	SAME FRAME AND DOOR COLOUR FOR INTERIOR AND EXTERIOR THERMALLY BROKEN FRAME
3	TYPE M	6' - 0"	7' - 0"	0' - 1 3/4"	SCW	P	ACCENT C	PS	P	ACCENT C	-	
4	TYPE E	4' - 0"	7' - 0"	0' - 1 3/4"	SCW	P	ACCENT C	PS	P	ACCENT C	-	

DOOR ABBREVIATIONS LEGEND

PS - PRESSED STEEL
SCW - SOLID CORE WOOD
P - PAINTED
MAIN C - USE MAIN COLOUR FOR WALLS (SEE INTERIOR FINISH SCHEDULE)
ACCENT C - USE ACCENT COLOUR FOR WALLS (SEE INTERIOR FINISH SCHEDULE)

INTERIOR FINISH SCHEDULE															
BULDING NUMBER	WALLS				BASE			FLOORS			CEILING			REMARKS
	FINISH	MATERIAL	MAIN COLOUR	ACCENT COLOUR	FINISH	MATERIAL	COLOUR	FINISH	MATERIAL	COLOUR	FINISH	MATERIAL	COLOUR	
1	P	AR GWB	MG	HF	PF	R	48G	PF	VCT	HLQ	P	AR GWB	CL	REFER TO INTERIOR ELEVATIONS ON THIS SHEET TO KNOW WHICH WALLS TO PAINT THE MAIN COLOUR OR THE ACCENT COLOUR
2	P	AR GWB	AM	SB	PF	R	48G	PF	VCT	HLQ	P	AR GWB	CL	REFER TO INTERIOR ELEVATIONS ON THIS SHEET TO KNOW WHICH WALLS TO PAINT THE MAIN COLOUR OR THE ACCENT COLOUR
3	P	AR GWB	TG	NC	PF	R	48G	PF	VCT	HLQ	P	AR GWB	CL	REFER TO INTERIOR ELEVATIONS ON THIS SHEET TO KNOW WHICH WALLS TO PAINT THE MAIN COLOUR OR THE ACCENT COLOUR

INTERIOR FINISHES ABBREVIATIONS LEGEND

P - PAINTED
AR GWB - ABUSE RESISTANT GYPSUM WALL BOARD
PF - PRE FINISHED
R - RUBBER BASE
VCT - RESILIENT TILE FLOORING

CL - BENJAMIN MOORE 2121-70 "CHANTILLY LACE" - FLAT FINISH
MG - BENJAMIN MOORE 2138-50 "MISTED GREEN" - SATIN FINISH
HF - BENJAMIN MOORE 2008-40 "HYDRANGEA FLOWERS" - SATIN FINISH
AM - BENJAMIN MOORE 2008-60 " ABALONE MOLLUSQUE" - SATIN FINISH
SB - BENJAMIN MOORE 2049-50 "SPECTRA BLUE" - SATIN FINISH
TG - BENJAMIN MOORE 2124-40 "THUNDERCLOUD GRAY" - SATIN FINISH
NC - BENJAMIN MOORE 2018-40 "NACHO CHEESE" - SATIN FINISH

48G - JOHNSONITE TRADITIONAL WALL BASE - "48 GRAY WG"
HLQ - ARMSTRONG - STANDARD EXCELON IMPERIAL TEXTURE MULTICOLOUR 52505 "HARLEQUIN"

EXTERIOR FINISH SCHEDULE																	
BUILDING NUMBER	SIDING			TRIM			SKIRT			DECKING FOR RAMP AND STAIRS			GUTTERS, DOWNSPOUTS, SOFFITS, FASCIA, FLASHING			REMARKS
	FINISH	MATERIAL	COLOUR	FINISH	MATERIAL	COLOUR	FINISH	MATERIAL	COLOUR	FINISH	MATERIAL	COLOUR	FINISH	MATERIAL	COLOUR	
1	PF	HG PVC	LHR	PF	PVCB	SW	PF	V PLY	SW	OBS	PT SPF	SG	PF	A	SW	
2	PF	HG PVC	RGB	PF	PVCB	SW	PF	V PLY	SW	OBS	PT SPF	SG	PF	A	SW	
3	PF	HG PVC	DNG	PF	PVCB	SW	PF	V PLY	SW	OBS	PT SPF	SG	PF	A	SW	

EXTERIOR FINISHES ABBREVIATIONS LEGEND

PF - PREFINISHED
HG PVC - HEAVY GAUGE PVC SIDING
V PLY - 1/2" PLYWOOD WITH SHEET VINYL ON ONE FACE
PVCB - PVC BOARD
OBS - OIL-BASED STAIN
PT SPF - PRESSURE TREATED SPRUCE-PINE-FUR LUMBER
A - PREFINISHED ALUMINUM (GUTTERS AND DOWNSPOUTS TO BE SEAMLESS)

LHR - MITTEN VINYL SIDING "LIGHTHOUSE RED"
RGB - MITTEN VINYL SIDING "REGATTA BLUE"
DNG - MITTEN VINYL SIDING "DANISH GOLD"
SG - BENJAMIN MOORE 2120-40 "SMOKE GRAY" - HIGH GLOSS FINISH
SW - STANDARD WHITE OFFERED BY MANUFACTURER

SP DUMARESQ ARCHITECT LTD
WORK · DEBUILDING · REBUILD · TURNKEY PLANNING · HALIFAX, NS

Halifax Regional Centre for Education

DUMAC ENERGY LIMITED CONSULTING ENGINEERS

BMR Structural|Engineering

KEY PLAN

GENERAL NOTES

THIS DRAWING IS THE PROPERTY OF SP DUMARESQ ARCHITECT LTD. AND MAY NOT BE USED OR REPRODUCED WITHOUT EXPRESSED WRITTEN APPROVAL. THE CONTRACTOR SHALL VERIFY ALL LEVELS AND DIMENSIONS ON SITE AND REPORT ALL DISCREPANCIES TO THE ARCHITECT BEFORE BEGINNING WORK. DO NOT SCALE DRAWING. USE FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CHANGES MADE TO THE DRAWINGS WITHOUT THE ARCHITECT'S APPROVAL. READ THIS DRAWING IN CONJUNCTION WITH CONTRACT DRAWINGS AND SPECIFICATIONS.

DRAWING IS PRINTED TO SCALE WHEN DIMENSION MEASURES 1"

DATE	#	ISSUE
JUNE 17 2019	1	FOR TENDER

REGISTERED MEMBER
S.P. DUMARESQ
ASSOCIATION OF ARCHITECTS

SCALE:	As indicated
DRAWN BY:	STAFF
REVIEWED BY:	
DATE:	17 JUNE 2018

PROJECT TITLE

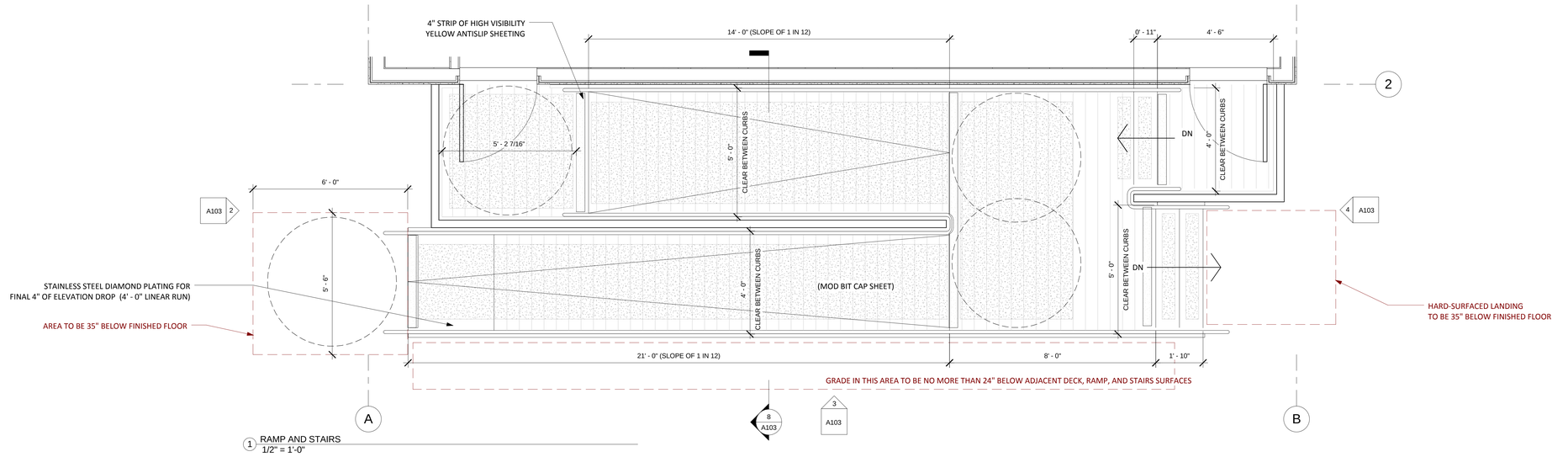
H.R.C.E. Portables 2019

Project Number

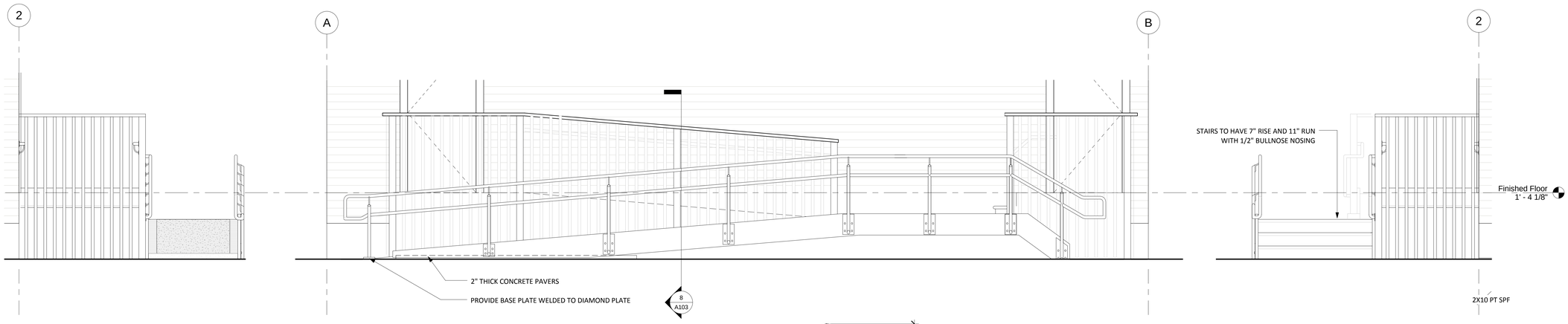
SHEET TITLE

FINISH INFORMATION

A102



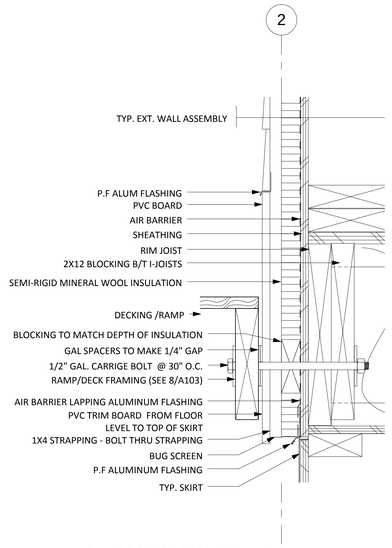
1 RAMP AND STAIRS
1/2" = 1'-0"



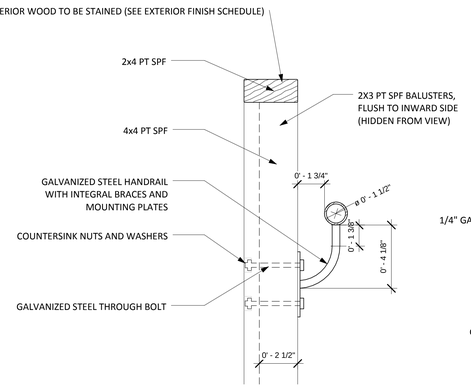
2 SIDE A OF DECKING
1/2" = 1'-0"

3 FRONT OF DECKING
1/2" = 1'-0"

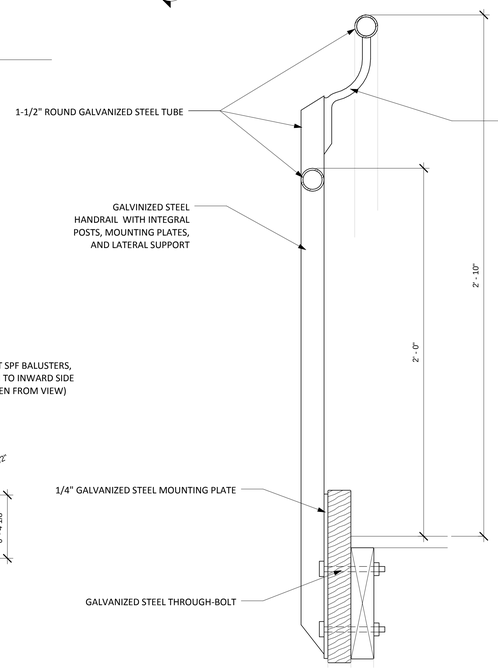
4 SIDE B OF DECKING
1/2" = 1'-0"



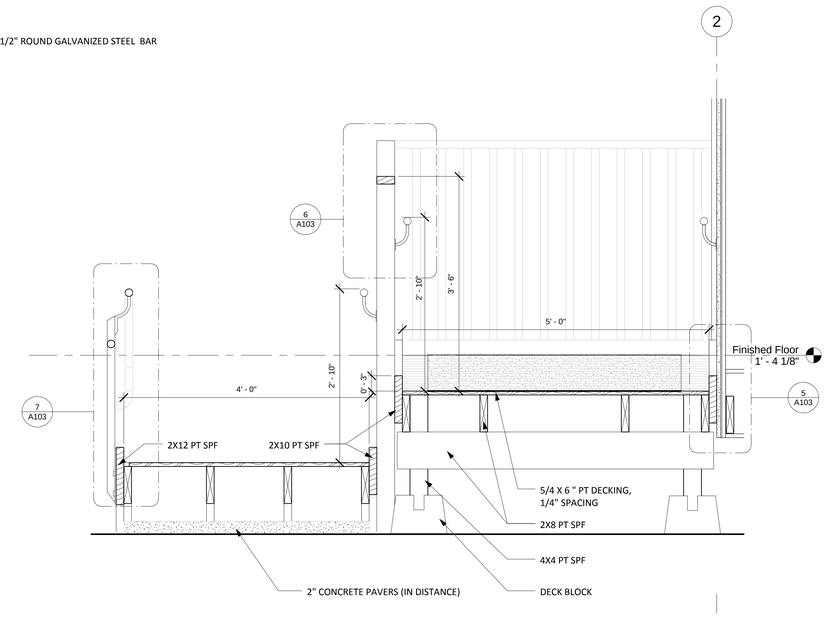
5 DECK TO BUILDING SECTION DETAIL
3" = 1'-0"



6 BRACKETED HANDRAIL
3" = 1'-0"



7 SELF-SUPPORTED HANDRAIL
3" = 1'-0"



8 TYPICAL DECKING SECTION
1" = 1'-0"

SP DUMARESQ ARCHITECT LTD
SYDNEY DOMINION PEMBROKE SYDNEY FLOOR HALIFAX, N.S.

Halifax Regional Centre for Education

DUMAC ENERGY LIMITED CONSULTING ENGINEERS

BMR Structural|Engineering

KEY PLAN

GENERAL NOTES

DRAWING IS PRINTED TO SCALE WHEN DIMENSION MEASURES 1"

DATE	#	ISSUE
JUNE 17 2019	1	FOR TENDER

REGISTERED MEMBER S.P. DUMARESQ ASSOCIATION OF ARCHITECTS

SCALE:	As indicated
DRAWN BY:	Author
REVIEWED BY:	
DATE:	17 JUNE 2018

PROJECT TITLE

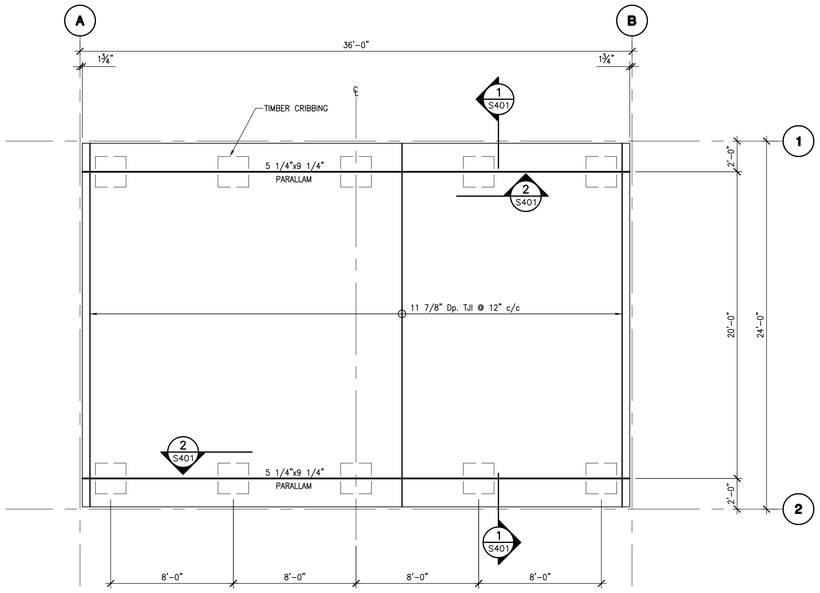
H.R.C.E. Portables 2019

Project Number

SHEET TITLE

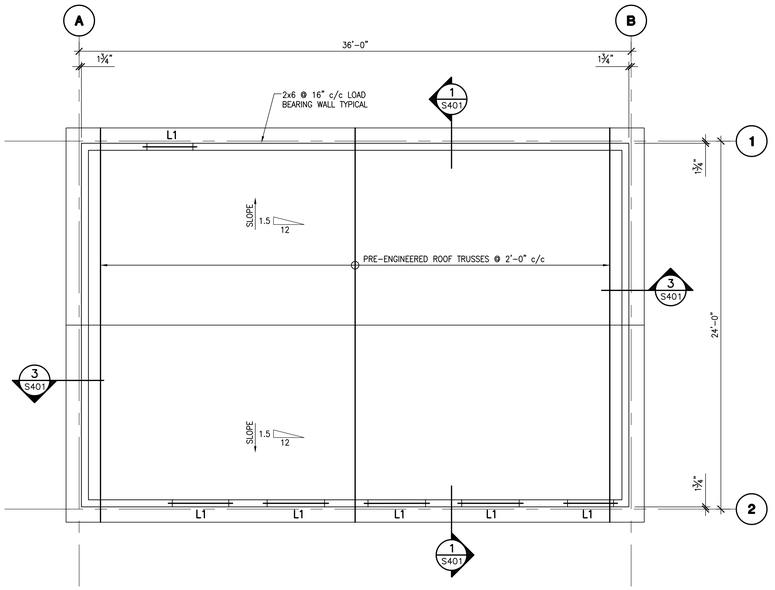
RAMP AND STAIRS

A103



FLOOR FRAMING PLAN

SCALE: 1/4"=1'-0"



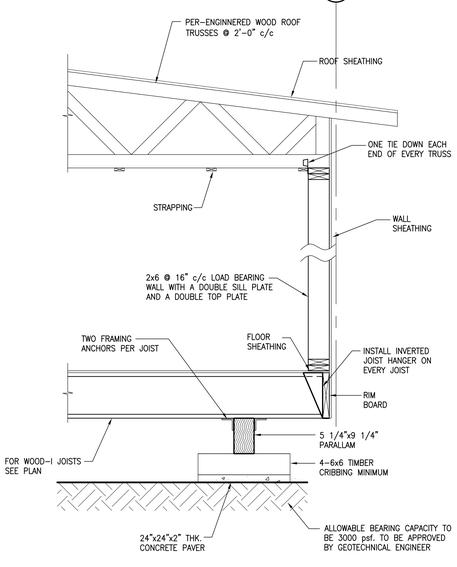
ROOF FRAMING PLAN

SCALE: 1/4"=1'-0"

TRUSS DESIGN LOADS

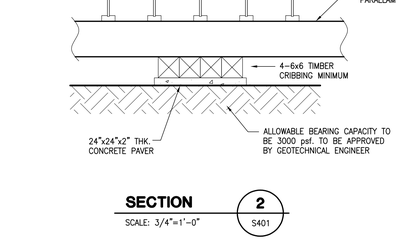
DL = 15 psf
LL = 50 psf

L1 = 3-2x8 LINTEL WITH 2 JACK STUDS AND 1 FULL HEIGHT STUD EACH END



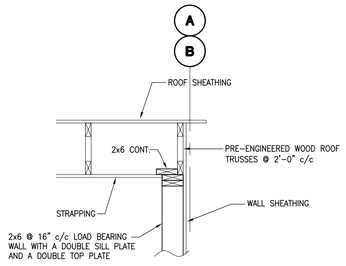
SECTION 1 / S401

SCALE: 3/4"=1'-0"



SECTION 2 / S401

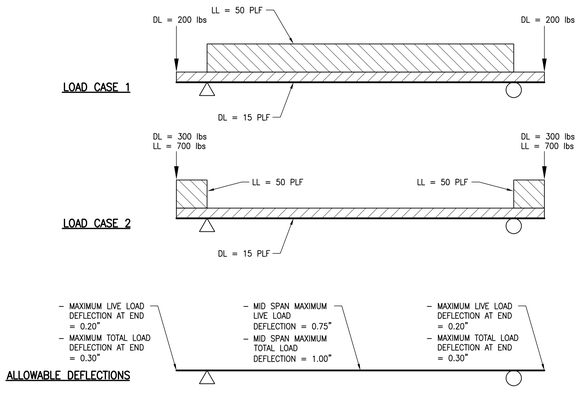
SCALE: 3/4"=1'-0"



SECTION 3 / S401

SCALE: 3/4"=1'-0"

TJI DESIGN CRITERIA



GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE NATIONAL BUILDING CODE.
2. DO NOT SCALE THE DRAWINGS.
3. CHECK DIMENSIONS ON THESE DRAWINGS AGAINST DIMENSIONS ON ARCHITECTURAL DRAWINGS BEFORE USING. REPORT ANY DISCREPANCIES.
4. ALL LOADS INDICATED ON DRAWINGS ARE SERVICE (UNFACTORED) LOADS UNLESS NOTED.
5. THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND CHECK ALL DIMENSIONS AGAINST SITE CONDITIONS AND REPORT ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
6. CONTRACTOR SHALL DESIGN, INSTALL AND MAINTAIN ADEQUATE TEMPORARY BRACING AND SHORING OF ALL STRUCTURAL ELEMENTS FOR STABILITY AND SAFETY WHERE REQUIRED DURING CONSTRUCTION. (THE ABOVE WORK IS BEYOND THE SCOPE OF BMR STRUCTURAL ENGINEERING).

TIMBER FRAMING NOTES

1. ALL TIMBER AND LUMBER SHALL COMPLY WITH CSA-086-01.
2. ALL PLYWOOD AND OSB SHEATHING SHALL COMPLY WITH CSA-O325.0 – CONSTRUCTION SHEATHING.
3. ALL LUMBER USED FOR STUD BEARING WALLS, LINTELS AND POSTS SHALL BE NUMBER ONE GRADE S.P.F. UNLESS NOTED.
4. ALL DIMENSION LUMBER SHALL COMPLY WITH CSA O141.
5. CUTTING OF HOLES OR REMOVAL OF STRUCTURAL FRAMING BY TRADES FOR INSTALLATION OF PIPING, DUCTWORK, ELECTRICAL, ETC. SHALL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
6. ALL ROOF TRUSSES SHALL BE SPACED NOT MORE THAN 2'-0" c/c UNLESS NOTED OTHERWISE.
7. TRUSS AND FLOOR JOIST SHOP DRAWINGS SHALL SHOW ALL STRUCTURAL INFORMATION INCLUDING MEMBER LOADS, MEMBER SIZES, CONNECTION DETAILS, BRACING, TRUSS PLACEMENT, FRAMING AROUND OPENINGS, ETC. AND MUST BE STAMPED AND SIGNED BY AN ENGINEER REGISTERED TO PRACTICE IN THE PROVINCE OF CONSTRUCTION AND SUBMITTED TO THE CONSULTANT FOR REVIEW PRIOR TO FABRICATION OF THE TRUSSES.
8. SUBMIT DETAILS AND CAPACITIES OF ALL TRUSS CONNECTIONS (HANGERS,ETC.) FOR APPROVAL BEFORE TRUSS FABRICATION.
9. ROOF TRUSS SUPPLIER SHALL PROVIDE TRUSS BEARING SHOES WHERE REQUIRED IF ALLOWABLE STRESS PERPENDICULAR TO GRAIN IS EXCEEDED. SUBMIT DETAILS FOR REVIEW.
10. INSTALL WOOD SHEATHING TO STUD WALLS AND ROOF FRAMING WITH JOINTS STAGGERED AND ENDS BUTTED OVER FRAMING. NAIL WOOD SHEATHING WITH 2" Lg. COMMON NAILS AT 6" c/c ALONG EDGES AND 12" c/c ON INTERMEDIATE SUPPORTS.
11. TRUSSES SHALL BE FASTENED TO PLATES WITH 18 gauge ZINC COATED TIE DOWN ANCHORS TYPICAL EACH END.
12. TRUSSES SHALL BE HANDLED, INSTALLED AND TEMPORARILY BRACED IN ACCORDANCE WITH BUILDING COMPONENT SAFETY INFORMATION'S GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING AND BRACING OF METAL PLATE CONNECTED WOOD TRUSSES – LATEST EDITION.
13. STRUCTURAL COMPOSITE LUMBER (SCL) SHALL BE EITHER LAMINATED VENEER LUMBER (LVL) OR PARALLAM (PSL) OR APPROVED EQUIVALENT, MINIMUM DESIGN PROPERTIES SHALL BE:
    13.1. Fb: 5360 psi
    13.2. Fv: 540 psi
    13.3. E: 2,000,000 psi

SP DUMARESQ ARCHITECT LTD

Halifax Regional Centre for Education

DUMAC ENERGY LIMITED CONSULTING ENGINEERS

BMR Structural|Engineering

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF NOVA SCOTIA
DATE
J. Richardson
5121

KEY PLAN

GENERAL NOTES

DRAWING IS PRINTED TO SCALE WHEN DIMENSION MEASURES 1"

DATE	#	ISSUE
JUNE 17 2019	1	FOR TENDER

SCALE:	AS NOTED
DRAWN BY:	J. DAVIS
REVIEWED BY:	J. RICHARDSON
DATE:	17 JUNE 2019

PROJECT TITLE

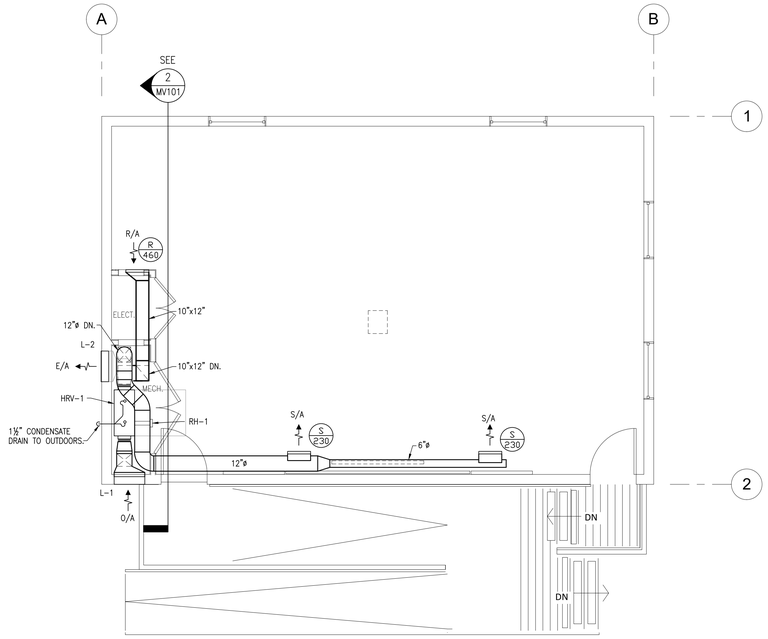
H.R.C.E. Portables 2019

Project Number

SHEET TITLE

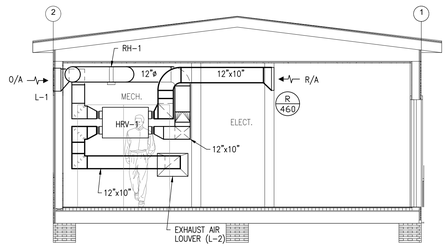
FRAMING PLANS, SECTIONS, AND NOTES

S401



1 MV101 FLOOR PLAN – AIR DISTRIBUTION

SCALE: 1/4"=1'-0"



2 MV101 BUILDING SECTION – AIR DISTRIBUTION

SCALE: 1/4"=1'-0"

MECHANICAL LEGEND

- CONDENSATE DRAIN
- A / 100 — GRILLE, DIFFUSER, REGISTER TYPE AIR FLOW IN CFM
- SUPPLY AIR REGISTER
- WALL MOUNTED RETURN GRILLE
- TURNING VANES

I

1.1 REFERENCE STANDARDS

.1 THE MOST STRINGENT REQUIREMENTS OF LOCAL MUNICIPAL BY-LAWS, PROVINCIAL CODES AND FOLLOWING CODES AND STANDARDS SHALL BE FOLLOWED.

.2 IN NO INSTANCE SHALL THE STANDARD ESTABLISHED BY THE CONTRACT DOCUMENTS BE REDUCED BY THE APPLICATION OF ANY OTHER CODES.
.1 ASHRAE HANDBOOKS AND STANDARDS.

.2 NATIONAL FIRE CODE OF CANADA.

.3 SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.

.4 CSA C22.1, CANADIAN ELECTRICAL CODE, PART 1 SAFETY STANDARD FOR ELECTRICAL INSTALLATIONS.

.5 SPECIFICATION A653/A653M STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS.

1.2 DEFINITIONS
.1 "CONCEALED" - MECHANICAL SERVICES AND EQUIPMENT IN HUNG CEILING SPACES AND NON-ACCESSIBLE CHASES AND FURRED SPACES.

.2 "EXPOSED" - WILL MEAN "NOT CONCEALED" AS DEFINED HEREIN.

1.3 EXAMINE THE SITE CONDITIONS: EACH CONTRACTOR SHALL VISIT AND EXAMINE THE SITE AND THE LOCAL CONDITIONS AFFECTING THIS WORK. NO ALLOWANCE WILL BE MADE LATER FOR ANY EXPENSES OCCURRED THROUGH FAILURE TO MAKE THESE EXAMINATIONS.

1.4 USE PERMANENT HEATING AND/OR VENTILATING SYSTEMS FOR SUPPLYING TEMPORARY HEAT OR VENTILATION IS NOT PERMITTED.

1.5 PROTECT EQUIPMENT AND SYSTEMS OPENINGS FROM DIRT, DUST, AND OTHER FOREIGN MATERIALS WITH MATERIALS APPROPRIATE TO SYSTEM.

1.6 NO FANS TO BE STARTED UNTIL PROJECT HAS BEEN CLEANED TO THE SATISFACTION OF THE CONSULTANT.

1.7 MATERIAL
.1 STANDARD OF ACCEPTANCE AND/OR ACCEPTABLE MATERIAL: MEANS THAT ITEM NAMED AND SPECIFIED BY MANUFACTURER AND/OR CATALOGUE NUMBER FORMS PART OF SPECIFICATION AND SETS STANDARD REGARDING PERFORMANCE, QUALITY OF MATERIAL AND WORKMANSHIP AND WHEN USED IN CONJUNCTION WITH A REFERENCED STANDARD, SHALL BE DEEMED TO SUPPLEMENT THE STANDARD.

.2 ACCEPTABLE MANUFACTURER: MEANS THAT ITEM MANUFACTURED BY NAMED AND SPECIFIED MANUFACTURER, MEETING THE SPECIFICATION AND REFERENCED STANDARD REGARDING PERFORMANCE, QUALITY OF MATERIAL AND WORKMANSHIP SHALL BE DEEMED ACCEPTABLE.

.3 SHOULD THE CONTRACTOR DESIRE TO SUBSTITUTE A ANOTHER MANUFACTURER/ MATERIAL FOR ONE OR MORE SPECIFIED, THE CONTRACTOR SHALL APPLY IN WRITING FOR SUCH PERMISSION AT LEAST FIVE (5) CALENDAR DAYS BEFORE CLOSING DATE OF MECHANICAL TRADE TENDERS. THE CONTRACTOR SHALL ALSO PROVIDE TECHNICAL DATA AND/OR SAMPLES FOR THE CONSULTANTS CONSIDERATION.

1.8 FOR THE PURPOSE OF UNIFORMITY SIMILAR MATERIALS SHALL BE BY ONE MANUFACTURER.

1.9 ALL LABOR AND MATERIALS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER THE DATE OF ACCEPTED SUBSTANTIAL COMPLETION OF THE CONTRACT.

1.10 THIS CONTRACTOR SHALL GIVE ALL NOTICES AND OBTAIN ALL PERMITS AND PAY ALL FEES IN ORDER THAT THE WORK HEREIN MAY BE CARRIED OUT WITHOUT DELAY.

1.11 ELECTRICAL DEVICES AND PANELS.
.1 ALL ELECTRICAL EQUIPMENT AND DEVICES TO BE CSA CERTIFIED AND MANUFACTURED TO STANDARD QUOTED.

.2 WHERE FIELD MODIFICATIONS ARE MADE TO CERTIFIED ELECTRICAL EQUIPMENT, ARRANGE AND PAY FOR FIELD CERTIFICATION BY CSA.

1.12 ELECTRICAL PERMITS, FEES AND INSPECTIONS
.1 LINE VOLTAGE CONTROL WIRING: WIRING SHALL BE INSTALLED BY AN ELECTRICIAN. ELECTRICAL WIRING PERMITS: SUBMIT TO ELECTRICAL INSPECTION DEPARTMENT AND SUPPLY AUTHORITY NECESSARY NUMBER OF CONTROL DRAWINGS AND CONTROL SPECIFICATIONS FOR EXAMINATION AND APPROVAL PRIOR TO COMMENCEMENT OF WORK PAY ASSOCIATED FEES. FURNISH CERTIFICATES OF ACCEPTANCE FROM INSPECTION DEPARTMENT AND AUTHORITIES HAVING JURISDICTION ON COMPLETION OF WORK.

.2 LOW VOLTAGE CONTROL WIRING: WIRING SHALL BE INSTALLED BY A CERTIFIED COMMUNICATIONS CABLING SPECIALISTS. COMMUNICATIONS WIRING PERMITS: SUBMIT TO ELECTRICAL INSPECTION DEPARTMENT AND SUPPLY AUTHORITY NECESSARY NUMBER OF CONTROL DRAWINGS AND CONTROL SPECIFICATIONS FOR EXAMINATION AND APPROVAL PRIOR TO COMMENCEMENT OF WORK, PAY ASSOCIATED FEES. FURNISH CERTIFICATES OF ACCEPTANCE FROM INSPECTION DEPARTMENT AND AUTHORITIES HAVING JURISDICTION ON COMPLETION OF WORK.

1.13 CUTTING, PATCHING, AND WATERPROOFING NECESSARY FOR THE PROPER INSTALLATION OF THIS WORK, SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. THIS CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE NECESSARY INFORMATION TO THE GENERAL CONTRACTOR IN A TIMELY FASHION.

1.14 THIS CONTRACTOR SHALL PRESERVE ALL OPERATION AND MAINTENANCE INSTRUCTIONS AND MARKED-UP "RECORD" PRINTS AND TURN OVER TO THE OWNER AT JOB COMPLETION.

1.15 SCOPE OF WORK INCLUDES BUT IS NOT LIMITED TO THE SUPPLY AND INSTALLATION OF VENTILATION SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED.

1.16 EQUIPMENT SUPPORTS
.1 EQUIPMENT SUPPORTS NOT SUPPLIED BY EQUIPMENT MANUFACTURER: FABRICATE FROM STRUCTURAL GRADE STEEL.

1.17 PAINT
.1 APPLY AT LEAST ONE COAT OF PRIMER PAINT TO FERROUS SUPPORTS, PIPE HANGERS AND SITE FABRICATED WORK. PRIMER TO BE THE MASTER PAINTERS INSTITUTE MPI #23 WITH VOC <351 GRAINS/L

1.18 ACCESS DOORS
.1 SUPPLY ACCESS DOORS TO CONCEALED MECHANICAL EQUIPMENT FOR OPERATING, INSPECTING, ADJUSTING AND SERVICING.

.2 MINIMUM 24" X 24" FOR BODY ENTRY

.3 MINIMUM 12" X 12" FOR HAND ENTRY

.4 DOOR FLUSH WITH FRAME.

1.19 DIELECTRIC COUPLINGS: WHERE PIPES OF DISSIMILAR METALS ARE JOINTED.

1.20 SHOP DRAWINGS: PROVIDE 6 COPIES TO THE CONSULTANT.

1.21 START-UP REPORT. REPORTS TO SHOW MODEL NUMBER, SERIAL NUMBER, VOLTAGE AND RATED AMPERES.

1.22 OPERATING AND MAINTENANCE MANUAL: PROVIDE 3 COPIES CUSTOM DESIGNED AND CONTAIN MATERIAL PERTINENT TO THIS PROJECT ONLY AND TO PROVIDE FULL. INCLUDE A COPY OF FINAL SHOP DRAWING.

1.23 DEMONSTRATION AND OPERATING AND MAINTENANCE INSTRUCTIONS: SUPPLY TOOLS, EQUIPMENT AND PERSONNEL TO DEMONSTRATE AND INSTRUCT OPERATING AND MAINTENANCE PERSONNEL IN OPERATING, CONTROLLING, ADJUSTING, TROUBLE-SHOOTING AND SERVICING OF ALL SYSTEMS AND EQUIPMENT DURING REGULAR WORK HOURS, PRIOR TO ACCEPTANCE.

2 PRODUCTS

2.1 DUCT HANGERS
.1 MIDDLE ATTACHMENT (ROD) CADMIUM PLATED STEEL THREADED ROD.

.2 ADJUSTABLE CLEVIS HANGER: TO MSS-SP69, TYPE 1, ULC LISTED.

.3 LONG ADJUSTABLE CLEVIS HANGER: TO MSS-SP69, TYPE 1 ULC LISTED.

.4 COPPER PLATED OR EPOXY COATED ADJUSTABLE CLEVIS HANGER:

.5 BLACK CARBON STEEL RISER CLAMP TO MSS-SP69, TYPE 8, ULC LISTED.

2.2 SYSTEM NAMEPLATES: LAMINATED PLASTIC OR WHITE ANODIZED ALUMINUM, MATTE FINISH, SQUARE CORNERS, LETTERS ACCURATELY ALIGNED AND MACHINE ENGRAVED INTO MACTORE. MECHANICALLY FASTEN NAMEPLATES.

2.3 CEILING COLOR DISCS: AT VALVES, TERMINAL UNITS, ELECTRICAL COMPONENTS LOCATED ABOVE T-BAR CEILING OR ACCESS DOORS, PROVIDE SELF ADHERING COLOR DISC AS NEAR AS POSSIBLE TO WHERE ITEM IS LOCATED.

2.4 D-2 MINERAL FIBER BLANKET WITH VAPOUR BARRIER 4° TO 120°C
.1 APPLICATION ON CONCEALED COLD OR DUAL TEMPERATURE DUCTING: OUTSIDE AIR INTAKE FROM LOUVER TO HEAT RECOVERY UNIT, EXHAUST AIR DISCHARGE FROM HEAT RECOVERY UNIT AND WHERE INDICATED.

.2 THICKNESS: ONE 1½"

2.5 D-4 MINERAL FIBER RIGID WITH VAPOUR BARRIER TO 4° TO 120° C
.1 APPLICATION ON EXPOSED COLD OR DUAL TEMPERATURE DUCTING: OUTSIDE AIR INTAKES FROM LOUVER TO HEAT RECOVERY UNIT, EXHAUST AIR DISCHARGE FROM HEAT RECOVERY UNIT AND WHERE INDICATED.

.2 THICKNESS: ONE 25 MM LAYER

2.6 STORM, SANITARY AND VENT PIPING, FITTINGS AND JOINTS
.1 TYPE DWV COPPER, ASTM B306 SOLDER/BRAZING: LEAD FREE TO ASTM B32

.2 PVC FOR ABOVE GRADE PIPE
.1 PVC DWV 25-50: CAN/CSA-B181.2 FOR PVC DWV WITH SOLVENT WELD JOINTS TO ASTM D2564 WITH FLAME SPREAD NOT MORE THAN 25 AND SMOKE DEVELOPED CLASSIFICATION NOT MORE THAN 50. ACCEPTABLE MATERIAL: IPEX SYSTEM XFR™ 15-50

2.7 DUCTWORK - LOW PRESSURE METALLIC TO 500 PA
.1 SMACNA SEAL CLASS C: TRANSVERSE JOINTS AND CONNECTIONS MADE AIR TIGHT WITH GASKETS, SEALANT AND TAPE OR COMBINATION THEREOF. LONGITUDINAL SEAMS UNSEALED.

.2 SEALANT: NON-FLAMMABLE, WATER BASE DUCT SEALANT. TEMPERATURE RANGE OF MINUS 30°C TO PLUS 93°C. FLAME SPREAD RATING OF NOT MORE THAN 25. SMOKE DEVELOPED CLASSIFICATION OF NOT MORE THAN 50.

.3 FABRICATION: TO SMACNA.

.4 RADIUSED ELBOWS: RECTANGULAR: STANDARD RADIUS (CENTERLINE RADIUS 1.5 TIMES WIDTH OF DUCT) OR SHORT RADIUS WITH SINGLE THICKNESS TURNING VANES. ROUND: SMOOTH RADIUS OR 5 PIECE. CENTERLINE RADIUS IS 1.5 TIMES DIAMETER.

.5 MITERED ELBOWS, RECTANGULAR: SINGLE THICKNESS TURNING VANES.

.6 ROUND DUCTWORK: FACTORY FABRICATED CONDUIT CONSISTING HELICALLY WOUND GALVANIZED STEEL STRAPS WITH SPIRAL LOCK SEAMS. FOR CONCEALED BRANCH DUCTWORK UP TO 16" DIAMETER, LONGITUDINAL SEAMS.

.7 GALVANIZED STEEL LOCK FORMING QUALITY: TO ASTM A653, Z90 ZINC COATING. SATIN COAT FOR ALL EXPOSED DUCTWORK OUTSIDE MECHANICAL ROOMS.

.8 JOINTS: TO ASHRAE AND SMACNA AND/OR PROPRIETARY MANUFACTURED DUCT JOINT. ACCEPTABLE MATERIAL: FOR PROPRIETARY JOINTS: DUCTMATE CANADA LTD. OR EXANNO NEXUS

2.8 ACCESS DOORS IN DUCTS
.1 INSULATED DUCTS: SANDWICH CONSTRUCTION OF SAME MATERIAL AS DUCT, ONE SHEET METAL THICKNESS HEAVIER, MINIMUM 26 GA. THICK COMPLETE WITH SHEET METAL ANGLE FRAME AND 1" THICK RIGID GLASS FIBER INSULATION.

.2 HARDWARE FOR FRAMED: HINGED FOR ACCESS DOORS INTO INTAKE AND EXHAUST PLENUMS. SAFETY CHAIN EXCEPT FOR HINGED. LIFT OUT HANDLE FOR ACCESS DOORS 18" X 18" AND OVER

2.9 BALANCING DAMPERS
.1 SINGLE BLADE DAMPERS: SAME MATERIAL AS DUCT, BUT ONE SHEET METAL THICKNESS HEAVIER. V-GROOVE STIFFENED. LOCKING QUADRANT. INSIDE AND OUTSIDE END BEARINGS.

.2 MULTI-BLADED DAMPERS: FACTORY MANUFACTURED OF MATERIAL COMPATIBLE WITH DUCT. OPPOSED BLADE. BEARINGS: PIN IN BRONZE BUSHINGS. LINKAGE: SHAFT EXTENSION WITH LOCKING QUADRANT.

2.10 OPERATING DAMPERS
.1 SIZES: MODULAR MAXIMUM 48" WIDE AND 48" HIGH.

.2 FRAME: EXTRUDED ALUMINUM. BLADES: EXTRUDED ALUMINUM. BEARINGS: NYLON. PROVIDE ADDITIONAL THRUST BEARINGS FOR VERTICAL BLADES. LINKAGE: ZINC PLATED STEEL. SEALS: PVC AND/OR SS SPRING ON SIDE, TOP AND BOTTOM OF FRAME AND ALONG ALL BLADE EDGES AND BLADE ENDS.

.3 LOW LEAKAGE DAMPERS: FOR RETURN AIR DAMPER AND FOR INDIVIDUAL EXHAUST FANS.

.4 INSULATED DAMPERS: FOR OUTSIDE AIR DAMPER AND EXHAUST AIR DAMPER AT AIR HANDLING UNITS.

.5 STANDARD OF ACCEPTANCE: LOW LEAKAGE: T.A. MORRISON SERIES 1000. INSULATED: T.A. MORRISON SERIES 9000.

.6 ACCEPTABLE MANUFACTURER: RUSKIN AND NAILOR INDUSTRIES

2.11 ELECTRIC DUCT HEATERS
.1 BEAR CSA LABEL. OPEN COIL ELEMENTS MADE OF NICKEL-CHROMIUM DESIGNED FOR MINIMUM AIRFLOW. CONTROL TRANSFORMER WITH FUSED SECONDARY. BUILT-N, PREWIRED PRESSURE DIFFERENTIAL SWITCH. POWER AND CONTROL TERMINALS. PRIMARY THERMAL CUTOUT (HI LIMIT). DISCONNECT SWITCH.

.2 STANDARD OF ACCEPTANCE: PM WRIGHT AS PER DRAWINGS.

.3 ACCEPTABLE MATERIAL: THERMOLEC OR INDECO.

2.12 FANS GENERAL
.1 ACCESSORIES AND HARDWARE: MATCHED SETS OF V_BELT DRIVES, ADJUSTABLE SLIDE RAIL MOTOR BASES, BELT GUARDS, COUPLING GUARDS, FAN SAFETY SCREENS AND AS INDICATED.

.2 BEARING LUBRICATION SYSTEMS PLUS EXTENSION LUBRICATION TUBES WHERE BEARINGS ARE NOT EASILY ACCESSIBLE.

.3 BASED ON MANUFACTURER NAMED AS STANDARD OF ACCEPTANCE. THE APPROVAL OF EQUIPMENT OF OTHER MANUFACTURERS NAMED IN THE ACCEPTABLE MATERIALS LIST SHALL BE SUBJECT TO MEETING THE PERFORMANCE AND SOUND POWER LEVELS. THE FAN MANUFACTURER SHALL ALSO BE RESPONSIBLE FOR ALL ELECTRICAL CHANGES CAUSED BY THE CHANGE IN MOTOR SIZE.

.4 BEAR AMCA CERTIFIED AIR PERFORMANCE RATING SEAL.

2.13 PACKAGED HEAT RECOVERY UNITS
.1 DRAW THROUGH HEAT RECOVERY UNIT CONSISTING OF HEAT RECOVERY CORE, SUPPLY AIR FAN, EXHAUST FAN, DAMPERS, TEMPERATURE SENSORS, MICROPROCESSOR CONTROL.

.2 CABINET CONSTRUCTED FROM 20 GAUGE GALVANIZED STEEL WITH ¾" FOIL FACED FIRE RETARDANT INSULATION MATERIAL.

.3 HINGED ACCESS DOORS, FULLY REMOVABLE.

.4 ALUMINUM PLATE HEAT RECOVERY CORE, FULLY REMOVABLE FOR CLEANING.

.5 BELT DRIVE FORWARD CURVED FAN DESIGNED FOR CONTINUOUS OPERATION. FAN WHEELS TO BE GALVANIZED STEEL.

.6 SLOPED DRAIN PANS WITH RECESSED BOTTOM DRAIN.

.7 FACTORY MOUNTE AND WIRE CONTROLS TO INITIATE DEFROST CYCLE.

.8 AUXILLARY CONTACTS FOR REMOTE START/STOP CONTROL DEVICE, DOOR INTERLOCK SWITCH.

.9 SINGLE POINT POWER CONNECTION.

.10 ACCEPTABLE MATERIALS:
.1 NU-AIR VENTILATION SYSTEMS INC.

.2 LIFEBREATH

.3 VENMAR CES VENTILATION

2.14 STATIONARY EXTERIOR LOUVERS
.1 WATER PERFORMANCE AND AIR PERFORMANCE CERTIFIED IN ACCORDANCE WITH AMCA 500 LICENSED TO BEAR AMCA SEAL.

.2 ALL WELDED CONSTRUCTION WITH EXPOSED JOINTS GROUND FLUSH AND SMOOTH. MINIMUM 12 GAUGE (0.081") EXTRUDED ALUMINUM ALLOY 6063-T5. DRAINABLE PATTERN BLADE. ALUMINUM BIRDSCREEN ON INSIDE FACE OF LOUVERS IN FORMED U-FRAME.

.3 FINISH: CHEMICAL CLEANED, PRETREATED AND FINISHED AFTER ASSEMBLY WITH OVEN CURED BAKED ENAMEL, ON ALL SIDES. NO MILL FINISH EXPOSED.

.4 STANDARD OF ACCEPTANCE: RUSKIN MODEL ELF6375D AS PER DRAWINGS

.5 ACCEPTABLE MATERIAL: AIROLITE MODEL K6776, MCGILL DSP 635 ALL WELDED CONSTRUCTION, PENN MODEL M-6 OR VENTEX INC. MODEL 2630 ALL WELDED CONSTRUCTION.

2.15 GRILLES AND DIFFUSERS
.1 PRODUCT OF ONE MANUFACTURER FOR GENERIC TYPE, I.E. GRILLES BY ONE, DIFFUSERS BY ONE, OR SAME.

.2 PROVIDE STANDARD PRODUCT TO MEET CAPACITY, THROW, NOISE LEVEL, THROAT AND OUTLET VELOCITY.

.3 FRAMES: STEEL: STANDARD WITH EXPOSED WELDED JOINTS AND MITERED CORNERS. ALUMINUM: EXTRUDED WITH MECHANICAL FASTENERS AND MITERED CORNERS.

.4 DIFFUSERS: SQUARE TYPE. PLASTER FRAME WHERE INSTALLED IN DRYWALL CEILINGS.

.5 STANDARD OF ACCEPTANCE: E. H. PRICE AS PER DRAWINGS.

.6 ACCEPTABLE MANUFACTURERS: TITUS NAILOR INDUSTRIES OR TITUS

3 EXECUTION

3.1 GENERAL
.1 IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.

3.2 PROTECTION OF OPENINGS: PROTECT EQUIPMENT AND SYSTEMS OPENINGS FROM DIRT, DUST, AND OTHER FOREIGN MATERIALS WITH MATERIALS APPROPRIATE TO SYSTEM.

3.3 TESTS
.1 GIVE 24 H WRITTEN NOTICE OF DATE FOR TESTS.

.2 INSULATE OR CONCEAL WORK ONLY AFTER TESTING AND APPROVAL BY CONSULTANT.

.3 CONDUCT TESTS IN PRESENCE OF CONSULTANT OR REPRESENTATIVE AUTHORIZED BY THE CONSULTANT.

.4 BEAR COSTS INCLUDING RETESTING AND MAKING GOOD.

3.4 DUCTWORK PROTECTION AND CLEANING
.1 SEAL AND PROTECT OPEN ENDS OF DUCTWORK CONTINUOUSLY DURING CONSTRUCTION.

.2 WASH DOWN INSIDE OF INTAKE DUCT AND PLENUM FROM LOUVER TO UNIT PRIOR TO STARTING UNITS.

3.5 ACCESS DOORS IN DUCTS:
.1 MINIMUM SIZE: 24" X 24" FOR PERSON SIZE ENTRY. 12" X 12" FOR SERVING ENTRY.

.2 LOCATION: AT FIRE DAMPERS, AT CONTROL DAMPERS, AT PLENUMS, INTAKE AND EXHAUST AND AT DEVICES REQUIRING MAINTENANCE.

3.6 ELECTRIC DUCT HEATERS
.1 SUBMIT START-UP REPORT FOR EACH UNIT FOLLOWING DUCT TAB INCLUDING THE FOLLOWING: MEASURED VOLTAGE, MEASURED AMPERAGE PER STAGE AND CONTROL SEQUENCED VERIFICATION.

3.7 FAN INSTALLATION
.1 PROVIDE SHEAVES AND BELTS REQUIRED FOR FINAL AIR BALANCE.

.2 PROVIDE FAN RESTRAINING SNUBBERS FOR SUSPENDED IN LINE FANS OVER 3HP.

3.8 FILTERS
.1 REPLACE ALL MEDIA WITH NEW UPON ACCEPTANCE.

.2 PROVIDE FILTER GAUGES: ACROSS EACH BANK OF CARTRIDGE AND EXTENDED SURFACE PLEATED TYPE FILTERS.

3.9 WIRING INSTALLATION
.1 WIRING INSTALLATION: RUN IN CONDUIT WHERE INACCESSIBLE AREAS, AREAS OF HEAT ABOVE 80° C, MECHANICAL ROOM, ROOMS WHERE SUBJECT TO DAMAGE AND IN ROOMS WITHOUT SUSPENDED CEILINGS. USE FT4 RATED CABLE: WHERE CODE PERMITS AND IN LOCATION NOT REQUIRING CONDUIT.

.2 CONTROL CIRCUIT WIRING 50 VOLTS AND LESS: THE INSTALLATION OF "SURFACE" WIRING ON WALLS OR IN OPEN (NON-ENCLOSED) TYPE CEILINGS SHALL ALWAYS BE IN EMT TYPE CONDUIT COMPLETE WITH ASSOCIATED "STEEL" TYPE CONNECTORS AND COUPLINGS. UNLESS SPECIFICALLY INDICATED OTHERWISE, LIQUID TIGHT METAL TYPE CONDUIT C/W MATCHING LIQUID TIGHT TYPE CONNECTORS ARE TO BE USED FOR "FINAL" CONNECTION BETWEEN END OF EMT CONDUIT AND APPLICABLE CONTROL DEVICE. EMT TYPE CONDUIT "WALL-STUB" COMPLETE WITH FLUSH INSTALLED DEVICE BOX SHALL BE LOCATED IN ALL CONCRETE, CONCRETE BLOCK OR AS INDICATED IN ALL OTHER PARTITIONS "OTHER THAN" THOSE TYPES CONSTRUCTED SOLELY OF DRY-WALL AND METAL TYPE STUDS. EMT CONNECTORS COMPLETE WITH NYLON INSULATED THROAT OR THREADED TYPE BUSHING SHALL BE INSTALLED ON END OF EMT STUB WHERE IT PROTRUDES THROUGH WALL "ABOVE," AND WITHIN FINISH ACCESSIBLE TYPE CEILINGS. ALL EMT CONDUIT STUBS ARE TO BE "BONDED" TO GROUND AS REQUIRED BY CANADIAN ELECTRICAL CODE AND SECTION 16133.

.3 ALL CONTROL WIRING SHALL BE SUPPORTED INDEPENDENTLY AND NOT SECURED TO DUCTWORK, PIPING OR ELECTRICAL CONDUITS EXCEPT AT DROPS TO DUCT OR PIPE MOUNTED SENSORS OR ACTUATORS. SUPPORT WIRING EVERY 3'-0". SECURELY ANCHOR TO STRUCTURE OR EQUIPMENT.

.4 INSTALL WIRING IN MECHANICAL, ELECTRICAL OR SERVICE ROOMS EXPOSED. CONCEAL ALL OTHER WIRING.

3.10 TESTING, ADJUSTING AND BALANCING (TAB) OF MECHANICAL SYSTEMS
.1 ENGAGE THE SERVICES OF AN INDEPENDENT TAB AGENCY.

.2 TAB MEANS TO TEST, ADJUST AND BALANCE TO PERFORM IN ACCORDANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS AND TO DO ALL OTHER WORK AS SPECIFIED IN THIS SECTION.

.3 TEST TO VERIFY PROPER AND SAFE OPERATION, DETERMINE ACTUAL POINT OF PERFORMANCE, EVALUATE QUALITATIVE AND QUANTITATIVE PERFORMANCE OF EQUIPMENT, SYSTEMS AND CONTROLS AT DESIGN, AVERAGE AND LOW LOADS USING ACTUAL OR SIMULATED LOADS

.4 ADJUST AND REGULATE EQUIPMENT AND SYSTEMS SO AS TO MEET SPECIFIED PERFORMANCE REQUIREMENTS AND TO ACHIEVE SPECIFIED INTERACTION WITH ALL OTHER RELATED SYSTEMS UNDER ALL NORMAL AND EMERGENCY LOADS AND OPERATING CONDITIONS.

.5 BALANCE SYSTEMS AND EQUIPMENT TO REGULATE FLOW RATES TO MATCH LOAD REQUIREMENTS OVER FULL OPERATING RANGES. START TAB ONLY WHEN BUILDING IS ESSENTIALLY COMPLETED.

.6 APPLICATION TOLERANCES: HVAC SYSTEMS: PLUS 10%, MINUS 5%. HYDRONIC SYSTEMS: PLUS OR MINUS 10%.

.7 DEFINITIONS: FOR PURPOSES OF THIS SECTION, TO INCLUDE LOW PRESSURE HOT WATER HEATING, CHILLED WATER, CONDENSER WATER, GLYCOL SYSTEMS.

.8 STANDARD: TAB TO BE TO MOST STRINGENT OF TAB STANDARDS OF AABC NEBB, SMACNA AND ASHRAE.

.9 TAB REPORT: FORMAT TO BE IN ACCORDANCE WITH REFERENCE STANDARD AND TO INCLUDE SYSTEM SCHEMATICS.

.10 SUBMIT 3 COPIES OF TAB REPORT TO CONSULTANT FOR VERIFICATION AND APPROVAL, IN D_RING BINDERS, COMPLETE WITH INDEX TABS.

.11 PERMANENTLY MARK ALL SETTINGS TO ALLOW RESTORATION AT ANY TIME DURING LIFE OF FACILITY. MARKINGS NOT TO BE ERADICATED OR COVERED IN ANY WAY.

.12 ACCEPTABLE TAB AGENCIES: ATLANTIC INDOOR AIR QUALITY AUDIT CO., BARRINGTON AIR BALANCE SERVICE, GRIFFIN AIR BALANCE, SCOTIA AIR BALANCE LIMITED AND SYSTEM BALANCE LIMITED

DUMAC #18-041

SP DUMARESQ ARCHITECT LTD
SYDNEY DIGBY/ANN PICKETT SYDNEY PLYMOUTH HALIFAX, N.S.

DUMAC

DUMAC ENERGY LTD.
CONSULTING ENGINEERS
752 BEDFORD HIGHWAY
HALIFAX, N.S.
Tel: (902) 457-1300
Fax: (902) 457-1777
Email: DUMAC@DUMAC.NS.CA

GENERAL NOTES

IF DIMENSION DOES NOT MEASURE 1" DRAWINGS IS NOTE PRINTED TO SCALE — 1"

DATE	#	ISSUE
JUNE 17,2019	1.	FOR TENDER

REGISTERED PROFESSIONAL ENGINEER — D. Spears — 9466 — PROVINCE OF NOVA SCOTIA

SCALE:	AS NOTED
DRAWN BY:	STAFF
REVIEWED BY:	MGD
DATE:	JUNE 17,2019

PROJECT TITLE

H.R.C.E. Portables
2019

Project Number

SHEET TITLE

FL0OR PLAN
AIR DISTRIBUTION

MV101

HEAT RECOVERY UNIT SCHEDULE

CONTROL DAMPER MOTORS AND CONTROL DAMPERS BY MECHANICAL CONTRACTOR (M.C.).

SYMBOL	LOCATION	STANDARD OF ACCEPTANCE		SUPPLY AIRFLOW CFM@ ESP "WG	RETURN AIRFLOW CFM@ ESP "WG	MOTOR HP	VOLTS	CONTROL DAMPER	DAMPER MOTOR	ACCESSORIES AND/OR REMARKS
		MANUFACTURER	MODEL							
HRV-1	CLOSET	NU-AIR	NU500	460 @ 0.4	460 @ 0..4	2 @ 500w	120/1	Y-(2)	Y-(2)	POWER CORD, FAN STARTERS, MERV 13 SUPPLY & EXHAUST FILTERS, DOUBLE WALL CONSTRUCTION,

LOUVER SCHEDULE

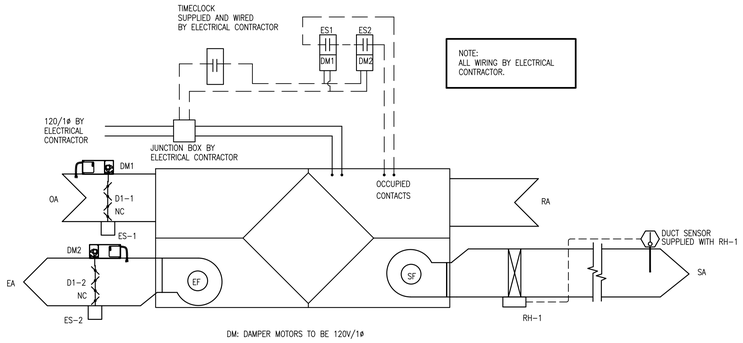
SYMBOL	STANDARD OF ACCEPTANCE		NECK SIZE	ACCESSORIES AND / OR REMARKS
	MANUFACTURER	MODEL		
L-1	RUSKIN	ELF6375D	24"x18"	
L-2	RUSKIN	ELF6375D	24"x18"	

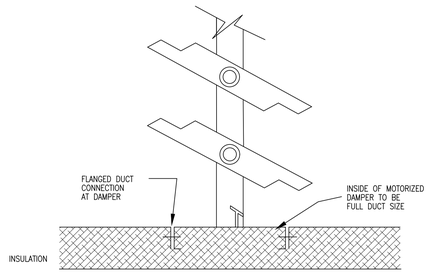
GRILLES AND DIFFUSERS SCHEDULE

SYMBOL	STANDARD OF ACCEPTANCE		AIRFLOW cfm	NECK SIZE	ACCESSORIES AND / OR REMARKS
	MANUFACTURER	MODEL			
S	PRICE	520	315	16"x8"	
S1	PRICE	RCDE	20	6"ø	
R	PRICE	95	1300	24"x18"	

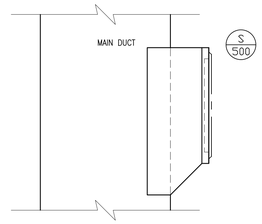
ELECTRIC HEATING COIL SCHEDULE (MODULATING)

SYMBOL	MANUFACTURER	CAPACITY	AIRFLOW CFM	STYLE	VOLTAGE	ACCESSORIES AND / OR REMARKS
RH-1	THERMOELEC	2 KW	460	SCR	240/1	REFER TO MECHANICAL SPECIFICATION





4 / MV501 — MOTORIZED DAMPER SUPPLIED BY MECHANICAL CONTRACTOR
DAMPER ACTUATORS BY CONTROLS CONTRACTOR NTS



5 / MV501 — GRILLE BRANCH CONNECTION
NTS

1 / MV501 — HRV-1 WIRING SCHEMATIC
N.T.S.

2 / MV501 — DUCT IN UNRATED WALL
NTS

3 / MV501 — RETANGULAR BRANCH CONNECTION DETAIL
NTS

SP DUMARESQ ARCHITECT LTD
DUMAC
DUMAC ENERGY LTD.
CONSULTING ENGINEERS
752 BEDFORD HIGHWAY
HALIFAX, N.S.
Tel: (902) 457-1300
Fax: (902) 457-1777
Email: DUMAC@DUMAC.NS.CA

GENERAL NOTES

IF DIMENSION DOES NOT MEASURE 1" DRAWINGS IS NOTE PRINTED TO SCALE

DATE	#	ISSUE
JUNE 17,2019	1.	FOR TENDER

REGISTERED PROFESSIONAL ENGINEER
D. Spears
9466
PROVINCE OF NOVA SCOTIA

SCALE:	AS NOTED
DRAWN BY:	STAFF
REVIEWED BY:	MGD
DATE:	JUNE 17,2019

PROJECT TITLE

H.R.C.E. Portables
2019

Project Number

SHEET TITLE

SCHEDULES AND DETAILS
AIR DISTRIBUTION

MV501

DUMAC #18-041

FIXTURE SCHEDULE

TYPE	STANDARD OF ACCEPTANCE MANUFACTURER CAT No.	DESCRIPTION	LAMP	VOLTS	MOUNTING	REMARKS	ALTERNATES
1	PHILIPS OWL-4-40L-835-UNV-DIM	4'-0", LED DIMMABLE SURFACE WRAPAROUND FIXTURE	40 WATTS 4000 LUMENS 3500K	120V	SURFACE CEILING	0-10VDC DIMMING	GE, EATON
2	PHILIPS FSS330L835-UNV-DIM	3'-0", LED STRIP FIXTURE	3500K 3000 LUMENS 26 WATTS	120V	WALL MOUNTED ABOVE DOOR		GE, EATON
3	PHILIPS WP30-NW-G1-8-BZ-PHOTOCELL	EXTERIOR LED WALL FIXTURE	3500K	120V	WALL	WET LOCATION LISTED C/W FIELD INSTALLED PHOTOCELL	GE, EATON
4	PHILIPS FSS860L835-UNV-DIM	8'-0" SURFACE LINEAR DIMMABLE LED FIXTURE	3500K 6000 LUMENS 62 WATTS	120V	CEILING MOUNTED ABOVE ABOVE WHITE BOARD	0-10VDC DIMMING SUITABLE FOR CONTINUOUS ROW MOUNTING	GE, EATON
5	PHILIPS FSS220L835-UNV-DIM	2'-0", LED STRIP FIXTURE	3500K 2000 LUMENS 17 WATTS	120V	WALL MOUNTED ABOVE DOOR		GE, EATON

HEATER SCHEDULE

TYPE	STANDARD OF ACCEPTANCE MANUFACTURER CAT No.	DESCRIPTION	WATTS	VOLTS	PHASE	REMARKS	ALTERNATE MANUFACTURERS
(1)	STELPRO B150B SERIES	66" BASEBOARD HEATER	1500	208	1	C/W TRANSFORMER/RELAY KIT	DIMPLEX, OUELLET
(2)	STELPRO B150B SERIES	66" BASEBOARD HEATER	1500	208	1	C/W LOW VOLTAGE RELAY	DIMPLEX, OUELLET
(3)	STELPRO B150B SERIES	66" BASEBOARD HEATER	1500	208	1		DIMPLEX, OUELLET
(4)	STELPRO B01008 SERIES	48" BASEBOARD HEATER	1000	208	1		DIMPLEX, OUELLET

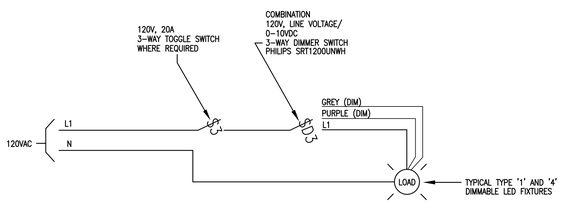
VOLTS 120/240 PANEL '1101' TYPE EATON/SQ.D/SIEMENS
PHASE 1 LOCATION PORTABLE CLASSROOM MAINS 125 AMPS
WIRE 3 FED FROM POLE MOUNTED XMFR ENTER AT MTG. S

DESIGNATION	WATTS A	WATTS B	CIR. No.	BKR NO	A B	BKR NO	CIR. NO.	WATTS A	WATTS B	DESIGNATION
RECEPT-FLOOR BOX	500		1	15A		2P	2	1250		
RECEPT-CLASSRM		500	3	15A		20A	4		1250	ELECT HEAT
RECEPT-CLASSRM	500		5	15A		2P	6	1500		
RECEPT-GEN. CLASSRM		500	7	20A		20A	8		1500	ELECT HEAT
RECEPT-COMM. P/P	500		9	20A		2P	10	1500		
* EXIT LIGHTS		500	11	15A		20A	12		1500	ELECT HEAT
LIGHTING	800		13	20A		20A	14	500		HRV UNIT
RECEPT-MECH CLOSET		500	15	20A		15A	16		200	DOOR OPERATOR
REHEAT COIL	1000		17	2P			18			
		1000	19	15A			20			
EXTERIOR LIGHTING	100		21	20A			22			
			23				24			
• SPARE			25				26			
SPARE			27	15A		20A	28			SPARE
SPARE			29	15A		20A	30			SPARE
SPARE			31	15A		20A	32			SPARE
'A' TOTAL	8150									
'B' TOTAL	7450									

NOTES:
–PANEL C/W 100A/2P MAIN BREAKER
–PANELBOARD SUITABLE FOR SERVICE ENTRANCE USE

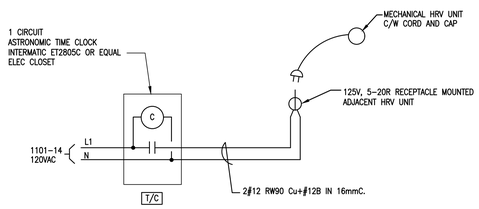
• GFCI BREAKER
* BREAKER LOCK-ON DEVICE

TOTAL LOAD 15.6 KW 65 AMP



NOTE: VERIFY ALL WIRING REQUIREMENTS WITH SYSTEM MANUFACTURER.

1 E-001 LIGHTING CONTROL WIRING DETAIL
N.T.S. (CLASSROOM LIGHTING)



NOTE: ALL CONTROLS WIRING ASSOCIATED WITH HRV UNIT TO BE SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. REFER TO MECHANICAL CONTROLS DETAIL 1/MV501.

2 E-001 TIME CLOCK DETAIL – HRV UNIT CONTROL
N.T.S.

LIGHTING LEGEND

- $D3 — 125V LED DIMMER MOUNTED 48"(1200mm) AFF REFER TO DETAIL 1/E-001.
- $ — 125V, 20amp, SINGLE POLE TOGGLE SWITCH MOUNTED 48"(1200mm) AFF HUBBELL HBL1221W. ALTERNATES: LEVITON, LEGRAND
- $3 — 125V, 20amp, THREE WAY SWITCH MOUNTED 48"(1200mm) AFF HUBBELL HBL1223W. ALTERNATES: HUBBELL, LEGRAND
- '1' — LIGHTING FIXTURE. NUMBER INDICATES TYPE. REFER TO FIXTURE SCHEDULE.

POWER LEGEND

- 125V, 5-15R TAMPER RESISTANT DUPLEX RECEPTACLE MOUNTED 18"(450mm) AFF HUBBELL HBL5262WTR. ALTERNATES: LEVITON, LEGRAND
- 125V, 5-20R TAMPER RESISTANT DUPLEX RECEPTACLE MOUNTED 18"(450mm) AFF HUBBELL HBL5362WTR. ALTERNATES: LEVITON, LEGRAND
- S — 125V, 5-20R DUPLEX SURGE SUPPRESSION RECEPTACLE MOUNTED ADJACENT COMMUNICATIONS PATCH PANELS HUBBELL HBL5362SA. ALTERNATES: LEVITON, LEGRAND
- C — 125V, 5-15R TAMPER DUPLEX RECEPTACLE CEILING MOUNTED FOR FUTURE PROJECTOR. HUBBELL HBL5262WTR
- PANEL BOARD. REFER TO DETAIL 5/E-003.
- T/C — PROGRAMMABLE LOW VOLTAGE HEATING THERMOSTAT C/W LOCKABLE GUARD
- (2) — ELECTRIC HEATER. NUMBER INDICATES TYPE. REFER TO HEATER SCHEDULE
- HRV — HEAT RECOVERY UNIT SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR. ALL WIRING BY ELECTRICAL CONTRACTOR.
- REHEAT COIL AND DISCONNECT SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR. WIRED BY ELECTRICAL CONTRACTOR.
- T/C — TIME CLOCK. REFER TO DETAIL 2/E-001.
- D0 — DOOR OPERATOR AND PUSHBUTTONS SUPPLIED AND INSTALLED BY DIV. 08. WIRED BY ELECTRICAL CONTRACTOR

SYSTEMS LEGEND

- 36W — 120/12V EMERGENCY BATTERY UNIT WALL MOUNTED C/W 2x 5W LED HEADS WATTAGE AS INDICATED. DIRECT CONNECTION. LUMACELL RG12S-36-2-LD9. ALTERNATES: AIMLITE, STANPRO
- 2x 5W x12V LED EMERGENCY REMOTE HEADS – WALL MOUNTED LUMACELL MQ2-LD9. ALTERNATES: AIMLITE, STANPRO
- D.C. — EMERGENCY LIGHTING D.C WIRING. RUN MINIMUM 2#12 RW90 Cu+#12B-1/2"C
- WALL MOUNTED, SELF POWERED, PICTOGRAM EXIT FIXTURE-SINGLE FACED LUMACELL LS1-W-U-VR. ALTERNATES: AIMLITE, STANPRO
- 2D — DUAL DATA OUTLET MOUNTED IN MULTI-SERVICE FLOOR BOX RUN 2x CAT 6 FT6 RATED DATA CABLES BACK TO COMMUNICATIONS PATCH PANEL AND TERMINATE. REFER TO DETAIL 1/E003.
- WIFI — WIFI DATA OUTLET CEILING MOUNTED. RUN 1x CAT 6 FT6 RATED DATA BACK TO COMMUNICATIONS PATCH PANEL AND TERMINATE COMMUNICATIONS PATCH PANEL. REFER TO DETAIL 1/E-003
- C — DATA OUTLET CEILING MOUNTED FOR FUTURE PROJECTOR. RUN 1x CAT 6 FT6 RATED DATA BACK TO COMMUNICATIONS PATCH PANEL AND TERMINATE REFER TO DETAIL 1/E-003.
- DATA OUTLET CEILING MOUNTED 18"(450mm0 AFF. RUN 1x CAT 6 FT6 RATED DATA BACK TO COMMUNICATIONS PATCH PANEL AND TERMINATE REFER TO DETAIL 1/E-003
- 2D — DUAL DATA OUTLET CEILING MOUNTED 18"(450mm0 AFF. RUN 2x CAT 6 FT6 RATED DATA BACK TO COMMUNICATIONS PATCH PANEL AND TERMINATE REFER TO DETAIL 1/E-003
- M — INTRUSION ALARM SYSTEM MOTION DETECTOR – WALL MOUNTED REFER TO DETAIL 2/E-003.
- DC — INTRUSION ALARM SYSTEM DOOR CONTACT REFER TO DETAIL 2/E-003.
- KP — INTRUSION ALARM SYSTEM KEYPAD MOUNTED 48"(1200mm) AFF REFER TO DETAIL 2/E-003.
- S — PUBLIC ADDRESS SYSTEM CEILING MOUNTED SPEAKER REFER TO DETAIL 3/E-003
- CS — PUBLIC ADDRESS SYSTEM CALL SWITCH MOUNTED 48"(1200mm)AFF REFER TO DETAIL 3/E-003
- MULTI-MEDIA OUTLET MOUNTED 48"(1200mm)AFF REFER TO DETAIL 4/E-003.
- C — MULTI-MEDIA OUTLET CEILING MOUNTED FOR FUTURE PROJECTOR. REFER TO DETAIL 4/E-003
- F — FIRE ALARM PULL STATION MOUNTED 48"(1200mm) AFF REFER TO DETAIL 6/E-003
- F — FIRE ALARM HORN/STROBE. REFER TO DETAIL 6/E-003.
- S — FIRE ALARM SMOKE DETECTOR. REFER TO DETAIL 6/E-003.

ELECTRICAL SPECIFICATIONS

1. PROVIDE ALL MATERIALS, LABOUR, SCAFFOLDS, TOOLS AND EQUIPMENT NECESSARY TO COMPLETE THE ELECTRICAL INSTALLATION AND HAVE ALL SYSTEMS READY FOR OPERATION.
2. DO THE ENTIRE WIRING IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE AND ALL LOCAL AND PROVINCIAL ORDINANCES.
3. OBTAIN AND PAY FOR ALL FEES AND PERMITS REQUIRED BY ANY AUTHORITY HAVING JURISDICTION.
4. ALL MATERIAL SHALL BE NEW AND CSA APPROVED, EXCEPT WHERE OTHERWISE NOTED.
5. PROVIDE GROUNDING TO ALL EQUIPMENT AS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE.
6. ALL BRANCH CIRCUIT WIRING TO BE COPPER AC90 #12 MINIMUM GAUGE, UNLESS OTHERWISE NOTED.
7. THIS CONTRACTOR TO COORDINATE LOCATIONS OF ELECTRICAL EQUIPMENT WITH ALL OTHER TRADES.
8. THIS CONTRACTOR TO PROVIDE ALL MATERIALS AND LABOUR TO ENSURE A FULLY WORKABLE SYSTEM.
9. ANY DISCREPANCIES IN THE ELECTRICAL DESIGN TO BE REPORTED TO THE ENGINEER.
10. THIS CONTRACTOR TO NOTIFY ELECTRICAL INSPECTION AUTHORITIES TO ARRANGE FOR INSPECTIONS AT THE APPROPRIATE STAGES OF CONSTRUCTION.
11. COORDINATE WORK AND LOCATION OF EQUIPMENT WITH OTHER DIVISIONS.
12. THESE SPECIFICATIONS, TOGETHER WITH THE DRAWINGS, ARE INTENDED TO PROVIDE COMPLETE SUPPLY AND INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEMS AS FURTHER DESCRIBED AND AS ITEMS NECESSARY OR REQUIRED TO MAKE A FINISHED, WORKMANLIKE, FIRST-CLASS INSTALLATION, EVEN THOUGH EACH AND EVERY ITEM OF LABOUR AND MATERIAL MAY NOT BE MENTIONED OR SHOWN ON PLANS AND SPECIFICATIONS.
13. ALL CUTTING AND PATCHING IS THE RESPONSIBILITY OF ELECTRICAL CONTRACTOR, UNLESS NOTED OTHERWISE.
14. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL INCLUDING DEVICES, HEATERS, PANEL BOARD AND LIGHTING

NOTE:
ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL AS SHOWN ON DRAWINGS, INCLUDING MAST AND METER BASE. NSPI POWER CONNECTION, COMMUNICATIONS, FIRE ALARM, PUBLIC ADDRESS AND INTRUSION ALARM CABLING TO THE PORTABLE CLASSROOM NOT IN CONTRACT.

SP DUMARESQ ARCHITECT LTD
DUMAC
DUMAC ENERGY LTD.
CONSULTING ENGINEERS
752 BEDFORD HIGHWAY
HALIFAX, N.S.
Tel: (902) 457-1300
Fax: (902) 457-1777
Email: DUMACBIZDUMAC.NS.CA

GENERAL NOTES

IF DIMENSION DOES NOT MEASURE 1" DRAWINGS IS NOTE PRINTED TO SCALE

DATE	#	ISSUE
JUNE 17,2019	1.	FOR TENDER

REGISTERED PROFESSIONAL ENGINEER
D.M. DUMARESQ
3369
PROVINCE OF NOVA SCOTIA

SCALE:	N.T.S.
DRAWN BY:	STAFF
REVIEWED BY:	DMD
DATE:	JUNE 17,2019

PROJECT TITLE

H.R.C.E. Portables 2019

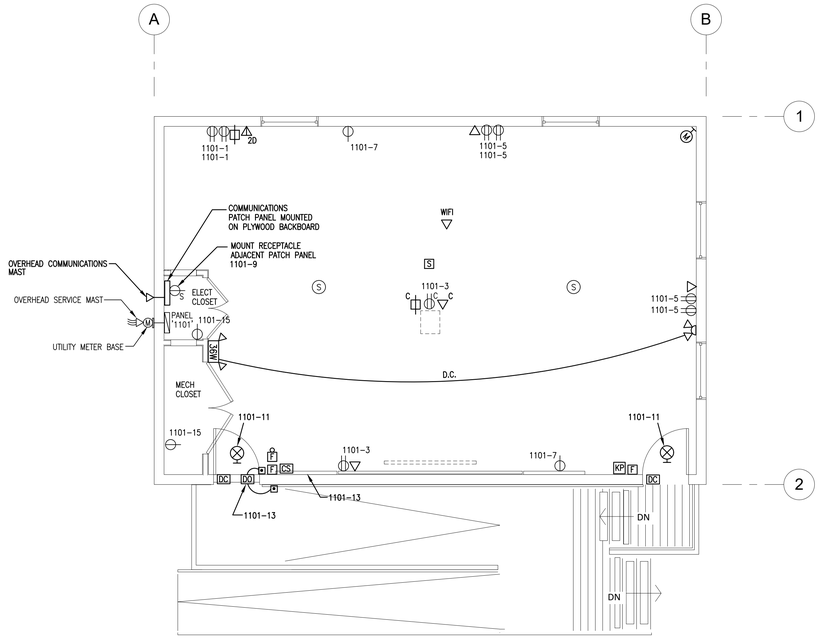
Project Number

SHEET TITLE

ELECTRICAL LEGEND, SCHEDULES AND SPECIFICATIONS

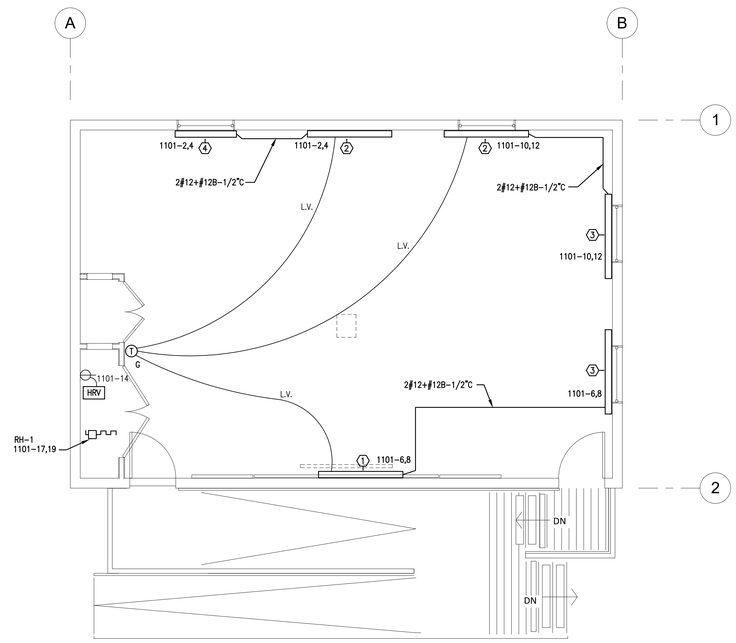
E-001

DUMAC #18-041



1 E-002 FLOOR PLAN – POWER AND SYSTEMS

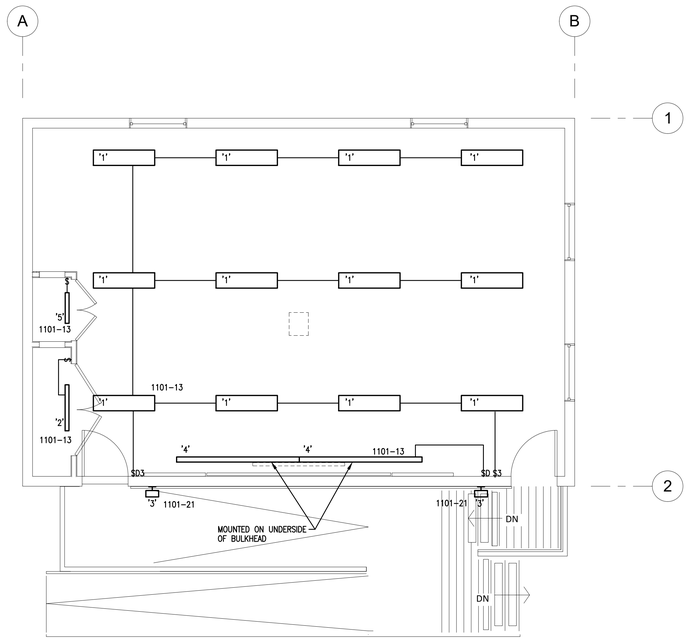
SCALE: 1/4"=1'-0"



2 E-002 FLOOR PLAN – HEATING AND MECHANICAL EQUIPMENT CONNECTIONS

SCALE: 1/4"=1'-0"

NOTE:
ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL AS SHOWN ON DRAWINGS, INCLUDING MAST AND METER BASE. NSPI POWER CONNECTION, COMMUNICATIONS, FIRE ALARM, PUBLIC ADDRESS AND INTRUSION ALARM CABLING TO THE PORTABLE CLASSROOM NOT IN CONTRACT.



3 E-002 FLOOR PLAN – LIGHTING

SCALE: 1/4"=1'-0"

DUMAC #18-041

SP DUMARESQ ARCHITECT LTD
5599A SUMMER PEARL TOWER FLOOR HALIFAX, N.S.

DUMAC

DUMAC ENERGY LTD.
CONSULTING ENGINEERS
752 BEDFORD HIGHWAY
HALIFAX, N.S.
Tel: (902) 457-1300
Fax: (902) 457-1777
Email: DUMAC@DUMAC.NS.CA

GENERAL NOTES

IF DIMENSION DOES NOT MEASURE 1" DRAWINGS IS NOTE PRINTED TO SCALE

DATE	#	ISSUE
JUNE 17,2019	1.	FOR TENDER

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF NOVA SCOTIA
D.M. DUMARESQ
3369

SCALE:	1/4"=1'-0"
DRAWN BY:	STAFF
REVIEWED BY:	DMD
DATE:	JUNE 17,2019

PROJECT TITLE

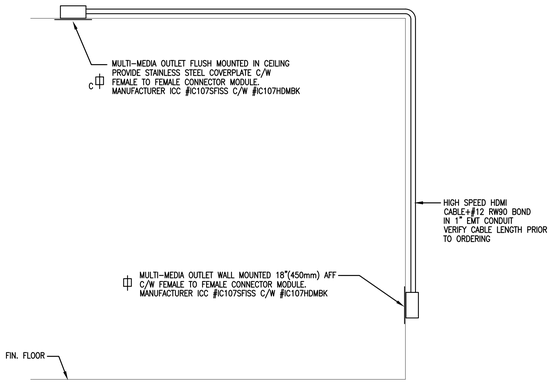
H.R.C.E. Portables 2019

Project Number

SHEET TITLE

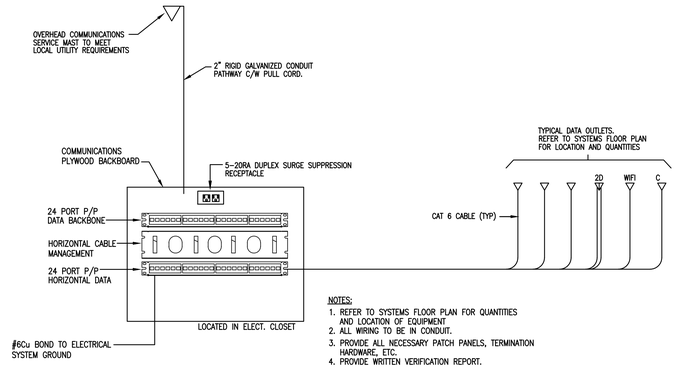
FLOOR PLANS ELECTRICAL

E-002



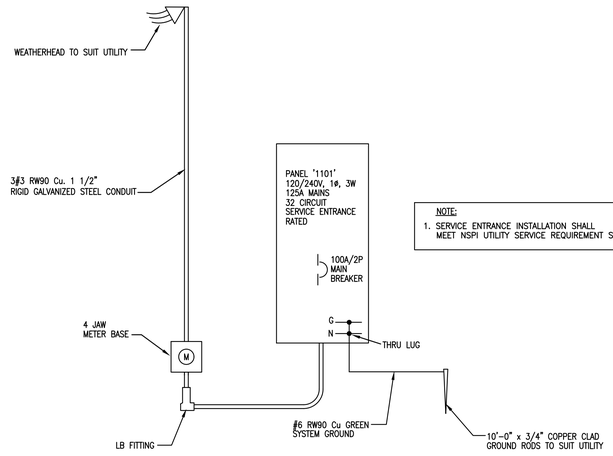
4 / E-003 MULTI-MEDIA OUTLET WIRING DETAIL

N.T.S.



1 / E-003 STRUCTURED WIRING RISER DIAGRAM

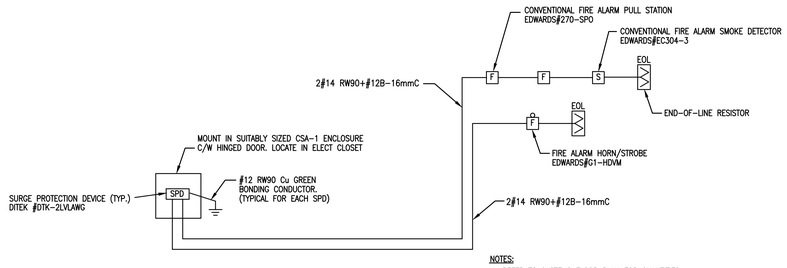
NTS



NOTE:
1. SERVICE ENTRANCE INSTALLATION SHALL MEET NSPI UTILITY SERVICE REQUIREMENT STANDARDS.

5 / E-003 100AMP-120/240V 1PH 3W POWER RISER DIAGRAM

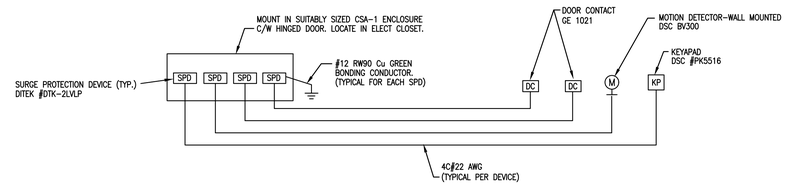
N.T.S.



NOTES:
1. REFER TO SYSTEMS FLOOR PLAN FOR QUANTITIES AND LOCATION OF EQUIPMENT
2. ALL WIRING TO BE IN CONDUIT.

6 / E-003 FIRE ALARM RISER DIAGRAM

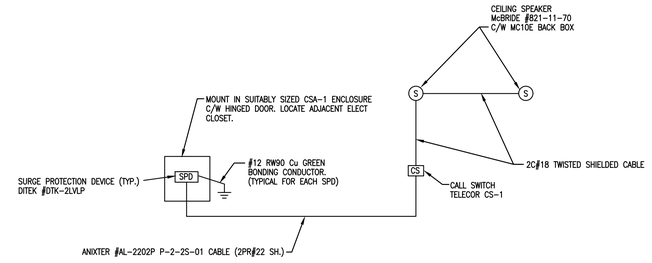
N.T.S.



NOTES:
1. REFER TO SYSTEMS FLOOR PLAN FOR QUANTITIES AND LOCATION OF EQUIPMENT
2. ALL WIRING TO BE IN CONDUIT.

2 / E-003 INTRUSION ALARM RISER DIAGRAM

NTS



NOTES:
1. REFER TO SYSTEMS FLOOR PLAN FOR QUANTITIES AND LOCATION OF EQUIPMENT
2. ALL WIRING TO BE IN CONDUIT.

3 / E-003 PUBLIC ADDRESS RISER DIAGRAM

NTS

NOTE:
ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL AS SHOWN ON DRAWINGS, INCLUDING MAST AND METER BASE. NSPI POWER CONNECTION, COMMUNICATIONS, FIRE ALARM, PUBLIC ADDRESS AND INTRUSION ALARM CABLING TO THE PORTABLE CLASSROOM NOT IN CONTRACT.

DUMAC #18-041

SP DUMARESQ ARCHITECT LTD
BRIAN DUMARESQ RENEL TERRY FLUSH HALIFAX, N.S.

DUMAC

DUMAC ENERGY LTD.
CONSULTING ENGINEERS
752 BEDFORD HIGHWAY
HALIFAX, N.S.
Tel: (902) 457-1300
Fax: (902) 457-1777
Email: DUMAC@DUMAC.NS.CA

GENERAL NOTES

IF DIMENSION DOES NOT MEASURE 1" DRAWINGS IS NOTE PRINTED TO SCALE — 1"

DATE	#	ISSUE
JUNE 17,2019	1.	FOR TENDER

REGISTERED PROFESSIONAL ENGINEER
C.M. DUMARESQ
3369
PROVINCE OF NOVA SCOTIA

SCALE:	N.T.S.
DRAWN BY:	STAFF
REVIEWED BY:	DMD
DATE:	JUNE 17,2019

PROJECT TITLE

H.R.C.E. Portables
2019

Project Number

SHEET TITLE

ELECTRICAL
DETAILS

E-003