



**Halifax**  
Regional Centre for Education

**Purchasing Division**

**RFT #4069**

**Roof Replacement & Repair-Phase 2-Citadel High**

**Addendum #3**

**July 24<sup>th</sup>, 2020  
12:15 P.M.**

To: Bidders

From: Nancy Rideout, Manager,  
Accounting and Purchasing

Pages: 1 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:**

Reference Specification – 00 41 13, Price Submission Form.  
Section 6.4, separate pricing for parapets and curbs to be broken down as follows;

**UNIT RATE (price per linear foot):**

**Parapets:** Demolition, wood framing, foam insulation, air/vapour barrier membrane, mineral wool cavity insulation, and cladding installation.

**Curbs:** Demolition, wood framing, and foam insulation.

Item No.	Description	UOM	Unit Price
1	Parapet at brick veneer (Detail 1/A -501)		
2	Parapet at curtain wall (Detail 3/A-501)		
3	Parapet at Grid S (Detail 4/A-501)		
4	Parapet at Medal Cladding (Detail 5/A-503)		
5	Curb at expansion joint (Detail 4/A-503)		

**End of Addendum #3**

---

PLEASE SIGN BELOW AND RETURN WITH BID DOCUMENTS:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name



**Halifax**  
Regional Centre for Education

**Purchasing Division**

**RFT #4069**

**Roof Replacement & Repair-Phase 2-Citadel High**

**Addendum #2**

**July 23<sup>rd</sup>, 2020  
12:30 P.M.**

To: Bidders

From: Nancy Rideout, Manager,  
Accounting and Purchasing

Pages: 1 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:**

Reference Specification – 00 41 13, Price Submission Form.  
Add 6.5 alternative price item as follows:

**Alternative Prices:** Alternative prices requested in the Tender Document, as detailed below **SHALL NOT BE INCLUDED IN THE LUMP SUM TENDER PRICE** above (6.1 - Contract Price) and added only on the instruction and at the sole discretion of the Owner, for which the contract will be adjusted, equal to the alternative pricing detailed below (price excludes HST):

Lump sum price for hybrid tapered insulation assembly comprised of expanded polystyrene foam tapered insulation (CAN/ULC-S701 Type 1) bottom layers with 3” thick flat polyisocyanurate insulation top layer. System warranty and wind uplift requirements shall be as specified.

\_\_\_\_\_ /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 phases of this work. \*\***

**Closing of RFT 4069 has been extended till the 28<sup>th</sup> of July, 2020, 2:00:00 P.M. (ADT)**

**End of Addendum #1**

---

PLEASE SIGN BELOW AND RETURN WITH BID DOCUMENTS:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name



**Halifax**  
Regional Centre for Education

**Purchasing Division**

**RFT #4069**

**Roof Replacement & Repair-Phase 2-Citadel High**

**Addendum #1**

**July 21<sup>st</sup>, 2020  
10:00 A.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:**

**PROJECT MANUAL**  
ARCHITECTURAL

1. Reference Specification – 00 41 13, Price Submission Form.
  - 1.1. **Add the following separate price item to 6.4, as follows:**  
Reference Detail: 4/A-502: Submit unit rate price (per linear foot) to remove and replace existing wood framing and batt insulation at base of penthouse wall. Allow for removal and reinstatement of metal cladding and flashing.

Item No.	Description	Unit of Measurement	Unit Price
1.	_____	Liner Foot(LF)	\$ _____
2.	_____	Liner Foot(LF)	\$ _____

- 1.2. **Add the following separate price item to 6.4, as follows:**  
Submit separate price for work related to Roof 5 (gym roof), which includes membrane re-securement and parapet demolition/construction.

#### **GYM ROOF**

\_\_\_\_\_ /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 phases of this work. \*\****

2. Reference Specification – 01 52 00, Construction and Temporary Facilities.
- 2.1. Add Item 3.4, as follows:  
Stair Tower: Construct stair tower to provide safe and convenient access to roof. Construct and maintain in accordance with Construction Safety Act of the Province of Nova Scotia, as well as all other applicable regulations or jurisdictional authorities. Bottom of stair tower is to be enclosed with plywood, 8' high, to restrict public access. Equip with lockable plywood door. Maintain throughout the duration of the project. Coordinate location of stair tower with HRCE.
3. Reference Specification – 04 22 00, Unit Masonry.
- 3.1. Delete item 3.2.2. entirely and replace with the following:  
Remove 6 courses of existing brick veneer at parapets to facilitate parapet removal work (by roofing contractor) and installation/tie-in of air/vapour barrier membrane to existing wall membrane (refer to details). Coordinate removals with roofing work.
4. Reference Specification – 07 52 16, Modified Bituminous Membrane Roofing.
- 4.1. Revise item 2.5.1.3, Acceptable material, as follows:  
.1 Torchflex TF-95-SF-Base, by IKO.  
.2 Elastophene PS, by Soprema.  
.3 Approved alternative.
- 4.2. Delete item 3.3.3.1 entirely, and replace with the following:  
.1 Paver ballast: All existing pavers used as temporary ballast are to be reclaimed by HRCE. Remove existing pavers from roof. Stack and secure pavers on pallets and load onto transportation vehicle. Deliver pavers to location designated by HRCE. Unload pavers where directed by HRCE.

#### **DRAWINGS**

##### ARCHITECTURAL

5. Reference Drawing – A-501 SECTION DETAILS
- 5.1. Detail 1, Parapet at Brick Veneer; revise as follows:  
.1 Delete note reading "Existing brick veneer" and replace with "Existing brick veneer; remove 6 courses and replace with new brick veneer".  
.2 Delete note reading "New brick veneer" and replace with "New brick veneer (6 courses)".

6. Reference Drawing – A-502 SECTION DETAILS
  - 6.1. Detail 1, Section at Drain; revise as follows:  
Delete note reading “Existing wood blocking” and replace with “New wood blocking”.
  
7. Reference Drawing – A-103 ROOF PLAN – SECTION C
  - 7.1. At existing boiler stacks, near Grids 240/E, add the following note:  
Cut TPO at curb in a straight line, 3” (approx.) from top of curb. Install dry base sheet and recovery to plywood substrate of curb. Torch-apply base and cap sheet to recovery board. Secure base/cap sheet along top edge with termination bar secured at 6” o.c. Install pre-finished metal flashing to conceal termination bar.
  
8. Drawing numbers.
  - 8.1. There are two (2) drawings labelled “A-102”. Renumber drawing sheets as follows:
    - .1 ROOF PLAN – SECTION A; to remain as A-102.
    - .2 ROOF PLAN – SECTION B; renumber to be A-103.
    - .3 ROOF PLAN – SECTION C; renumber to be A-104.

**End of Addendum #1**

---

---

PLEASE SIGN BELOW AND RETURN WITH BID DOCUMENTS:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name



## TENDER #4069

# Roof Replacement & Repair-Phase 2 Citadel High

**Closing Date:** FRIDAY, JULY 24<sup>th</sup>, 2020  
**Closing/Opening Time:** 2:00 P.M. (Atlantic Daylight Time)

**Closing Location:** Halifax Regional Centre for Education  
**Submission via Email Only**

**Substantial Performance Date:** October 30<sup>th</sup>, 2020

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

**School Location:**  
Citadel High  
1855 Trollope St  
Halifax  
B3H 0A4

**Operations Contact:**  
Bob Lawrence, Regional Manager  
Tel: (902) 464-2000 #4398  
Email: [blawrence@hrce.ca](mailto:blawrence@hrce.ca)

A mandatory tenderers' site meeting is scheduled for *WEDNESDAY JULY 15<sup>TH</sup> 2020 at 09:00 a.m., CITADEL HIGH – Please meet at the front entrance of the school.* Social distancing guidelines will be followed.

**Proposals Submissions to be made Electronically to: [dwalpola@hrce.ca](mailto:dwalpola@hrce.ca)**

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

SECTION 00 00 15 - DESCRIPTION OF WORK & LIST OF DRAWINGS .....	4
SECTION 00 05 00 - LIST OF CONSULTANTS.....	5
SECTION 00 21 13 - INFORMATION FOR PROPONENTS .....	6
SECTION 00 41 13 - PRICE SUBMISSION FORM .....	20
SECTION 00 41 73 - PRICE AMENDMENT FORM.....	28
SECTION 00 52 00 - AGREEMENT BETWEEN OWNER AND CONTRACTOR.....	29
SECTION 00 52 13 - DEFINITIONS.....	30
SECTION 00 72 13 - GENERAL CONDITIONS.....	31
SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS CCDC2 – 2008 .....	32
SECTION 01 11 00 - HRCE SUMMARY OF WORK .....	51
SECTION 01 11 25 - PRICES .....	57
SECTION 01 11 41 - PROJECT COORDINATION .....	59
SECTION 01 31 19 - PROJECT MEETINGS .....	62
SECTION 01 33 00 - SUBMITTAL PROCEDURES.....	65
SECTION 01 35 13 - APPENDIX A - SPECIAL PROJECT PROCEDURES.....	74
SECTION 01 35 29 - OCCUPATIONAL HEALTH & SAFETY REQUIREMENTS .....	83
SECTION 01 37 00 - SCHEDULE OF VALUES.....	89
SECTION 01 41 00 - REGULATORY AGENCIES .....	91
SECTION 01 45 00 - QUALITY CONTROL.....	95
SECTION 01 52 00 - CONSTRUCTION & TEMPORARY FACILITIES.....	99
SECTION 01 61 00 - MATERIAL & EQUIPMENT .....	102
SECTION 01 77 00 - CONTRACT CLOSEOUT .....	105
CONTRACTOR’S CHECKLIST .....	110
SAMPLE INSURANCE CERTIFICATE.....	109
HRCE SAFETY PLAN .....	110

<b>TECHNICAL SPECIFICATIONS</b>	<b># of Pages</b>
<b>DIVISION 02 EXISTING CONDITIONS</b>	
SECTION 02 41 19 SELECTIVE DEMO AND REMOVALS.....	4 PAGES
<b>DIVISION 04 MASONRY</b>	
SECTION 04 22 00 UNIT MASONRY .....	9 PAGES
<b>DIVISION 06 WOOD</b>	
SECTION 06 10 00 ROUGH CARPENTRY .....	4 PAGES
<b>DIVISION 07 THERMAL AND MOISTURE PROTECTION</b>	
SECTION 07 21 19 FOAMED-IN-PLACE INSULATION.....	3 PAGES
SECTION 07 52 16 MODIFIED BITUMINOUS ROOFING .....	14 PAGES
SECTION 07 54 23 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING .....	4 PAGES
SECTION 07 62 00 SHEET METAL FLASHING AND TRIM.....	5 PAGES
SECTION 07 92 00 JOINT SEALING .....	5 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 roofing upgrades for the **Roof Replacement & Repair - Phase 2** at **Citadel High**, to remove the existing roof and materials in areas as noted on the drawings and specifications prepared by **Fowler Bauld & Mitchell 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 phases of this work.
- 1.2 It is the intent of the Halifax Regional Centre for Education (HRCE) to have all work completed, to the point of Substantial Performance, prior to **October 30<sup>th</sup>, 2020**. It is expected that a timely award of this contract will enable the Contractor to facilitate shop drawing review and ordering of materials to allow commencement of work immediately after contract execution.
- 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.

**2. List Of Drawings**

<u>Drawing NO.</u>	<u>Drawing Title</u>
A-101	Roof Plan
A-102	Roof Plan-Section A
A-102	Roof Plan-Section B
A-103	Roof Plan-Section C
A-501	Section Details
A-502	Section Details
A-503	Section Details

**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:** Shawn Doyle  
Fowler Bauld & Mitchell Limited  
Phone: 902-429-4100  
Email: [doyle@fbm.ca](mailto:doyle@fbm.ca)

END OF SECTION 00 05 00

**SECTION 00 21 13 – INFORMATION FOR PROPOSERS**

**Invitation:**

**1. Proposal Call**

- 1.1.** The HALIFAX REGIONAL CENTRE FOR EDUCATION (HRCE) will receive offers in the form of a bid from Contractors 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 email receipt date and time. The email address to submit submissions and amendments is [dwalpola@hrce.ca](mailto:dwalpola@hrce.ca). If the electronic submission is larger than 10mb, proponents have the option of sharing files from google drive to [dwalpola@gnspe.ca](mailto:dwalpola@gnspe.ca). If you encounter difficulties kindly contact the HRCE purchasing team for further clarification. Files should be submitted in Adobe (.pdf) format.
- 1.2.** Offers submitted after the closing time/date shall be returned to the proponent unopened.
- 1.3.** Proponents are to submit completed Bid documents via electronic mail. The electronic file should be named **“4069 Roof Replacement & Repair-Phase 2\_Proponent Name”**.
- 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/TENDER’s relating to goods, services or construction for the HRCE. All proposal submissions are subject to evaluation after opening and before award of contract.
- 1.5.** In the light of COVID-19 and future pandemics, all vendors are required to follow the guidelines set in place by Nova Scotia Health Authority. Potential risks such as restricted accessibility to schools and buildings of the Halifax Regional Centre for Education (HRCE) , inability to complete work on a timely manner due to social distancing , disabled supply chains which will result in delivery delays of raw materials and finished goods, labour shortages and additional storage costs should be clearly communicated with the HRCE Personnel on a timely manner to ensure an amicable solution can be agreed between the HRCE and the vendor/contractor. The HRCE will not be liable for any direct or indirect loss incurred due to the pandemic.

- 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.
- 1.7. Faxed Bid Submissions **will not** be accepted, nor will regular mail or hand delivery submissions since our physical offices are closed as of the date of this tender.

## 2. Intent

- 2.1. The intent of this bid call is to obtain an offer to perform all work associated with **TENDER #4069, Roof Replacement & Repair - Phase 2**, at **Citadel High** 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 **October 30<sup>th</sup>, 2020**, provided the contract is awarded within ten (10) business days after the bid closing.
  - 2.2.1. 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.
  - 2.2.2. Receipt of the award letter by the successful contractor does not constitute approval to begin work on site.
- 2.3. The HRCE does not guarantee the award of all area, phases or any portion thereof.
- 2.4. 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. Bid documents can be obtained as per the directions on the cover sheet of this document.
- 4.2. Bid documents are made available only for the purpose of obtaining offers for this project. Their use does not confer a license or grant for other purposes.
- 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. Upon receipt of TENDER documents, proponents should verify that documents are complete. Proponents should notify the HRCE's Buyer by email to [dwalpola@hrce.ca](mailto:dwalpola@hrce.ca), should the documents be incomplete, or upon finding discrepancies or omissions in the TENDER documents.

- 5.2. Bidders shall become fully aware of the content of all bid 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](mailto:dwalpola@hrce.ca) no less than **five (5)** working days before the TENDER 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](http://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 Bid 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 TENDER documents stipulate a particular product, alternatives may be considered by the Consultant up to five (5) working days before the TENDER closing date and time. Bidders must forward their written requests by email to: [dwalpola@hrce.ca](mailto: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' Site Meeting (Site Assessment)**

- 8.1. Bidders will be deemed to have familiarized themselves with the existing project site, working conditions and all other conditions which may affect performance of the Contract. 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 and the Consultant 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 site meeting.

## **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 bid 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. Bid Submission

### 11.1. Submissions

- 11.1.1. Tenderers shall be solely responsible for the delivery of their bids in the manner and time prescribed.
- 11.1.2. Bids must be submitted on the **Bid Form** provided by the HRCE (Section 00 41 13 – Bid Form). These forms are to be completely filled out in ink, with the signature in longhand, and corporate sealed as applicable, and the completed form shall be without interlineations, alterations or erasures. Bid submissions sent by facsimile transmission, regular mail or hand delivery will not be accepted.
- 11.1.3. Fully complete the Tender Bid Form and enter the contract price in both written words and numerals. Where this bid is requested in both words and numbers, and if the two (2) do not represent the identical amount, words shall prevail.
- 11.1.4. Submit the executed offer on the Bid Forms together with the required bid security, clearly identified with tenderer's name, project name and tender number via email.
- 11.1.5. Improperly completed information, irregularities in the bid security, may be cause to declare the bid informal.

## 12. Conditions of the Bid 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 Bid process by email only, prior to date and time of closing.
- 13.2. A Tender Price Amendment Form is provided immediately following the Bid Form (section 00 41 73).
  - 13.2.1.1. The Tender Price Amendment Form provided is the standard Master form for submission of all tender price amendments for this project.
  - 13.2.1.2. Copy and complete form, as directed, for all tender price amendments submitted.
- 13.3. Amendments shall not disclose either original or revised total price.
- 13.4. Sign, execute and submit via email prior to time of Tender Closing.

### 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 price submission is not submitted on the required forms (Section 00 41 13) included herein.
  - 14.1.2. The proposal is submitted by fax, regular mail or hand delivery submissions
  - 14.1.3. There are omissions of information that the HRCE in its sole discretion deems to be significant.
  - 14.1.4. The bid is not signed as required.
  - 14.1.5. The proposal has conditions attached which are not authorized by the invitation to bid.
  - 14.1.6. The proposal fails to meet one or more standards specified in the invitation to bid.
  - 14.1.7. All addenda have not been acknowledged.
  - 14.1.8. Any other defect which, in the opinion of the HRCE brings the meaning of the proposal into question.
  - 14.1.9. The required bid security is not provided within the Price Submission envelope.
  - 14.1.10. Proponent failed to attend bidders' mandatory site meeting.

### 15. Communications Affecting Bids

- 15.1. Transmissions, including, but not limited to facsimile transmission:
  - 15.1.1. The bid forms submitted by facsimile or mail delivery or hand delivery 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 a number of Tenderers submit bids in substantially the same amount, the HRCE may, at its discretion, call upon those Tenderers to submit further bids or take into consideration any value added services being provide in determination of award.
- 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 TENDER 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 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).
- 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 institution 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.** Proposers 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 statutory 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.
- 22.1.1.** The successful contractor must be a member in good standing with CRCA, RCANS or NBRCA; and  
Nova Scotia Construction Safety Association or approved recognized association or program.
- 22.2. Proposal Signing**
- 22.2.1.** The bid 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.** Bid shall remain open to acceptance and shall be irrevocable for a period of ninety (90) days after the bid closing date.

#### **23.2. Award/Selection/Acceptance of Offer**

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

**23.2.1.1.** Compliance with tender requirements

**23.2.1.2.** Bid price submitted.

**23.2.1.3.** The qualification and experience of the bidder with similar projects in size and scope.

**23.2.1.4.** References

**23.2.1.5.** Gantt Chart (schedule of proposed scope of work for various disciplines)

**23.2.1.6.** Completion date.

**23.2.2.** The Owner's evaluation of any and all bids 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](http://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, indicating the Contractor is assessed and in good standing;
  - 25.1.1.2. Certificates of good standing with CRCA (Canadian Roofing Contractors Association) and RCANS (Roofing Contractors Association of Nova Scotia) or NBRCA (New Brunswick Roofing Contractors Association);
  - 25.1.1.3. All required contract security and insurance documentation;
  - 25.1.1.4. A completed Schedule of Values (see Section 01 37 00);
  - 25.1.1.5. A completed HRCE Safety Plan (Copy attached in TENDER package); and,
  - 25.1.1.6. 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. Purchase Orders

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

**28. Invoices**

- 28.1.** 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: TENDER #4069 Roof Replacement & Repair - Phase 2 - Citadel High

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 TENDER.

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 roofing 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 LUMP SUM PRICE – ROOF REPLACEMENT & REPAIR-PHASE 2 - CITADEL HIGH**

\_\_\_\_\_ /100 Dollars (\$\_\_\_\_\_) (HST Excluded)

**Kindly provide Breakout prices 6.3 and Separate prices 6.4 as requested below**

**\*\*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 phases 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.*

**6.3 Breakout Prices:** Breakout prices requested in the Tender Document, as detailed below, **SHALL BE INCLUDED IN THE LUMP SUM TENDER PRICE** above (6.1 - Contract Price) and deleted only on the instruction at the sole discretion of the Owner, for which a credit will be offered by the Contractor, equal to the breakout pricing detailed below (price excludes HST):

**PARAPETS AND CURBS:** DEMOLITION, WOOD FRAMING, FOAM INSULATION, AIR/VAPOUR BARRIER MEMBRANE, MINERAL WOOL CAVITY INSULATION, AND CLADDING INSTALLATION.

Item No.	Description	Unit of Measurement	Credit Amount
1.	_____	_____	\$ _____
2.	_____	_____	\$ _____
3.	_____	_____	\$ _____
4.	_____	_____	\$ _____
5.	_____	_____	\$ _____
6.	_____	_____	\$ _____
7.	_____	_____	\$ _____
8.	_____	_____	\$ _____
9.	_____	_____	\$ _____

**Total Credit Amount for ALL Breakout Items:**

\_\_\_\_\_ /100 Dollars (\$\_\_\_\_\_) (HST Excluded)

**6.4 Separate Prices:** Separate prices requested in the Tender Document, as detailed below **SHALL NOT BE INCLUDED IN THE LUMP SUM TENDER PRICE** above (6.1 - Contract Price) and added only on the instruction and at the sole discretion of the Owner, for which the contract will be adjusted, equal to the separate pricing detailed below (price excludes HST):

Listing of Separate Price Details Requested by HRCE:

**UNIT RATE (price per linear foot):**

**Parapets:** Demolition, wood framing, foam insulation, air/vapour barrier membrane, mineral wool cavity insulation, and cladding installation.

**Curbs:** Demolition, wood framing, and foam insulation.

Item No.	Description	Unit of Measurement	Unit Price
10.	Parapets_____	Liner Foot(LF)	\$ _____
11.	Curbs_____	Liner Foot(LF)	\$ _____
12.	_____	_____	\$ _____
13.	_____	_____	\$ _____
14.	_____	_____	\$ _____

**7. Completion Time:**

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

7.1.1.1. **30<sup>th</sup> October, 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 *for TENDER #4069 Roof Replacement & Repair - Phase 2 – Citadel High*

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 Student Safety**

HRCE is directly responsible for the safety of its students 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.**

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Company name

\_\_\_\_\_  
Signature of Signing Officer

\_\_\_\_\_  
Name and Title (printed)

\_\_\_\_\_  
Date

**END OF SECTION 00 41 13**



SECTION 00 41 73 - PRICE AMENDMENT FORM  
**#4069 Roof Replacement & Repair - Phase 2**  
**Citadel High**

**Note:** to be completed and forwarded for each Price amendment prior to TENDER closing time and date as detailed on the cover sheet of the TENDER 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	
<b>Amount</b> (excluding HST)	\$	<b>Amount</b> (excluding HST)	\$
<b>HST</b>	\$	<b>HST</b>	\$
<b>Total Amount</b> (including HST)	\$	<b>Total Amount</b> (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 TENDER envelope)

---

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

---

**Authorized Proponent’s Signature**

---

**Date**

---

**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 roofing 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:

For Extras Up to \$5,000:

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

For Extras Above \$5,000:

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

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**

Add 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 HAZARDOUS 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. *Citadel High,  
1855 Trollope Street  
Halifax NS B3H 0A4***

**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.
- 8.4.** Removal of insulation on roof drains inside the building 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.** Obligees 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 students within the building. Noise related to a project may prove to be very distracting for staff and students. To minimize distractions and interruptions in student 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 2 hours 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:**

**List new Contractors on Site 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 \_\_\_\_\_

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

Certified by

\_\_\_\_\_  
(Contractor Project Manager)

\_\_\_\_\_  
(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

Project Name *#4069-Roof Replacement & Repair - Phase 2 – Citadel High*  
Contract Number \_\_\_\_\_  
Architect \_\_\_\_\_  
Contractor \_\_\_\_\_  
Date \_\_\_\_\_

Halifax Regional Centre for Education – Schedule of Values		
Contract Item	Percentage	Dollar Value
Mobilization Costs	7	
Administration Costs	3	
Indirect Costs (Disposals/Consumables)	5	
Roofing System (Removals, Vapor barrier, Built-up, Parapet, Cap sheet)	70	
Materials - Metal	12	
Materials - Equipment	3	
<b>Total</b>	<b>100 %</b>	

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 laws 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:

- 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.
- Completed Price Submission Form – Section 00 41 13

#### Post Award Document Requirements to be provided (within 10 business days of award, when requested by HRCE):

- Contract Security documentation – required on all contracts valued over 100K.
- Certificate of Recognition from one of the seven safety audit companies that jointly sign with the WCB
- Workers' Compensation Board Letter of Good Standing.
- Certificated of Good Standing from the Canadian Roofing Contractors Association and Roofing Contractors Association of Nova Scotia or New Brunswick Roofing Contractors Association.
- All required insurance documentation
- Completed HRCE Safety Plan – Attached with the TENDER package
- Completed Schedule of Values – Provided in the TENDER package
- Any applicable warranty information

# 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.

<b>1. CERTIFICATE HOLDER - NAME AND MAILING ADDRESS</b>			<b>2. INSURED'S FULL NAME AND MAILING ADDRESS</b>		
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
<b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS MADE OR <input checked="" type="checkbox"/> OCCURRENCE <input checked="" type="checkbox"/> PRODUCTS AND /OR COMPLETED OPERATIONS <input checked="" type="checkbox"/> EMPLOYER'S LIABILITY <input checked="" type="checkbox"/> CROSS LIABILITY  <input checked="" type="checkbox"/> TENANTS LEGAL LIABILITY <input checked="" type="checkbox"/> POLLUTION LIABILITY EXTENSION	XX Insurance 123Binder (Wrap - Up Liability)	2017/11/20	2018/11/20	COMMERCIAL GENERAL LIABILITY BODILY INJURY AND PROPERTY DAMAGE LIABILITY - GENERAL AGGREGATE - EACH OCCURRENCE		\$5,000,000
				PRODUCTS AND COMPLETED OPERATIONS AGGREGATE <input type="checkbox"/> PERSONAL INJURY LIABILITY OR <input checked="" type="checkbox"/> PERSONAL AND ADVERTISING INJURY LIABILITY		\$5,000,000
				MEDICAL PAYMENTS		\$25,000
				TENANTS LEGAL LIABILITY		\$1,000,000
				POLLUTION LIABILITY EXTENSION		\$2,000,000
<input checked="" type="checkbox"/> NON-OWNED AUTOMOBILES <input type="checkbox"/> HIRED AUTOMOBILES	XX Insurance 123 Binder	2017/11/20	2018/11/20	NON OWNED AUTOMOBILE		\$2,000,000
<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> DESCRIBED AUTOMOBILES <input type="checkbox"/> ALL OWNED AUTOMOBILES <input type="checkbox"/> 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		
				EACH OCCURRENCE		
				AGGREGATE		
<b>OTHER LIABILITY (SPECIFY)</b> <input checked="" type="checkbox"/> Builders Risk - All Risk  <input type="checkbox"/>	XX Insurance 123 Binder	2017/11/20	2018/11/20	Limit - (Project Limit)		
				Extra Expense		\$1,000,000
<input checked="" type="checkbox"/> 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.

<b>6. BROKERAGE/AGENCY FULL NAME AND MAILING ADDRESS</b>			<b>7. ADDITIONAL INSURED NAME AND MAILING ADDRESS</b> (but only with respect to the operations of the Named Insured)		
			Halifax Regional Centre for Education		
			33 Spectacle Lake Drive		
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



## 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 be taken 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) \_\_\_\_\_

\_\_\_\_\_



## **Part 1 General**

### **1.1 WORK INCLUDED**

- .1 This section specifies the requirements for demolition and removal of existing roofing components, parapets, curbs, masonry, and related flashings and fasteners.
- .2 Refer to Technical Sections for removal work specific to those Sections.

### **1.2 REFERENCES**

- .1 Reference Standards:
  - .1 CSA International
    - .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.
  - .2 Department of Justice Canada (Jus)
    - .1 Canadian Environmental Assessment Act (CEAA), 1995, c. 37.

### **1.3 ADMINISTRATIVE REQUIREMENTS**

- .1 Start-up Meetings:
  - .1 Convene start-up meeting 1 week prior to beginning work of this Section and on-site activities, with contractor to:
    - .1 Verify project requirements.
    - .2 Verify existing project conditions and conditions adjacent to areas of demolition and removal work.
    - .3 Co-ordination with other construction subtrades.
  - .2 Hold project meetings every second week.
  - .3 Ensure key personnel attend.
  - .4 Contractor will provide written notification of change to meeting schedule established upon contract award minimum 24 hours prior to scheduled meeting.
- .2 Scheduling:
  - .1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.
    - .1 In event of unforeseen delay notify Contractor in writing.

### **1.3 QUALITY ASSURANCE**

- .1 Regulatory Requirements: Ensure Work is performed in compliance with CEPA, CEAA, TDGA, and applicable Provincial/Territorial and Municipal regulations.

### **1.4 SITE CONDITIONS**

- .1 Environmental protection:
  - .1 Ensure Work is done in accordance with Section 01 35 43 - Environmental Procedures.
  - .2 Ensure Work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
  - .3 Fires and burning of waste or materials is not permitted on site.
  - .4 Do not bury rubbish waste materials.
  - .5 Do not dispose of waste or volatile materials including but not limited to: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
    - .1 Ensure proper disposal procedures are maintained throughout project.
  - .6 Do not pump water containing suspended materials into watercourses, storm or

- sanitary sewers, or onto adjacent properties.
- .7 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction as directed by Contractor.
- .8 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .9 Protect adjacent vehicles and parking areas.
- .10 Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.
- .11 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on all temporary roads.

### **1.5 EXISTING CONDITIONS**

- .1 If material resembling spray or trowel applied asbestos or other designated substance listed as hazardous be encountered in course of demolition, stop work, take preventative measures, and notify HRCE immediately. Proceed only after receipt of written instructions have been received from HRCE.
- .2 Items to be demolished and removed are based on their condition, at time of examination prior to tendering.

### **1.6 SALVAGE**

- .1 HRCE has the right to salvage any materials, fittings, equipment and devices that are called for removal in the contract documents.
- .2 Consult with HRCE Project Manager prior to demolition start to determine a schedule of items to salvage, and the location to store items. Items identified must be handled carefully and in a manner to maintain their as found condition on site.
- .3 All existing pavers installed as temporary ballast are to be removed. Remove from roof and ship to storage location directed by HRCE. Unload pavers at storage location, as directed by HRCE.

## **Part 2 Products**

### **2.1 NOT USED**

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Protection of in-place conditions:
  - .1 Work in accordance with Section 01 35 43 - Environmental Procedures
  - .2 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, landscaping, adjacent grades properties parts of existing building to remain.
    - .1 Provide bracing, shoring and underpinning as required.
    - .2 Repair damage caused by demolition as directed by HRCE.
  - .3 Support affected structures and, if safety of structure being demolished or adjacent structures or services appears to be endangered, take preventative measures, stop Work and immediately notify HRCE.
  - .4 Prevent debris from blocking surface drainage system, elevators, mechanical

and electrical systems which must remain in operation.

### **3.2 PROTECTION**

- .1 Take precautions to guard against damage to adjacent work. Be liable for any damage or injury caused.
- .2 Cease operations and notify HRCE if safety or any adjacent work appears to be endangered. Do not resume operations until reviewed with HRCE.
- .3 Protect building systems, services and equipment that is not part of demolition and removals.
- .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .5 Provide and maintain fire prevention equipment and alarms accessible during demolition and removals.

### **3.3 DEMOLITION**

- .1 Remove contaminated or dangerous materials as defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.
- .2 Prior to start of Work remove contaminated or hazardous materials listed as hazardous as defined by authorities having jurisdiction as directed by Contractor from site and dispose of at designated disposal facilities in safe manner and in accordance with TDGA and other applicable requirements and Sections.
- .3 Demolish and remove existing building elements as indicated. Removed elements include, but are not limited to, the following items:
  - .1 Roof membranes, cover boards, insulation, and related wood blocking, flashings and fasteners.
  - .2 Concrete pavers.
  - .3 Masonry veneer at parapets.
  - .4 Parapet and curb wood framed construction.
  - .5 Refer to Section 04 22 00 and 07 52 16 for removal requirements specific to those Sections.
- .4 At end of each day's work, leave Work in safe and stable condition.
  - .1 Protect interiors of parts not to be demolished from exterior elements at all times.
- .5 Demolish to minimize dusting.
- .6 Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.
- .7 Remove materials and equipment, store, protect, and leave ready for installation by other sections of Work.
- .8 Remove materials and equipment and store in location designated by HRCE.
- .9 Remove and dispose of demolished materials to an approved disposal site, and in accordance with authorities having jurisdiction.

### **3.4 CLEANING**

- .1 Develop Construction Waste Management Plan related to Work of this Section.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- .3 Divert excess materials from landfill to site approved by Contractor.
- .4 Designate appropriate security resources / measures to prevent vandalism, damage and theft.
- .5 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.
  - .1 Label stockpiles, indicating material type and quantity.
- .6 Separate from general waste stream each of following materials in neat and orderly fashion in location and as directed by HRCE for alternate disposal.
  - .1 Insulation batts.
  - .2 Miscellaneous metals and structural steel.
  - .3 Aluminum.
- .7 Remove stockpiled material as directed by HRCE, when it interferes with operations of project construction.
- .8 Remove stockpiles of like materials by alternate disposal option once collection of materials is complete.
- .9 Transport material designated for alternate disposal using approved haulers, facilities, and receiving organizations listed in accordance with applicable regulations.
  - .1 Written authorization from HRCE is required to deviate from haulers, facilities, and receiving organizations.
- .10 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.
  - .1 Written authorization from HRCE is required to deviate from disposal facilities listed.

**END OF SECTION**

**Part 1            General**

**1.1            RELATED SECTIONS**

- .1            Section 07 52 00 – Modified Bituminous Membrane Roofing

**1.2            REFERENCES**

- .1            ASTM International (ASTM)
  - .1            ASTM A153/A153M-09, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  - .2            ASTM A580/A580M-18, Standard Specification for Stainless Steel Wire.
  - .3            ASTM C612-14, Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
  - .4            ASTM A653/A653M-13, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .5            ASTM C73-10, Standard Specification for Calcium Silicate Brick (Sand-Lime Brick).
  - .6            ASTM C144-11, Standard Specification for Aggregate for Masonry Mortar.
  - .7            ASTM C207-06(2011), Standard Specification for Hydrated Lime for Masonry Purposes.
  - .8            ASTM C216-15, Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).
  - .9            ASTM D1970/D1970M-11, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- .2            CSA International (CSA)
  - .1            CAN/CSA A82.1-M87 (R2003), Burned Clay Brick (Solid Masonry Units Made From Clay or Shale).
  - .2            CAN/CSA A179-14, Mortar and Grout for Unit Masonry.
  - .3            CSA A370-14, Connectors for Masonry.
  - .4            CSA A371-14, Masonry Construction for Buildings.
  - .5            CSA A3000-13, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005), Includes Update No. 1 (2014), Update No. 2 (2014).
  - .6            CSA S304.1-04(R2010), Design of Masonry Structures.

**1.3            ADMINISTRATIVE REQUIREMENTS**

- .1            Coordination:
  - .1            Coordinate lines, levels and coursing with work of other Sections.
  - .2            Obtain built-in items prior to start of this work.
- .2            Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section and on-site installation, with Contractor's representative, trade contractor, material supplier and Consultant to:
  - .1            Verify project requirements including specification and details for project.
  - .2            Confirm required mortar, review batch control and grouting procedures.
  - .3            Co-ordination with related roofing Work.

- .4 Review cavity drainage requirements and methods for keeping mortar out of cavity spaces.
- .5 Coordinate crack control measures.
- .6 Review membranes and membrane flashing materials and details used for construction.
- .7 Confirm trowelled or tooled joints to concealed and exposed masonry faces.
- .8 Review methods for controlling efflorescence during construction.
- .9 Review hot and cold weather requirements.

#### **1.4 SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
  - .1 Provide manufacturer's printed product literature, specifications and data sheet. Indicate masonry types, shapes, sizes, and textures.
  - .2 Cementitious Materials:
    - .1 Include brand, type, and name of manufacturer for site mixed mortar materials.
    - .2 Submit proposed mix proportions and sand analysis reports and compressive strength reports on the proposed mortar mix(es).
- .2 Submit samples in accordance with Section 01 33 00 – Submittals Procedures.
  - .1 Provide one clay brick unit to show texture and colour variance of finish.
  - .2 Obtain review comments from Consultant prior to ordering.

#### **1.5 QUALITY ASSURANCE**

- .1 Sole Source: Obtain brick masonry from a single manufacturer for entire project. Conform to CSA A371, except as modified by this specification.
- .2 The masonry contractor shall be a member in good standing of the Canadian Masonry Contractors' Association (CMCA) through a registered Chapter.
- .3 The masonry contractor shall have a minimum of 5 years of experience on projects of similar size and magnitude and shall provide continuous active supervision by a journeyman mason while masonry work is in progress.
- .4 Test laboratory prepared samples of the proposed mortar(s) for compressive strength in accordance with CAN/CSA A179, by a laboratory approved by the Owner. The Owner will pay for the initial cost of mortar testing. Any re-testing required as a result of the original test failing will be borne by the Contractor.
- .5 Connectors and joint reinforcement shall conform to CSA A370.
- .6 Miscellaneous masonry accessories and their use where not otherwise specified but shown or required for proper completion of the Work, shall conform to CSA A371.
- .7 Regulatory Requirements: Provide fire resistance rated materials and construction identical to those of assemblies with fire resistance ratings determined by ULC Listings.

#### **1.6 MOCK-UPS**

- .1 Construct mock-up in accordance with Section 01 45 00 – Quality Control.
- .2 Construct one mock-up panel of unit masonry construction. Construct mock-up to establish a standard of construction, workmanship, and appearance.
- .3 Do not continue with work of this Section until Consultant has reviewed mock-up.

- .4 Accepted mock-up may form part of Work.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver masonry units on pallets or cubes, suitably protected from road grime and moisture absorption due to exposure to rain or melting snow.
- .2 Unload and store on dry, level areas.
- .3 Deliver cement, lime, and mortar in dry condition with manufacturer's label intact and store under waterproof cover and protected from elements.

## **1.8 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and divert waste materials from landfill in accordance with Section 01 74 21 – Construction Waste Management.

## **1.9 SITE CONDITIONS**

- .1 Ambient Conditions: maintain materials and surrounding air temperature to:
  - .1 Minimum 5 degrees C prior to, during, and 48 hours after completion of masonry work.
  - .2 Maximum 32 degrees C prior to, during, and 48 hours after completion of masonry work.
- .2 Provide adequate bracing for masonry during construction and until permanent lateral supports are in place.

## **1.10 WARRANTY**

- .1 Contractor agrees to correct any deficiencies of labour or material found in the work performed for a period of 5 years from the date of Substantial Performance.

## **Part 2 Products**

### **2.1 BRICK MASONRY UNITS**

- .1 Existing brick veneer is comprised of "jumbo" red brick units.
- .2 Face brick, to CSA A82.1: physical properties and performance criteria, as follows:
  - .1 ASTM C216, Type S metric modular.
  - .2 Compressive strength (Gross Area), to CSA A82.1: 80 MPa.
  - .3 Absorption (24 hr. cold water), to CSA A82.1: 3%.
  - .4 Maximum Saturation Coefficient, to CSA A82.1: 0.78.
  - .5 Freeze-Thaw test results after 50 cycles, to CSA A82.1: not to exceed 0.5% dry mass weight loss.
  - .6 Initial Rate of Absorption (IRA) maximum, to CSA A82.1: 1g/min/5,000 mm<sup>2</sup>.
- .3 Acceptable manufacturer: Shaw Brick; size, colour, and texture of brick to match existing. It is assumed that Tapestry Red Saxon, by Shaw Brick, is the closest match to the existing brick; verify with Shaw Brick.

### **2.2 MORTAR AND GROUT MATERIALS**

- .1 Mortar colour at brick walling: to match existing.
- .2 Use same brands of materials and source of aggregate for entire project.
- .3 Cement:

- .1 Portland Cement: to CSA A3000, Type GU - General use hydraulic cement (Type 10), gray colour.
  - .1 Use low VOC products in compliance with SCAQMD Rule 1168.
- .2 Masonry Cement: to CSA A3002 and CAN/CSA A179, Type N as specified.
- .4 Aggregate: supplied by one supplier.
  - .1 Fine Aggregate: to CAN/CSA A179, manufactured sand.
  - .2 Course Aggregate: to CAN/CSA A179.
- .5 Water: clean and potable.
- .6 Lime:
  - .1 Hydrated Lime: to CAN/CSA A179, Type SA.
- .7 Mortar Mixes
  - .1 Mortar for exterior masonry above grade:
    - .1 Non-Loadbearing: type N based on proportion specifications.
- .8 Mortar Mixing:
  - .1 Mix mortar ingredients in accordance with CAN/CSA A179 in quantities needed for immediate use.
  - .2 Maintain sand uniformly damp immediately before mixing process.
  - .3 Do not use admixtures, including pigments, air entraining agents, accelerators, retarders, water repellent agents, or other admixtures; unless approved in writing by the Consultant.
  - .4 Do not use anti-freeze compounds including calcium chloride or chloride-based compounds.
  - .5 Use a batch type mixer in accordance with CAN/CSA A179.
  - .6 Re-temper mortar only within two hours of mixing, when water is lost by evaporation.
  - .7 Use mortar within 2 hours after mixing at temperatures of 32 degrees C, or 2-1/2 hours at temperatures under 10 degrees C.
- .9 Mix Tests:
  - .1 Testing Mortar Mix:
    - .1 Test mortar to requirements of Section 01 45 00 - Quality Control, and in accordance with CAN/CSA A179. Test prior to construction and during construction for:
      - .1 Compressive strength.
      - .2 Consistency.
      - .3 Mortar aggregate ratio.
      - .4 Sand/cement ratio.
      - .5 Water content and water/cement ratio.
      - .6 Air content.
      - .7 Splitting tensile strength

## **2.3 TIES AND ANCHORS**

- .1 To CSA A370 and CSA S304.
- .2 At exterior brick masonry veneer to new wood stud back-up walls:
  - .1 Masonry veneer connector assembly to be comprised of tie and plate components, as specified.



- .2 Plate (at concrete back-up wall): 1.5mm (16 gauge), 2" wide with 1" return bend with three holes for screw connection to substrate material. Slotted connection for ties. Length of plate to suit existing insulation/cavity thickness.
  - .1 Hot dipped galvanized to ASTM A153/A153M.
- .3 Tie: 4.76mm diameter wire.
  - .1 Stainless steel to ASTM A580 / A580M.
- .4 Design by manufacturer and Engineer responsible for the shop drawings to suit wall assembly.
- .5 Fasteners, as recommended by manufacturer, Type 316 stainless steel.
- .6 Acceptable material:
  - .1 BL-407, by Blok-Lok.
  - .2 Slotted Rap-Tie, by Fero.
  - .3 Approved alternative.
- .7 Accessories:
  - .1 Insulation support/retainer: Polyethylene. Friction fit onto plate to hold insulation snug against sheathing/air barrier.

#### **2.4 AIR/VAPOUR BARRIER MEMBRANE**

- .1 Air and Vapour Barrier Membrane: to CAN/CGSB 37.56 or ASTM D1970; SBS-modified bitumen, self-adhering sheet membrane with polyethylene facer, for application temperatures between -10°C and 10°C, and as follows:
  - .1 Thickness: 1 mm to 1.5 mm
  - .2 Tensile strength: 11.3 kN/m to 15.4 kN/m to ASTM D5147.
  - .3 Ultimate elongation: 25% to 40%
  - .4 Flexibility at cold temperature: minimum -30°C
  - .5 Air permeability: <0.0003 L/sec. m<sup>2</sup>
  - .6 Water vapour permeability: <0.05 perm
  - .7 Static puncture: minimum 178 N
  - .8 Tear resistance: 375 to 400 N
  - .9 Lap adhesion: 800 N/m
  - .10 Standard of Acceptance:
    - .1 Blueskin SALT, Bakor.
    - .2 CCW-705LT, Carlisle
    - .3 Bituthene 3000 Low Temperature Membrane, Grace Construction Products.
    - .4 Exoair 110 LT, Tremco Inc.
    - .5 Sopraseal Stick 1100 T, Soprema.
    - .6 Air Shield LT, W.R. Meadows.
    - .7 Aquabarrier AVB LT, IKO.

#### **2.5 CAVITY INSULATION**

- .1 Exterior Wall Cavity Insulation: Semi-rigid mineral wool insulation board designed for cavity wall rain screen applications; Type IVB, to ASTM C612, with the following characteristics:
  - .1 Non-combustible, to CAN/ULC S114.
  - .2 Density: minimum 5.3 lbs/ft<sup>3</sup>
  - .3 Thickness: as indicated.

- .4 Acceptable Material:
  - .1 CavityRock, by Rockwool
  - .2 Rainbarrier, by Thermafiber
  - .3 Approved alternate.
- .2 Insulation clips for exterior wall insulation:
  - .1 For mechanical attachment of insulation to wood parapets; adhesive stick pins are not acceptable.
  - .2 Acceptable product: Grip-Lok Hurricane washer, by Rodenhouse, used with nails or screws.

## **2.6 ACCESSORIES**

- .1 Sealants and joint fillers.
- .2 Bond Breaker Strips: #15 asphalt saturated, organic roofing felt in accordance with CSA A123.3.
- .3 Air Circulation and Weep Vents (insect and rodent proof):
  - .1 Acceptable Materials:
    - .1 CavClear® Weep Vents, by Archovations, Inc..
    - .2 TERM Weep and Vent Barrier, by Polyguard Products, Inc.
    - .3 QV - Quadro-Vent, by Hohmann & Barnard, Inc.
    - .4 CellVent, by Mortar Net Solutions.
    - .5 CellVent, by Blok-Lok.

## **2.7 CLEANING COMPOUNDS**

- .1 Use low VOC products in compliance with SCAQMD Rule 1168.
- .2 Compatible with substrate and acceptable to masonry manufacturer for use on products.

## **Part 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's printed installation instructions, data sheets, and standard details.

### **3.2 REMOVALS**

- .1 Per Section 02 41 19.
- .2 Remove existing brick veneer in sections. Provide temporary support for existing veneer to remain above removed sections. Coordinate section removals with installation of membranes, through-wall flashings, and insulation.

### **3.3 EXAMINATION**

- .1 Verify surfaces and conditions are ready to accept work of this Section.
- .2 Examine work of other Sections upon which work of this section is dependent. Should discrepancies be found which affect the proper performance of the work of this section, do not commence work until such discrepancies have been resolved.

### **3.4 PREPARATION**

- .1 Protect adjacent finished materials from damage due to masonry work.

**3.5 INSTALLATION – GENERAL**

- .1 Work shall conform to CAN/CSA A371.
- .2 Where mortar has started to harden at units requiring repositioning, remove and replace with fresh mortar.
- .3 Masonry horizontal and vertical joints to be 10 mm thick except where adjustments are necessary to maintain the bond pattern or to adjust coursing.

**3.6 BRICK MASONRY**

- .1 Construct cavity walls using techniques that will minimize mortar dropping in cavity space. No mortar shall bridge cavity space or plug cavity vents at bottom of cavity.
- .2 Mixing and blending: mix units within each pallet and with other pallets to ensure uniform blend of colour and texture.
- .3 Bond: to match existing.
- .4 Jointing: concave.
- .5 Mixing and blending: mix units within each pallet and with other pallets to ensure uniform blend of colour and texture.
- .6 Clean clay masonry as work progresses.
- .7 Tolerances: to CAN/CSA A371.

**3.7 BONDING AND TYING**

- .1 Tie masonry veneer to backing in accordance with National Building Code, CSA S304.1, CSA A371 and as indicated.

**3.8 FLASHING**

- .1 Build in flashing in masonry in accordance with CSA A371.
- .2 Install metal through-wall flashings, as indicated.
- .3 Install membrane flashing over metal flashing, as indicated.
- .4 Metal Flashing: Refer to Section 07 62 00 – Sheet Metal Flashing and Trim.

**3.9 CELL VENTS FOR DRAINAGE AND AIR CIRCULATION**

- .1 Install weep vents in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
  - .1 Use pre-manufactured inserts to form weep vents, spaced at 610mm on center.

**3.10 AIR/VAPOUR BARRIER MEMBRANE**

- .1 Application of Substrate Adhesive Primer:
  - .1 Required Adhesive Primer for SBS Modified Self-Adhered Membranes:
    - .1 Apply primer at rate recommended by manufacturer to all areas to receive SBS modified self-adhering sheet membrane by roller and allow to dry.
    - .2 Primed surfaces not covered by self-adhering membrane or self-adhering through-wall flashing membrane during the same working day shall be re primed.

- .2 To the extent practicable, pre-cut membrane to manageable lengths each day.
- .3 Install multiple courses in shingle fashion at overlaps to properly shed water and avoid reverse laps. Use a non-metallic roller to apply membrane firmly and evenly to substrate; blind nail within lap to be covered to hold in place during cold weather applications.
  - .1 Prime surfaces and allow to dry.
  - .2 Align and position self-adhering transition membrane, remove protective film and press firmly into place. Provide minimum 75 mm lap to all substrates.
  - .3 Ensure minimum 50 mm overlap at all side laps and 75 mm overlap at all end laps of membrane.
  - .4 Roll all laps and membrane with a non-metallic countertop roller to ensure seal.
  - .5 Refer to details.
- .4 Seal membrane terminations, heads of mechanical fasteners, masonry tie fasteners, and other apparatus extending through the primary air/vapour barrier membrane and around the perimeter edge of membrane terminations at window, with specified termination sealant.

### **3.11 CAVITY INSULATION**

- .1 Install insulation in accordance with insulation manufacturer's installation instructions, illustrations and technical datasheets, and in accordance with ULC 701.2.
- .2 Install cavity wall insulation: Install insulation where indicated.
  - .1 Concrete back-up (Detail 3/A-501): Secure to substrate with specified anchors complete with retaining washer. Install 3 anchors, per section.
  - .2 Concrete block back-up (Detail 1/A-501): Secure to substrate with specified masonry tie retainer washers.

### **3.12 ACCESSORIES**

- .1 Install sealants: at joints and penetrations to ensure continuity of weatherproofing.
- .2 Install other accessories as required for a complete installation of wall assemblies.

### **3.13 REPAIR/RESTORATION**

- .1 Upon completion of masonry, fill holes and cracks, remove loose mortar and repair defective work.

### **3.14 FIELD QUALITY CONTROL**

- .1 Period site reviews of work of this section by Architect.

### **3.15 CLEANING**

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Brick Masonry:
  - .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
  - .2 Clean clay masonry: 10 m<sup>2</sup> area of wall designated by Consultant and leave for one week. If no harmful effects appear and after mortar has set and cured, protect windows, sills, doors, trim and other work, and clean brick masonry as follows:
    - .1 Remove large particles with wood paddles without damaging surface. Saturate masonry with clean water and flush off loose mortar and dirt.

- .2 Scrub with solution of 25 mL trisodium phosphate and 25 mL household detergent dissolved in 1 L of clean water using stiff fibre brushes, then clean off immediately with clean water using hose. Alternatively, use proprietary compound recommended by brick masonry manufacturer in accordance with manufacturer's directions.
  - .3 Repeat cleaning process as often as necessary to remove mortar and other stains.
  - .4 Use acid solution treatment for difficult to clean masonry as described in Technical Note No. 20 by the Brick Industry Association.
- .3 Upon completion of installation, remove surplus materials, rubbish, tools, and equipment barriers.

**END OF SECTION**

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1    Section 02 41 19 - Selective Demolition.
- .2    Section 04 22 00 – Unit Masonry.
- .3    Section 07 21 19 – Foamed-in-Place Insulation.
- .4    Section 07 52 00 - Modified Bituminous Membrane Roofing.

**1.2            REFERENCES**

- .1    ASTM International (ASTM)
  - .1    ASTM A153/A153M-16 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  - .2    ASTM A307-14, Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
  - .3    ASTM A653/A653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .4    ASTM C954-18, Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness
  - .5    ASTM D1761-12, Standard Test Methods for Mechanical Fasteners in Wood.
  - .6    ASTM E1333-14, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.
  - .7    ASTM F1667-15, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
- .2    Canadian Roofing Contractors' Association (CRCA)
  - .1    CRCA Roofing Specification Manual.
- .3    CSA Group (CSA)
  - .1    CAN/CSA G164-18, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .2    CSA O121-17, Douglas Fir Plywood.
  - .3    CSA O141-05 (R2014), Softwood Lumber.
  - .4    CSA O151-17, Canadian Softwood Plywood.
  - .5    CAN/CSA O325-16, Construction Sheathing.
- .4    National Lumber Grading Association (NLGA):
  - .1    NLGA SPS 2-2017, Machine Graded Lumber.
  - .2    Standard Grading Rules for Canadian Lumber 2017.
- .5    FM Global Group
  - .1    FM Approvals 4470, Approval Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction.

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit product data in accordance with Division 01 General Requirements:
  - .1 Submit manufacturer's printed product literature, specifications and technical datasheets.
  - .2 Submit MSDS sheets or official manufacturer literature stating no added urea-formaldehyde was used in the manufacturing of composite wood.

### **1.4 QUALITY ASSURANCE**

- .1 Lumber identification: Use CLS grade marked lumber conforming to the Standard Grading Rules for Canadian Lumber published by the National Lumber Grades Authority.
- .2 Plywood identification: Use grade marked plywood in accordance with the applicable CSA standards.

### **1.5 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver wood products bundled or crated to provide adequate protection during transit. Inspect wood products for damage upon delivery and remove and replace damaged materials.
- .2 Store materials a minimum of 150 mm off the ground on blocking. Keep materials under cover and dry. Provide for air circulation within and around stacks and under temporary coverings.
- .3 Protect sheet materials to prevent breaking of corners and damage to surfaces.

## **Part 2 Products**

### **2.1 LUMBER**

- .1 Lumber: Structural Light Framing to CAN/CSA O141, softwood, S-P-F, S4S, graded and stamped in accordance with National Lumber Grading Association (NLGA) Standard Grading Rules for Canadian Lumber and as follows:
  - .1 Moisture Content: maximum 8% at time of installation.
  - .2 Grade: No. 2 or better, and having the following minimum properties:
    - .1 Sizes: as indicated on drawings.
    - .2 Bending at extreme fibre ( $F_b$ ): 11.8 MPa.
    - .3 Longitudinal shear ( $F_v$ ): 1.0 MPa.
    - .4 Compression parallel to grain ( $F_c$ ): 11.5 MPa.
    - .5 Compression perpendicular to grain ( $F_{cp}$ ): 4.6 MPa.
    - .6 Tension parallel to grain ( $F_t$ ): 5.5 MPa.
    - .7 Modulus of elasticity ( $E/E_{05}$ ): 9500/6500.

### **2.2 PANEL MATERIALS**

- .1 Exterior grade plywood: exterior grade Douglas Fir (DFP) to CSA O121, waterproof glue bond.
  - .1 Thickness: 13mm for vertical applications; 19mm at top of parapets.
- .2 Panels shall have no added urea formaldehyde.

### **2.3 ACCESSORIES**

- .1 Sealants: Maximum allowable VOC limit 250 g/L in accordance with SCAQMD Rule 1168.

- .2 General purpose adhesive: to CSA O112 Series. Maximum allowable VOC limit 70 g/L in accordance with SCAQMD Rule 1168.
- .3 Nails, spikes, and staples: to ASTM F1667, double hot dipped galvanized for exterior work; hot dipped galvanized for all other purposes.
- .4 Rough Hardware (bolts, threaded rods, nuts, washers, etc.): hot dip galvanized in conformity to CSA G164 or Grade A low carbon steel, conforming to ASTM A307.
- .5 Screws for securing lumber and plywood at parapets: #12, unless indicated otherwise, self-drilling with flat or pancake head, to FM Approvals 4470.
  - .1 Stacked lumber: 38mm minimum embedment.
  - .2 Plywood to deck: 25mm protrusion beyond underside of steel deck surface.
  - .3 Acceptable Manufacturer: Trufast, or approved alternative.
- .6 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, galvanized sheet metal or fibre, formed to prevent dishing. Bell or cup shapes not acceptable.
- .7 Sheet metal: Galvanized steel sheet, to ASTM A653; 20 gauge thick; for use at expansion joint curbs.

#### **2.4 FASTENER FINISHES**

- .1 Galvanizing: use hot-dipped galvanized fasteners complying with ASTM A153 and connectors complying with ASTM A653, class G185.
- .2 Screws: to FM Approvals 4470.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Inspect existing threaded rods for corrosion. Notify Architect of corroded conditions prior to proceeding with Work.

#### **3.2 COMPLIANCE**

- .1 Comply with requirements of National Building Code of Canada 2015 and amendments (NBC), and the requirements of this Section.
- .2 Accurately frame and properly assemble rough carpentry work. Include all necessary nails or other connectors.

#### **3.3 INSTALLATION**

- .1 Install members true to line, levels and elevations, square and plumb.
- .2 Construct continuous members from pieces of longest practical length.
- .3 Install wood nailers, curbs and other wood supports as required and secure using hot dipped galvanized steel fasteners.

#### **3.4 ROOF PARAPETS AND CURBS**

- .1 Form sloped tops of parapets with blocking and 19mm plywood, as indicated. Tops shall slope not less than 1 in 12.
- .2 Framed curbs:
  - .1 Construct parapets and expansion joint curbs in sections of longest practical lengths, with studs spaced at 406mm on center with continuous top and bottom plates.



- .2 End nail bottom plate to studs with galvanized framing nails; two per stud. Toe nailing is not acceptable.
- .3 Screw top plate to studs with #12 FM screws; 2 per stud.
- .4 Install framed sections over existing threaded rods through pre-drilled holes in top and bottom plates. Secure sections with new nuts and washers.
- .5 Secure additional top plate to framed section top plate with specified FM screws at 200mm on center, staggered. Offset end joints from top plate below.
- .6 Secure plywood to face of studs of framed sections with specified FM screws at each stud, 305mm on center.
- .7 Secure slope plywood at top of parapets to top plates with #12 FM screws at 200mm o.c., staggered.
- .3 Foamed-in-place Insulation: per Section 07 21 19.
  - .1 Prior to installing wood and membrane component layers at top of parapets and curbs, drill 25mm diameter hole through top plates at each stud cavity, to allow for installation of foamed-in-place insulation.
- .4 Stacked wood blocking: secure with specified #12 FM screws at 200mm o.c., staggered.
- .5 Secure sheet metal to inside face of expansion joint curbs, as indicated.

### **3.5 CLEANING**

- .1 Progress Cleaning: clean in accordance with Division 01 General Requirements. Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Division 01 General Requirements. Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .3 Manage and dispose of demolition and construction waste materials in accordance with Division 01 General Requirements.

### **3.6 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by Work of this Section.

**END OF SECTION**

## **Part 1 General**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 06 10 00 – Rough Carpentry.

### **1.2 REFERENCES**

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC S101-14, Standard Methods of Fire Endurance Tests of Building Construction and Materials.
  - .2 CAN/ULC S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
  - .3 CAN/ULC S705.1-15, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density - Material Specification.
  - .4 CAN/ULC S705.2-05, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Application.

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures:
  - .1 Submit manufacturer's printed product literature, specifications, and datasheet and include product characteristics, performance criteria, physical size, finish, and limitations.
- .2 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
  - .1 Test reports: submit certified test reports for insulation from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
  - .2 Submit test reports in accordance with CAN/ULC S101 for fire endurance and CAN/ULC S102 for surface burning characteristics.
  - .3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, and cleaning procedures.

### **1.4 TEST REPORTS**

- .1 Submit test reports, verifying qualities of insulation meet or exceed requirements of this specification, in accordance with Section 01 45 00 – Quality Control.
- .2 Submit test reports in accordance with CAN/ULC S101 for fire endurance and CAN/ULC S102 for surface burning characteristics.

### **1.5 QUALITY ASSURANCE**

- .1 Cooperate and coordinate with the requirements of other units of work specified in other sections.

### **1.6 SAFETY REQUIREMENTS**

- .1 Protect workers as recommended by CAN/ULC S705.2 and manufacturer's recommendations:
  - .1 Workers must wear gloves, respirators/dust masks, long sleeved clothing, eye protection, protective clothing when applying foam insulation.
  - .2 Workers must not eat, drink, or smoke while applying foam insulation.

## **1.7 PROTECTION**

- .1 Protect adjacent surfaces and equipment from damage by over-foaming and fall-out.

## **1.8 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and divert waste materials from landfill in accordance with Section 01 74 21 – Construction Waste Management.

## **1.9 SITE CONDITIONS**

- .1 Apply insulation only when surfaces and ambient temperatures are within manufacturers' prescribed limits.
- .2 Ensure temperature is maintained throughout the curing period.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Insulation/air seal: low expansion, two-component, pour-in-place polyurethane foam sealant for insulating stud cavities of parapets and curbs: to CAN/ULC S705.1:
- .2 Basis of Design:
  - .1 Wall Seal, by Handi-Foam.
  - .2 Approved alternate: products with properties and characteristics meeting or exceeding the basis of design.
- .3 Primers: in accordance with manufacturer's recommendations for surface conditions.

## **Part 3 Execution**

### **3.1 COMPLIANCE**

- .1 Apply insulation to clean surfaces in accordance with CAN/ULC S705.2 and manufacturer's printed installation instructions, data sheets, standard details and specifications.
- .2 Apply primers as required per manufacturer's foam-in-place application instructions.

### **3.2 SURFACE PREPARATION**

- .1 Clean spaces that are to receive insulation, of dirt, dust, grease, loose material or other foreign matter that may inhibit adhesion.
- .2 Provide sufficient ventilation during and until insulation has cured, to ensure safe working conditions.
- .3 Protect adjacent surfaces from over-foaming.

### **3.3 INSTALLATION**

- .1 Install in accordance with manufacturer's instructions.
- .2 Install foamed-in-place insulation into stud cavities at parapets and expansion joint curbs. Completely fill cavities.

**3.4 CLEANING**

- .1 Cut back excess foamed-in-place insulation once cured, flush with surrounding surfaces.
- .2 Upon completion of foamed-in-place insulation work, clean adjacent surfaces of any over-foaming, dripping, etc., in accordance with manufacturer's recommendations.
- .3 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**

## **Part 1 General**

### **1.1 RELATED SECTIONS**

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 45 00 – Quality Control.
3. Section 01 74 21 – Construction/Demolition Waste Management and Disposal
4. Section 01 78 00 – Closeout Submittals.
5. Section 02 41 19 – Selective Demo and Removals.
6. Section 04 22 00 – Unit Masonry.
7. Section 06 10 00 – Rough Carpentry.
8. Section 07 21 19 – Foamed-in-Place Insulation.
9. Section 07 54 23 – TPO Roofing.
10. Section 07 62 00 – Sheet Metal flashing and Trim.

### **1.2 SUMMARY**

- .1 Work of this Section includes the following:
  - .1 Removal of existing roofing components down to level of vapour barrier.
  - .2 Removal of existing parapet and expansion curb construction.
  - .3 Removal of related cladding, flashings, fasteners, etc.
  - .4 2 ply modified bitumen roofing system, mechanically fastened, with torch-applied membranes.
  - .5 Parapet and expansion joint curb construction.
  - .6 Membrane tie-ins to existing wall and roof membranes.
  - .7 EPDM flashing at equipment supports.
  - .8 Accessories including wood blocking/framing, flashings, closures, and sealants.

### **1.3 REFERENCES**

- .1 The publications listed below (latest revision applicable) form a part of this specification to the extent referenced herein. The publications are referred to within the text by the designation only.
- .2 ASTM International Inc.
  - .1 ASTM D 41-11, Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
  - .2 ASTM A 653, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .3 ASTM F1667-15, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
  - .4 ASTM D 4637, Standard Specification for EPDM Sheet Used In Single-Ply Roof Membrane.
  - .5 ASTM D1970/D1970M 11, Standard Specification for Self Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- .3 Canadian General Standards Board (CGSB)
  - .1 CGSB 37-GP-9Ma-83, Primer, Asphalt, Unfilled, for Asphalt Roofing,

- Dampproofing and Waterproofing.
- .2 CGSB 37-GP-56M-80b(A1985), Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
- .4 Canadian Roofing Contractors Association (CRCA).
  - .1 CRCA Roofing Specifications Manual, 2012.
- .5 Canadian Standards Association (CSA International)
  - .1 CSA A123.21-14, Standard test method for the dynamic wind uplift resistance of membrane-roofing systems
  - .2 CSA A123.23-15, Product specification for polymer-modified bitumen sheet, prefabricated and reinforced.
- .6 FM Global Group
  - .1 FM Approvals 4470, Approval Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction.
- .7 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .8 Underwriters Laboratories' of Canada (ULC).
  - .1 CAN/ULC S107-10, Standard Methods of Fire Tests of Roof Coverings.
  - .2 CAN/ULC S704, Thermal Insulation, Polyisocyanurate, Boards and Pipe Covering.
  - .3 CAN/ULC S706-09, Standard for Mineral Wool Fibre Thermal Insulation for Buildings.

#### **1.4 INFORMATIONAL SUBMITTALS**

- .1 Provide Product Data as follows:
  - .1 Provide two copies of most recent technical roofing components data sheets describing materials' physical properties and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Provide two copies of Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS). Indicate VOC content for:
    - .1 Primers.
    - .2 Sealers.
- .2 Provide shop drawings:
  - .1 Indicate flashing, control joints, and fastening details.
  - .2 Provide layout for tapered insulation and details.
- .3 Manufacturer's Certificate: certify that products meet or exceed specified requirements.
- .4 Manufacturer's Installation Instructions: indicate special precautions required for seaming the membrane.
- .5 Test report: manufacturer's documentation of roof assembly and components tested to CSA A123.21 for dynamic wind uplift resistance.

## **1.5 QUALITY ASSURANCE**

- .1 Installer qualifications: company or person specializing in application of modified bituminous roofing systems with 5 years documented experience approved by manufacturer.

## **1.6 FIRE PROTECTION**

- .1 Maintain one fire extinguisher on roof per torch applicator:
  - .1 Cartridge operator type or stored pressure rechargeable type with hose and shut-off nozzle,
  - .2 ULC labelled for A, B and C class protection.
  - .3 Size 9 kg, within 6 m of torch applicator.
- .2 Maintain fire watch for 3 hours after each day's roofing operations cease.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions
- .2 Storage and Handling Requirements:
  - .1 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of asphalt, sealing compounds, primers and caulking materials.
  - .2 Provide and maintain dry, off-ground weatherproof storage.
- .3 Store rolls of membrane in upright position. Store membrane rolls with salvage edge up.
- .4 Remove only in quantities required for same day use.
- .5 Place plywood runways over completed Work to enable movement of material and other traffic.
- .6 Store sealants at +5 degrees C minimum.
- .7 Store insulation protected from daylight and weather and deleterious materials.

## **1.8 WASTE MANAGEMENT AND DISPOSAL**

- .1 Dispose of all debris legally off site.

## **1.9 SITE CONDITIONS**

- .1 Ambient Conditions
  - .1 Do not install roofing when temperature remains below -18 degrees C for torch application, or -5 degrees C for mop application.
  - .2 Minimum temperature for solvent-based adhesive is -5 degrees C.
- .2 Install roofing on dry deck, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into roofing system.

## **1.10 WARRANTY**

- .1 2-year CRCA, or equivalent, materials and workmanship against leaks and blow-off.
- .2 3-year warranty from the roofer certifying that the work will remain in place and be free of waterproofing defects.
- .3 15-year total system warranty from the membrane manufacturer to confirm that it will repair any leaks in the roof membrane and restore the roofing system to a dry and watertight condition, to the extent that manufacturing or installation defects caused such water infiltration. The warranty must cover all roofing components from the deck up to the finished cap sheet and the total cost of repair(s) during the entire warranty period.

## **Part 2 Products**

### **2.1 ASSEMBLY**

- .1 Roof 2, 3, and 4:
  - .1 Granule surfaced modified bitumen cap sheet membrane, adhered (torch-applied).
  - .2 Cover board and base sheet combination: Mineral fortified asphalt cover board with factory adhered bitumen base sheet, mechanically attached.
  - .3 Membrane flashings: modified bitumen, adhered (torch-applied).
  - .4 Polyisocyanurate insulation, tapered.
  - .5 Modified bitumen vapour barrier membrane, adhered (torch-applied).
  - .6 Existing asphalt vapour barrier.
  - .7 Existing gypsum deck board thermal barrier.
  - .8 Existing steel roof deck.

### **2.2 PERFORMANCE CRITERIA**

- .1 Roofing System: to CSA A123.21 for wind uplift resistance, secured to structure, and capable of withstanding uplift loads as determined by National Building Code of Canada, current edition.
- .2 Tested wind uplift load capacity of roofing system assembly shall be determined in accordance with CSA A123.21.
  - .1 Minimum uplift resistance (factored values):
    - .1 2.3 kPa (49 psf) in the field zones.
    - .2 3.3 kPa (69 psf) in the edge zones.
    - .3 4.9 kPa (102 psf) in the corner zone.
  - .2 Edge zone width: 4.3 m (14'). Refer to roof securement plan on A-101.
- .3 Roof covering: Class A, to CAN/ULC S107.

### **2.3 WOOD COMPONENT COVERING**

- .1 Items listed in this part are used to protect wood components from flames of torch application, at all parapets and curbs. Refer to details.
- .2 Recovery board: Mineral fortified asphalt core between two layers of high strength reinforcing glass fiber mat, 1220 mm x 1524 mm, 6 mm thick.
  - .1 Acceptable material:
    - .1 Protectoboard by IKO.
    - .2 Sopraboard by Soprema.
    - .3 Approved alternative.
- .3 Dry base sheet: modified bitumen membrane with sanded/sanded top/bottom surfaces.
- .4 Self-adhesive: Self-adhering SBS modified bitumen base sheet with a self-adhesive underside covered by a release film, having a nominal weight of 180 g/m<sup>2</sup> and thickness of 2.5mm.
  - .1 Top surface: sanded, where applied on exterior side of parapets.

### **2.4 DECK PRIMER**

- .1 Asphalt primer: to CGSB 37-GP-9Ma and as supplied by the membrane manufacturer.



## 2.5 VAPOUR BARRIER

- .1 Vapour barrier: to CSA A123.23-15, Styrene- Butadiene - Styrene (SBS) elastomeric polymer, or composite reinforcement, prefabricated sheet; Type A, B, or C, Grade 3.
  - .1 Top surface: sanded.
  - .2 Bottom surface: polyethylene film.
  - .3 Acceptable material:
    - .1 Torchflex TP 180 SF, by IKO
    - .2 Sopralene 180 SP, by Soprema
    - .3 Approved alternative
  - .2 Self-adhesive: Self-adhering SBS modified bitumen base sheet with a self-adhesive underside covered by a release film, having a nominal weight of 180 g/m<sup>2</sup> and thickness of 2.5mm.
    - .1 Top surface: thermofusible film, where applied on plywood below wood curbs.

## 2.6 POLYISOCYANURATE INSULATION

- .1 Polyisocyanurate insulation: to CAN/ULCS704 Type 2; flat and tapered.
  - .1 Compressive strength: 20 psi
  - .2 LTTR R-value: 17.4 (for 75mm thickness)
  - .3 1220mm x 1220mm
  - .4 Facer: coated fiberglass.
  - .5 Square edges.
  - .6 Tapered and Uniform Thickness:
    - .1 Insulation in multiple layers.
    - .2 Top layer: 50mm (2") uniform thickness boards.
    - .3 Bottom and intermediate layers: tapered and flat boards.
    - .4 Slope: 2% minimum.
    - .5 Thickness at edge of drain sump: 75mm (3").
    - .6 Sump: 1220mm x 1220mm; 4% slope.
    - .7 Crickets where shown on the drawings.
  - .7 Acceptable material:
    - .1 IKO Therm III, by IKO
    - .2 Sopra-ISO Plus, by Soprema
    - .3 Approved alternative.

## 2.7 COVER BOARD WITH FACTORY APPLIED BASE SHEET

- .1 Board and base sheet combination: Mineral fortified asphalt core board between two layers of high strength reinforcing glass fiber mat with factory laminated modified bituminous base sheet, having the following properties and characteristics:
  - .1 Membrane: to CSA A123.23-15; Type B, Grade 3.
  - .2 Size: 2440mm x 915mm.
  - .3 Thickness: 7mm total.
    - .1 Asphalt board: 4.8mm
    - .2 Membrane: 2.2mm.
  - .4 Acceptable material:
    - .1 Protectobase 180, by IKO.
    - .2 2-1 Soprasmart Board, by Soprema.
    - .3 Approved alternative.

- .5 Cover strips: to CSA A123.23-15, Styrene- Butadiene - Styrene (SBS) elastomeric polymer, prefabricated sheet; Type C, Grade 3, 2.5mm thick.
  - .1 Cut membrane into 250mm wide strips.
  - .2 For use at exposed fasteners/plates at ends and field of board.

## **2.8 BASE SHEET MEMBRANE FLASHING**

- .1 Flashing membrane: to CSA A123.23-15, Styrene- Butadiene - Styrene (SBS) elastomeric polymer, prefabricated sheet; Type B or C, Grade 3, having a nominal weight of 180 g/m<sup>2</sup>.
  - .1 Top and bottom surfaces: polyethylene / polyethylene.
  - .2 Acceptable material:
    - .1 Torchflex TP - 180 Base, by IKO
    - .2 Sopralene Flam 180, by Soprema
    - .3 Approved alternative
  - .2 Self-adhesive: Self-adhering SBS modified bitumen base sheet with a self-adhesive underside covered by a release film, having a nominal weight of 180 g/m<sup>2</sup> and thickness of 2.5mm.
    - .1 Top surface: sanded.
    - .2 For use at exterior face of parapets.

## **2.9 CAP SHEET MEMBRANE**

- .1 To be from the same manufacturer as the insulation cover board with factory applied base sheet.
- .2 Cap sheet membrane: to CSA A123.23-15, Styrene-Butadiene-Styrene (SBS) elastomeric polymer prefabricated sheet, fiberglass mat or composite reinforcement, having nominal weight of 250 g/m<sup>2</sup>; Type B or C, Grade I.
  - .1 Fire rated, Class A, to CAN/ULC S107.
  - .2 Top and bottom surfaces: granulated / polyethylene.
  - .3 Granule colour: grey.
  - .4 Acceptable materials:
    - .1 Sopralene Flam 250 FR GR, by Soprema.
    - .2 PrevENT TP 250 Cap, by IKO
    - .3 Approved alternative.
  - .5 Flashing membrane: same material as cap sheet.
  - .6 Walkways: additional membrane layer; same material as cap sheet, brown colour.

## **2.10 SEALERS**

- .1 Plastic cement: asphalt, to CAN/CGSB-37.5.
  - .1 Acceptable material:
    - .1 Bakor 810-21.
    - .2 Karnak 19.
    - .3 BP Multi Purpose RC 315.
  - .2 Sealing compound: to CAN/CGSB-37.29, rubber asphalt type.
    - .1 Acceptable material:
      - .1 Bakor 570-05.
      - .2 Sopramastic 200.
      - .3 Karnak 19.

## 2.11 EPDM FLASHING

- .1 Ethylene propylene diene monomer (EPDM sheet membrane): to ASTM D 4637. Type 1, Class A, 1.6 mm (60 mil) thick, black colour, non-reinforced membrane.
  - .1 Acceptable material:
    - .1 Sure Seal EPDM, by Carlisle.
    - .2 Rubberguard EPDM, by Firestone.
    - .3 Mule-Hide.
  - .2 For use at existing mechanical equipment post flashing.

## 2.12 POURABLE SEALER AND CURB SYSTEM

- .1 Roof penetration sealing system intended for and compatible with modified bitumen roofing, comprised of the following:
  - .1 Prefabricated plastic blocks, segmented or interlocking, designed to fit together to form an enclosed curb.
  - .2 Pourable sealer to fill curb space.
  - .3 Acceptable materials:
    - .1 Sopramastic blocks, Sopramastic SP2 adhesive, and Sopramastic PF pourable sealer, by Soprema.
    - .2 Millennium Lockin' Pocket and Millennium Hurricane Force Universal Sealer, by Royal Adhesives.
  - .4 For use at existing mechanical equipment support posts.
  - .5 Re-use existing Thaler flashings at guy wire supports and cable/piping supports, as indicated. Carefully remove existing roofing in these areas to prevent damage to Thaler flashings.

## 2.13 EXPANSION JOINT MEMBRANE

- .1 Factory fabricated elastomeric expansion waterproofing joint, to prevent the penetration of water at building expansion and movement joints, torch grade, having the following characteristics:
  - .1 Capable of accommodating 3-way movements concurrently (horizontal, vertical, and shear).
  - .2 Elongation: 500% (ASTM D412 C).
  - .3 All details and connections factory fabricated by means of vulcanization.
  - .4 Tensile strength: 8.00 N/mm (ASTM D412 C).
  - .5 Acceptable material:
    - .1 Flamline 20, by Situra Inc.
    - .2 Soprajoint Plus 20, by Soprema
    - .3 Approved alternative.

## 2.14 AIR/VAPOUR BARRIER MEMBRANE

- .1 Air and Vapour Barrier Membrane: to CAN/CGSB 37.56 or ASTM D1970; SBS modified bitumen, self-adhering sheet membrane with polyethylene facer, for application temperatures between -10°C and 10°C, and as follows:
  - .1 For use at exterior face of parapets, as indicated on Details 4 and 6 on sheet A-501.
  - .2 Noted as "Self-adhesive AVB Membrane" on drawings.
  - .3 Thickness: 1 mm to 1.5 mm
  - .4 Tensile strength: 11.3 kN/m to 15.4 kN/m to ASTM D5147.
  - .5 Ultimate elongation: 25% to 40%
  - .6 Flexibility at cold temperature: minimum -30°C

**Issued for Tender**

---

- .7 Air permeability: <0.0003 L/sec. m<sup>2</sup>
- .8 Water vapour permeability: <0.05 perm
- .9 Static puncture: minimum 178 N
- .10 Tear resistance: 375 to 400 N
- .11 Lap adhesion: 800 N/m
- .12 Standard of Acceptance:
  - .1 Blueskin SALT, Baker.
  - .2 CCW-705LT, Carlisle
  - .3 Bituthene 3000 Low Temperature Membrane, Grace Construction Products.
  - .4 Exoair 110 LT, Tremco Inc.
  - .5 Sopraseal Stick 1100 T, Soprema.
  - .6 Air Shield LT, W.R. Meadows.
  - .7 Aquabarrier AVB LT, IKO.

**2.15 METAL FLASHING**

- 1. Refer to Section 07 62 00 – Sheet Metal Flashing and Trim.

**2.16 ROUGH CARPENTRY**

- 1. Refer to Section 06 10 00 – Rough Carpentry.

**2.17 FOAMED-IN-PLACE INSULATION**

- 1. Refer to Section 07 21 19 – Foamed-in-Place Insulation.

**2.18 BATT INSULATION**

- 1. Fibrous Mineral Wool Insulation: Non-combustible, lightweight, mineral wool batt insulation intended for exterior stud wall applications meeting the following minimum physical property requirements:
  - .1 For use at expansion joint curbs; noted as “compressible insulation” on drawings.
  - .2 ULC S706, Type 1.
  - .3 Width: to fit in expansion space.
  - .4 Nominal density: 32 kg/m<sup>3</sup>.
  - .5 Fire resistance to CAN/ULC S114: non-combustible.
  - .6 Flame Spread = 0; smoke developed = 0; to CAN/ULC S102.
  - .7 Thermal resistance: RSI 2.47 (R-14) for 89mm thickness.
  - .8 Acceptable materials:
    - .1 Comfortbatt, by Rockwool.
    - .2 UltraBatt, by Thermafiber.

**2.19 FASTENERS**

- .1 Plywood to steel deck: per Section 06 10 00.
- .2 Wood framing/blocking to steel deck: per Section 06 10 00.
- .3 Cover board to steel deck: #14 screws and pressure distribution plates must meet Factory Mutual 4470 Standard for corrosion resistance, and wind uplift resistance in accordance with manufacturer’s tested assembly to CSA A123.21, as supplied by the membrane manufacturer.

- .4 Termination bars: Extruded aluminum flat bar, 3mm thick x 25mm wide, pre-punched with slotted holes at 152mm on center, secured with #14 x 38mm Master Gripper.

## **2.20 DRAINS**

- .1 Re-use existing drains and domes. Drill out any studs which break off and re- tap the holes.

## **Part 3 Execution**

### **3.1 QUALITY OF WORK**

- .1 Do examination, preparation and roofing Work in accordance with Roofing Manufacturer's Specification Manual and CRCA Roofing Specification Manual, particularly for fire safety precautions.
- .2 Do priming in accordance with manufacturer's written recommendations.

### **3.2 PROTECTION OF IN-PLACE CONDITIONS**

- .1 Per Section 01 11 00, Part 12 Protection of Work Property and Persons, and as supplemented below.
- .2 Cover walls, walks and adjacent work where materials are hoisted or used.
- .3 Provide hanging tarps or other suitable barriers below sloped steel deck areas to protect interior surfaces below.
- .4 Use warning signs and barriers. Maintain in good order until completion of Work.
- .5 Fencing: The outside work area shall be appropriately demarked and/or surrounded by rigid chain link panels or fencing 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.
- .6 Waste disposal Bins: 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.
- .7 Overhead Protection: Provide overhead protection at all doors and entrances. Protection is to be comprised of tube and clamp scaffolding structure complete with planks as required to protect areas from work above, for 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.
- .8 Clean off drips and smears of bituminous material immediately.
- .9 Lower drains as strip off progresses to the level of the torched vapour barrier which will be used as a temporary roof and raise drains to the final level as base sheet is installed. Ensure that drains are at all times connected with MJ couplings so a blockage in a drain line down stream cannot back up and flow into the building. Unequal sized MJ couplings exist to allow different sizes of pipe to be connected.

- .10 Protect roof from traffic and damage. Protection of existing roof shall be provided from roof access points to work area using 1220x2440mm plywood sheets on 1" rigid foam insulation. Comply with precautions deemed necessary by HRCE representative.
- .11 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.

### **3.3 REMOVALS**

- .1 General: All equipment removals are to be coordinated with HRCE. Where removals require power disconnects (such as mechanical fans, AC units, etc.), the disconnects are to be done by HRCE. Provide HRCE with 3 days minimum notice prior to such removals.
- .2 Provide temporary watertight covers/seals at location where equipment has been removed. Coordinate with HRCE. HRCE to reinstall equipment.
- .3 Concrete Pavers:
  - .1 Paver ballast: Remove existing pavers that were installed as temporary ballast; turn over to HRCE.
  - .2 Pavers used at walkways and equipment supports: Remove as required to facilitate roofing work. Reinstate pavers and rigid insulation foam cushions.
- .4 Remove existing roofing assembly components down to the level of existing vapour barrier.
- .5 Remove existing scuppers and perforated guards and retain on site for reinstallation.
- .6 Remove existing continuous 2x4 horizontal blocking at parapets and curbs. Refer to details.
- .7 AC unit support posts: Remove and dispose of existing TPO flashing boots. Existing jack flashing to remain in place, except where indicated to be removed.
- .8 Take care when removing roofing in areas where existing pipe, cable, guy wire, etc., flashings are designated to remain/re-used to prevent damage to existing flashings.
- .9 Parapets:
  - .1 Brick veneer: Refer to Section 04 22 00 – Unit Masonry.
  - .2 Remove and dispose of existing parapet and expansion curb construction down to level of vapour barrier. Existing threaded rods are to remain in place and re-used for securement of new framing.
- .10 Remove existing metal cladding and flashing at penthouse walls, as required to facilitate roofing work. Retain on site for reinstallation.
- .11 Dispose of all debris legally off site.

### **3.4 EXAMINATION OF ROOF DECKS**

- .1 Verification of Conditions:
  - .1 Inspect deck conditions including construction joints, roof drains, plumbing vents and ventilation outlets to determine readiness to proceed and immediately inform Architect in writing of any defects.
  - .2 Under deck inspection:
    - .1 Do an under-deck inspection before starting work to verify where conduits and cables are attached direct to the deck.
    - .2 Drive screws up from below to identify these locations. Mark locations on the deck before driving any screws down and transfer locations from deck cover board to insulation and insulation cover board layers as work progresses. The roofer is responsible for repair of any damaged services.
- .2 Evaluation and Assessment:

- .1 Prior to beginning of work ensure:
  - .1 Decks are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris. Do not use calcium chloride or salt for ice or snow removal.
  - .3 Roof drains have been prepared to receive the new roofing system.
  - .4 Plywood and lumber nailer plates have been installed to deck, walls and parapets as indicated.
- .3 Do not install roofing materials during rain or snowfall.

### **3.5 WOOD FRAMING AND BLOCKING**

- .1 Refer to Section 06 10 00 – Rough Carpentry.

### **3.6 FOAMED-IN-PLACE INSULATION**

- 1. Refer to Section 07 21 19 – Foamed-in-Place Insulation.

### **3.7 BATT INSULATION**

- .1 Install mineral wool blanket insulation at expansion joint curbs, as indicated.

### **3.8 PRIMING OF EXISTING VAPOUR BARRIER**

- .1 Apply primer to existing asphalt vapour barrier substrate at the rate recommended by manufacturer and per CRCA specification.

### **3.9 WOOD COMPONENTS COVERING**

- .1 Plywood at walls, curbs, and parapets: Install dry base sheet and recovery board. Secure to plywood with specified fasteners and plates at 305mm on center, each way. Refer to details.

### **3.10 VAPOUR BARRIER**

- .1 Torch specified base sheet vapour barrier onto primed surfaces.
- .2 Provide minimum side and end laps/seals, per manufacturer's requirements.
- .3 Properly secure flashings to their support, without sags, blisters, fish mouths or wrinkles.
- .4 Do work in accordance with manufacturer's recommendations.

### **3.11 POLYISOCYANURATE INSULATION**

- .1 Install tapered insulation system over the vapour barrier in multiple layers as indicated.
- .2 Place boards in firm contact with one another, with no gap greater than 6mm.
- .3 Bottom and intermediate layers to be a combination of flat and tapered boards.
- .4 Place 50mm uniform thickness flat top layer with staggered end joints and joints offset from joints in bottom layers.
- .5 Place tapered boards to form roof slopes/crickets as indicated.
- .6 Cut end pieces to suit.
- .7 Install tapered insulation sump at drains.
- .8 Pre-secure insulation with two screws and plates per board, to hold insulation in place and maintain tight joints until cover board is installed.

### **3.12 INSULATION COVER BOARD**

- .1 Edge and corner zones as indicated.

- .2 Install insulation cover board with factory applied base sheet in accordance with manufacturer's requirements, specified wind uplift resistance requirements, and per CSA A123.21-14 tested assembly fastening patterns for IKO and Soprema.
- .3 Board to be installed at right angles to deck flutes.
- .4 Torch apply base sheet cover strips/patches at exposed pressure distribution plates and at board end laps.

### **3.13 EXPOSED MEMBRANE ROOFING INSTALLATION**

- .1 Cap sheet to be unrolled and left to relax for the minimum time specified by the manufacturer before being installed.
- .2 Base sheet flashing application:
  - .1 Complete installation of flashing base sheet stripping prior to installing membrane cap sheet.
  - .2 Torch base and cap sheet onto substrate in 1 meter wide strips.
  - .3 Lap flashing base sheet to membrane base sheet minimum 150 mm and seal by torch welding.
  - .4 Lap flashing cap sheet to membrane cap sheet 250 mm minimum and torch weld.
  - .5 Provide 75 mm minimum side lap and seal.
  - .6 Properly secure flashings to their support, without sags, blisters, fish mouths or wrinkles.
  - .7 Install self-adhesive base sheet at parapet/fascia in accordance with Manufacturer's instructions.
  - .8 Do work in accordance with manufacturer's recommendations.
- .3 Cap sheet application:
  - .1 Starting at low point on roof, perpendicular to slope, unroll cap sheet, align and reroll from both ends.
  - .2 Unroll and torch cap sheet onto base sheet taking care not to burn membrane or its reinforcement.
  - .3 Lap sheets 75 mm minimum for side laps and 150 mm minimum for end laps. Offset joints in cap sheet 300 mm from those in base sheet.
  - .4 Application to be free of blisters, fishmouths and wrinkles.
  - .5 Do membrane application in accordance with manufacturer's recommendations.
  - .6 Degranulate all end and side laps which are not factory degranulated.
  - .7 Ensure that there is some bleed out of bitumen at laps.
  - .8 Install walkway (additional cap sheet layer) where indicated, over degranulated field cap sheet.
- .4 Roof penetrations:
  - .1 Install roof drain pans, and other roof penetration flashings and seal to membrane in accordance with the manufacturer's recommendations and details and CRCA details.

### **3.14 EXPANSION JOINT MEMBRANE**

- .1 Install expansion joint membrane in accordance with Manufacturer's instructions and recommendations.
- .2 Ensure that existing metal cladding and flashing at penthouse wall has been removed.
- .3 Cut existing joint membrane at wall, leaving 150mm length of unbonded portion.
- .4 Turn joint membrane up wall 305mm minimum and adhere to substrate with manufacturer's structural grade adhesive. Lap existing joint membrane over new joint membrane. Secure along top edge of flanges with termination bars fastened at 75mm o.c.



- .5 The expansion joint membrane is to be wholly encapsulated between plies of the roof membrane system.
- .6 Ensure base sheet undelay membrane is installed prior to joint membrane installation.
- .7 Heat base sheet along entire length of curb. Width of heated area to match width of joint membrane flange.
- .8 Embed joint membrane flange into heated base sheet bitumen.
- .9 Strip-in joint membrane flange with base and cap sheet flashing, torch-applied.
- .10 Refer to Details 3 and 4 on sheet A-503.

### **3.15 AIR/VAPOUR BARRIER MEMBRANE**

- .1 Do work in accordance with manufacturer's instructions.
- .2 To the extent practicable, pre-cut membrane to manageable lengths each day.
- .3 Prime surfaces and allow to dry.
- .4 Install multiple courses in shingle fashion at overlaps to properly shed water and avoid reverse laps. Use a non-metallic roller to apply membrane firmly and evenly to substrate; blind nail within lap to be covered to hold in place during cold weather applications.
- .5 Align and position membrane, remove protective film and press firmly into place. Provide minimum 75 mm lap to all substrates.
- .6 Ensure minimum 50 mm overlap at all side laps and 75 mm overlap at all end laps of membrane.
- .7 Roll all laps and membrane with a non-metallic countertop roller to ensure seal.
- .8 Seal membrane terminations, heads of mechanical fasteners, masonry tie fasteners, and other apparatus extending through the primary air/vapour barrier membrane and around the perimeter edge of membrane terminations at window, with specified termination sealant.
- .9 Refer to details.

### **3.16 EPDM FLASHING**

- .1 Detail 2/A-503.
- .2 Adhere membrane with bonding adhesive to existing flashing surface and new wood surface. Mechanically secure membrane with gear clamps, termination bars, and water cut-off mastic.

### **3.17 TPO FLASHING**

- .1 Refer to Section 07 54 23 – TPO Roofing.

### **3.18 PITCH POCKET**

- .1 Do all work required for installation of pitch pocket system in accordance with manufacturer's instructions.

### **3.19 ROOF DRAINS**

- .1 Re-use all drains. Drill out and tap for any broken studs.
- .2 Complete membrane seal to bowl and install clamping ring.

### **3.20 FIELD QUALITY CONTROL**

- .1 Periodic site review of roofing application will be carried out by Architect.

**3.21 CLEANING**

- .1 Remove bituminous markings from finished surfaces.
- .2 In areas where finished surfaces are soiled caused by work of this section, consult manufacturer of surfaces for cleaning advice and complying with their documented instructions.
- .3 Repair or replace defaced or disfigured finishes caused by work of this section.
- .4 Remove existing debris from drain piping. Ensure all drains and piping are clean and cleared of all construction material and debris after roofing work is complete.

**END OF SECTION**

## **Part 1 General**

### **1.1 SCOPE OF WORK**

- .1 Work of this Section includes supply and installation of TPO sheet membrane on an existing adhered TPO roof system. Work includes flashing of curb areas, to tie-into existing membrane, and re-fastening of existing membrane.

### **1.2 RELATED SECTIONS**

- .1 Section 07 52 16 – Modified Bituminous Membrane Roofing.

### **1.3 REFERENCES**

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D-6878, Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing.
- .2 Canadian Roofing Contractors' Association (CRCA)
  - .1 CRCA Roofing Specification Manual.
  - .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .3 Material Safety Data Sheets (MSDS).

### **1.4 SUBMITTALS**

- .1 Manufacturers Instructions: Provide to indicate special handling criteria, installation sequence, cleaning procedures.

### **1.5 PRODUCT DATA**

- .1 Submit product data.
- .2 Submit WHMIS MSDS - Material Safety Data Sheets.

### **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, handle, store and protect materials in accordance with manufacturer=s written instructions.
- .2 Provide and maintain dry, off-ground weatherproof storage.
- .3 Store rolls of TPO flat on cross supports.
- .4 Remove only in quantities required for same day use.
- .5 Store insulation protected from sunlight and weather and deleterious materials.

### **1.7 PROJECT/SITE ENVIRONMENTAL REQUIREMENTS**

- .1 Temperature, relative humidity, moisture content.
  - .1 Apply TPO membrane only when surfaces and ambient temperatures are within manufacturers' prescribed limits.
  - .2 Do not install TPO membrane when temperature remains below 5°C, or when wind chill gives equivalent cooling effect.

- .3 Install TPO membrane on dry substrate, free of snow and ice. Use only dry materials and apply only during weather that will not introduce moisture into system.
- .4 When liquid adhesives and sealants are exposed to lower temperatures restore to a minimum of 15°C.
- .2 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of asphalt, sealing compounds, primers and caulking materials.

## **1.8 WARRANTY**

- .1 Contractor hereby warrants that TPO roofing and membrane flashings as follows:
  - .1 2 year CRCA materials and workmanship against defects of materials and workmanship against leaks.

## **1.9 SOURCE QUALITY CONTROL**

- .1 Submit laboratory test reports.

## **1.10 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Division 01.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.
- .4 Separate for reuse and recycling all steel, metal and plastic waste in accordance with Waste Management Plan.
- .5 Place materials defined as hazardous or toxic in designated containers.
- .6 Handle and dispose of hazardous materials in accordance with Regional and Municipal regulations.
- .7 Clearly label location of salvaged material's storage areas and provide barriers and security devices.
- .8 Ensure emptied containers are sealed and stored safely.

## **Part 2 Products**

### **2.1 ACCEPTABLE MANUFACTURERS**

- .1 Carlisle Syntec Systems and Firestone Building Products.
- .2 All products are to be from the same manufacturer.

### **2.2 COMPATIBILITY**

- .1 Compatibility between components of system and adjacent materials is essential. Provide a written declaration to Consultant stating that materials and components, as assembled in system, meet this requirement.

## **2.3 MEMBRANE**

- .1 Thermoplastic Polyolefin (TPO) sheet membrane, 0.060" thick, to ASTM D-6878.
  - .1 Acceptable material:
    - .1 Sure-Weld TPO, by Carlisle.
    - .2 UltraPly TPO, by Firestone.
  - .2 Colour: Grey.
- .2 Membrane cut edge sealant, prefabricated TPO outside/inside corners and t-joint covers, cover strips, water cut off mastic, primer, splicing cement and other materials as recommended by the manufacturer.

## **2.4 ADHESIVE AND SOLVENTS**

- .1 Synthetic rubber, high strength solvent based, quick drying bonding adhesive, as recommended by membrane manufacturer.

## **Part 3 Execution**

### **3.1 REMOVALS**

- .1 Cut TPO membrane at parapets and expansion joint curbs in a straight line at an elevation 100mm (4") up from existing roof surface. Remove TPO membrane above cut line.
- .2 Remove existing corrugated metal cladding panel along top of wall at parapets. Remove girt fasteners to detach girts from parapet framing. Girts are to remain in place. Remove existing parapet construction.
- .3 The existing wood framing at parapets and curbs are secured with threaded rods. The intent is to re-use the threaded rods. Inspect all rods for corrosion. Notify Architect of corroded conditions prior to proceeding with work.

### **3.2 PROTECTION**

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

### **3.3 SUBSTRATE EXAMINATION**

- .1 Examine and immediately inform Consultant in writing of defects.
- .2 Prior to commencement of work ensure:
  - .1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris.

### **3.4 MEMBRANE APPLICATION**

- .1 TPO Flashings at parapets and expansion joint curbs.

- .1 Install TPO membrane flashings in accordance with manufacturer's written instructions.
- .2 Refer to Details 3, 5, and 6 on A-503.
- .3 Secure existing TPO field membrane to new curb construction with screws and plates at 305mm o.c.
- .4 Adhere TPO flashing membrane with bonding adhesive to substrates, as indicated.
- .5 Lap flashing membrane onto existing field membrane and hot air weld at lap.
  
- .2 Existing TPO membrane re-securement:
  - .1 Re-secure existing TPO membrane continuously along the centerline of the sheets, with screws and batten bars, as indicated.
  - .2 Install TPO cover strips continuously along batten bars; heat weld to existing TPO.

### **3.6 FIELD QUALITY CONTROL**

- .1 Periodic site review by Consultant.

### **3.7 CLEANING**

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

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1    ASTM International (ASTM)
  - .1    ASTM A606/A606M-09a, Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
  - .2    ASTM A653/A653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .3    ASTM A792/A792M-10(2015) Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
  - .4    ASTM B209M-14, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
  - .5    ASTM D4586-07(2012) e1, Standard Specification for Asphalt Roof Cement, Asbestos-Free.
  - .6    ASTM F1667-17, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
  - .7    ASTM F468-15, Standard Specification for Nonferrous Bolts, Hex Cap Screws, Socket Head Cap Screws, and Studs for General Use.
  - .8    ASTM F3125/F3125M-15a, Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions.
- .2    Canadian Roofing Contractors Association (CRCA)
  - .1    Roofing Specifications Manual (2012).
- .3    CSA Group (CSA)
  - .1    CSA A123.3-05 (R2015), Asphalt Saturated Organic Roofing Felt.
- .4    Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
  - .1    SMACNA Architectural Sheet Metal Manual, 7th Edition.

**1.2                ADMINISTRATIVE REQUIREMENTS**

- .1    Coordination:
  - .1    Coordinate work of this Section with interfacing and adjoining Work for proper sequencing of each installation and to provide positive weather resistance, durability of the work, and protection of materials and finishes.

**1.3                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Submittals shall conform to the requirements of Division 01 General Requirements:
- .2    Submit manufacturer's printed product literature, specifications and datasheets, and include product characteristics, performance criteria, physical size(s), finish(es) and constraints.
- .3    Submit shop drawings showing proposed method of shaping, forming, jointing, fastening, and application of flashing and sheet metalwork.
- .4    Verification Samples:
  - .1    Submit duplicate 300 x 300 mm samples of each type of sheet metal material, colour and finish proposed to be used for the project and obtain written acceptance from Consultant before ordering materials.

.5 Submit representative sample section of pre-painted metal flashing illustrating S-locking jointing method, minimum 600 mm long.

.6 Submit warranty.

#### **1.4 QUALITY CONTROL**

.1 General: Fabricate and install sheet metal flashing and trim in accordance with SMACNA Architectural Sheet Aluminum Manual, and to the CRCA Roofing Specifications Manual.

.2 Sheet Metal and Metal Flashing: Comply with the applicable recommendations and guidelines of the CRCA Canadian Roofing Reference Manual, CRCA Specification Manual, and applicable CRCA technical bulletins.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

.1 Stack pre-formed and pre-finished material in manner to prevent twisting bending and rubbing.

.2 Provide protection for finished surfaces.

.3 Prevent contact of dissimilar metals during storage and protect from acids, flux, and other corrosive materials and elements

.4 Protect prefinished surfaces from scratches and from rust staining.

#### **1.6 WARRANTY**

.1 Contractor agrees to correct any deficiencies of labour or material found in the work performed for a period of 5 years from the date of Substantial Performance.

.2 Provide Warranty for sheet metal flashing and trim to include in maintenance manuals.

### **Part 2 Products**

#### **2.1 PREFINISHED STEEL FLASHING**

.1 Hot dip galvanized steel sheet (pre-finished): Type A commercial quality to ASTM A653/A653M, with Z275 designation zinc coating.

.1 Class: F1S-Finished one side (manufacturer's standard prime finish on unexposed face).

.2 Thickness: minimum 0.64 mm (22 gauge) base metal thickness.

.3 Manufacturer's Coil Coating System: silicone modified polyester (SMP) system, applied over a zinc phosphate pre-treatment, and high-performance, flexible primer.

.1 Standard of Acceptance:

.1 Vicwest WeatherXL.

.4 Colours: as selected by Consultant from manufacturer's full range to match adjacent assembly into which flashing is to be integrated.

#### **2.2 ACCESSORIES**

.1 Cleats: Same material and thickness as flashing being secured; continuous, unless noted otherwise.

.2 Isolation coating: alkali resistant bituminous paint.

.3 Roofing Cement: to ASTM D4586, asphalt-based, asbestos free.

.4 Underlay for flashing: No. 15 perforated asphalt felt to CSA A123.3.



- .5 Sealants:
  - .1 Mastic Sealant: polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant.
  - .2 Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Section 07 92 00.
- .6 Fasteners: of same material as sheet metal, to ASTM F1667, as recommended by sheet metal manufacturer; non-corrosive. Finish of exposed parts to match material being fastened.
- .7 Roofing Nails: 11 gauge hot dipped galvanized steel nails with 23mm (7/16") diameter flat head; 38mm length.
  - .1 Standard of acceptance: Standard Roofing Nail, by Tree Island Steel.
- .8 Nylon Head Fasteners: #14 x 38mm Master Gripper with 15mm bonded washer in the Standard Long Life coating NZF3000S – color grey by Leland Industries. Screws are identified in the drawing as #14 Screws.
- .9 Washers: of same material as sheet metal, 1 mm thick with rubber packings.
- .10 Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather resistant seaming and adhesive application of flashing sheet metal.
- .11 Prefinished Steel Accessories: Provide non-corrosive sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work. Accessories shall match or be compatible with material being installed; size and thickness as required.
- .12 Touch-up paint: as recommended by prefinished material manufacturer.

## **2.3**

### **FABRICATION**

- .1 Roofing: Fabricate flashing and other sheet metal work in accordance with applicable CRCA 'FL' series details, and as indicated.
- .2 Galvanized (zinc or aluminum-zinc as specified) sheet steel: Fabricate in accordance with SMACNA Architectural Sheet Metal Manual.
- .3 Form sections square, true, and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .4 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.
- .5 All straight run joints shall be S-Lock in roof flashings.
- .6 Make joints to allow for thermal movement, space S-Lock joints at 3000 mm maximum centers.
- .7 Strengthen free edges of metal flashings by folding to form a 13-mm hem.
- .8 Make joints for corners and intersections with standing seams except where exposed of pre-finished metal when seams shall be flat locked.
- .9 All bends machine made. Form sections square, true, and accurate to size, free from distortion and other defects detrimental to appearance or performance.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Check mounting and counterflashing of mechanical items and report any defect to the Consultant.
- .2 Verify that solid wood blocking or sheathing provided to back-up all flashings and that all nails, screws set and wood provides a smooth flat plane.
- .3 Commencement of Work means acceptance of existing conditions.

**3.2 INSTALLATION**

- .1 Install sheet metal flashing and trim in accordance with applicable CRCA 'FL' series details, SMACNA's Architectural Sheet Metal Manual, and as indicated.
- .2 Verify shapes and dimensions of surfaces being covered before fabricating sheet metal.
- .3 Do not install metal flashings over flexible roof flashing and expansion joints until the flexible roof flashing and expansion joints have been inspected and approved by the Consultant. This includes curbs for roof mounted items.
- .4 Where possible, secure flashings to supporting building elements with concealed continuous cleats or locking strips. Use hot dipped galvanized steel locking strips / cleats for prefinished steel flashing.
- .5 Do not use exposed fastening unless indicated, or if concealed fastening is not possible. Locations and methods shall be approved by Consultant.
- .6 Anchor units of work securely in place, providing for thermal expansion of metal units. Conceal fasteners where possible and set units true to line and level.
- .7 Install work with laps, joints, and seams that are watertight and weatherproof.
- .8 Install exposed sheet metal work that is without oil canning, buckling and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weatherproof performance.
- .9 Parapet Cap Flashing:
  - .1 Cleats: Secure continuous cleats to wood blocking with roofing nails at 305mm o.c. spacing.
  - .2 Hook-fasten cap flashing to cleats at hemmed edge; 13mm minimum hem.
  - .3 Use specified #14 nylon head screws for exposed fastening, as indicated.
- .10 Expansion Provisions:
  - .1 Provide for the thermal expansion of exposed sheet metal Work.
  - .2 Space movement joints at maximum of 3050 mm, with no joints allowed within 610 mm of a corner or intersection, or as otherwise indicated per Drawings.
  - .3 Provide slip joints to allow for movement.
- .11 Sealed Joints:
  - .1 Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant.
  - .2 Fill joint with sealant and form metal to conceal sealant completely.
  - .3 Use joint adhesive for non-moving joints specified.
- .12 Lock Seams:
  - .1 Fabricate non-moving seams in sheet metal with flat lock seams.

- .13 Separations:
  - .1 Separate metal from non-compatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with bituminous paint or other permanent separation as recommended by the manufacturer.
  - .2 Underlayment: Install a slip-sheet of No. 15 perforated asphalt saturated felt and a course of polyethylene underlayment where installing sheet metal directly on cementitious or wood substrates. Secure in place and lap joints minimum 100 mm.
  - .3 Bed flanges of work in a thick coat of roofing cement where required for waterproof performance.
- .14 Flashing and metal closures: where flashing and metal closures overlap at any point in a system, ensure that flashing and closures are shingled over top lower sheet(s) and not behind, so that water is directed, and drains, to the exterior.

### **3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Division 01 General Requirements. Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Division 01 General Requirements. Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .3 Manage and dispose of demolition and construction waste materials in accordance with Division 01 General Requirements.

### **3.4 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by Work of this Section.

**END OF SECTION**

## **Part 1 General**

### **1.1 SECTION INCLUDES**

- .1 This Section specifies caulking and sealants not specified in other Sections.
- .2 Refer to other sections for other caulking and sealants.

### **1.2 RELATED SECTIONS**

- .1 Section 04 22 00 – Unit Masonry.

### **1.3 REFERENCES**

- .1 American Society for Testing and Materials International, (ASTM)
  - .1 ASTM C919-12, Standard Practice for Use of Sealants in Acoustical Applications.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
  - .2 CAN/CGSB 19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- .3 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .5 Transport Canada (TC)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).

### **1.4 ACTION AND INFORMATIONAL SUBMITTALS.**

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Manufacturer's product to describe.
  - .1 Caulking compound.
  - .2 Primers.
  - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
- .3 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .4 Submit duplicate samples of each type of material and colour.
- .5 Cured samples of exposed sealants for each color where required to match adjacent material.
- .6 Submit manufacturer's instructions in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Instructions to include installation instructions for each product used.

### **1.5 QUALITY ASSURANCE**

- .1 Retain purchase orders, invoices and other documents to prove that all materials utilized in this contract meet requirements of the specifications. Produce documents when requested by Consultant.
- .2 Manufacturer's obligations:
  - .1 The manufacturer shall play an active role in the application and inspection of their product during the period of this contract.
  - .2 The manufacturer shall be represented at all relevant meetings by a qualified technical representative, with a minimum of 5 years' experience.

## **1.6 STORAGE, AND HANDLING**

- .1 Deliver, handle, store and protect materials.
- .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

## **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Place materials defined as hazardous or toxic in designated containers.
- .3 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .4 Unused material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.
- .5 Divert unused joint sealing material from landfill to official hazardous material collections site approved by Consultant.
- .6 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.
- .7 Fold up metal banding, flatten, and place in designated area for recycling.

## **1.8 PROJECT CONDITIONS**

- .1 Environmental Limitations:
  - .1 Do not proceed with installation of joint sealants under following conditions:
    - .1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
    - .2 When joint substrates are wet.
- .2 Joint-Width Conditions:
  - .1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- .3 Joint-Substrate Conditions:
  - .1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

## **1.9 ENVIRONMENTAL REQUIREMENTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada.
- .2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
- .3 Ventilate area of work by use of approved portable supply and exhaust fans.

#### **1.10 EXTENDED WARRANTIES**

- .1 For respective trade sections where sealants are used, provide a warranty of five years, for material and workmanship beyond date of Substantial Performance.

### **Part 2 Products**

#### **2.1 SEALANT MATERIALS**

- .1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
- .2 When low toxicity caulks are not possible, confine usage to areas which off-gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.
- .3 Where sealants are qualified with primers use only these primers.

#### **2.2 LOW EMITTING MATERIALS**

- .1 Although this project is not seeking LEED certification, all site-applied interior paints, coatings, adhesives, sealants, sealant primers, etc., must conform to VOC content requirements of LEED Canada-NC - 2009.
- .2 Submit Material Safety Data Sheets (MSDS) for all products and materials of these types incorporated into the construction of the project as per Section 01 33 00.

#### **2.3 SEALANT MATERIAL DESIGNATIONS**

- .1 Type 1 - Urethanes One Part.
  - .1 To ASTM C920, Type S, Grade NS, Class 25, Use NT, M, A, O.
  - .2 For use at brick veneer control joints; locations to match existing.
  - .3 Colour as selected by Consultant.
  - .4 Acceptable material:
    - .1 Tremco Dymonic.
    - .2 Sika Sikaflex 1a.
    - .3 Sonneborn NP 1.
    - .4 Pecora DynaTrol I-XL.
- .2 Preformed Compressible and Non-Compressible back-up materials.
  - .1 Neoprene or Butyl Rubber.
    - .1 Round solid rod, Shore A hardness 70.
  - .2 High density foam:

- .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m<sup>3</sup> density, or neoprene foam backer, size as recommended by manufacturer.
- .3 Bond breaker tape:
  - .1 Polyethylene bond breaker tape which will not bond to sealant.

## **2.1 JOINT CLEANER**

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
- .2 Primer: as recommended by manufacturer.

## **Part 3 Execution**

### **3.1 PROTECTION**

- .1 Protect installed work of other trades from staining or contamination.

### **3.2 PREPARATION OF JOINT SURFACES**

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair work.
- .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .4 Ensure joint surfaces are dry and frost free.
- .5 Prepare surfaces in accordance with manufacturer's directions.

### **3.3 PRIMING**

- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
- .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

### **3.4 BACKUP MATERIAL**

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler/backer rod to achieve correct joint depth and shape, with approximately 30% compression.

### **3.5 MIXING**

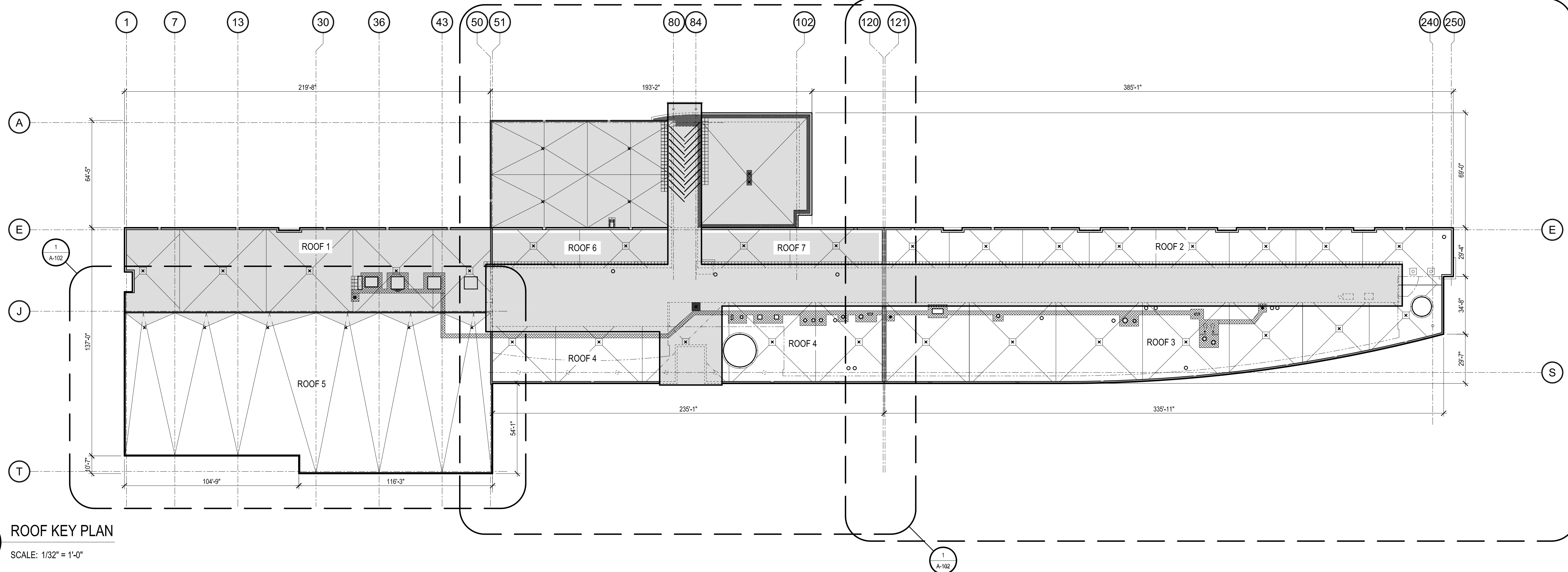
- .1 Mix materials in strict accordance with sealant manufacturer's instructions.

### **3.6 APPLICATION**

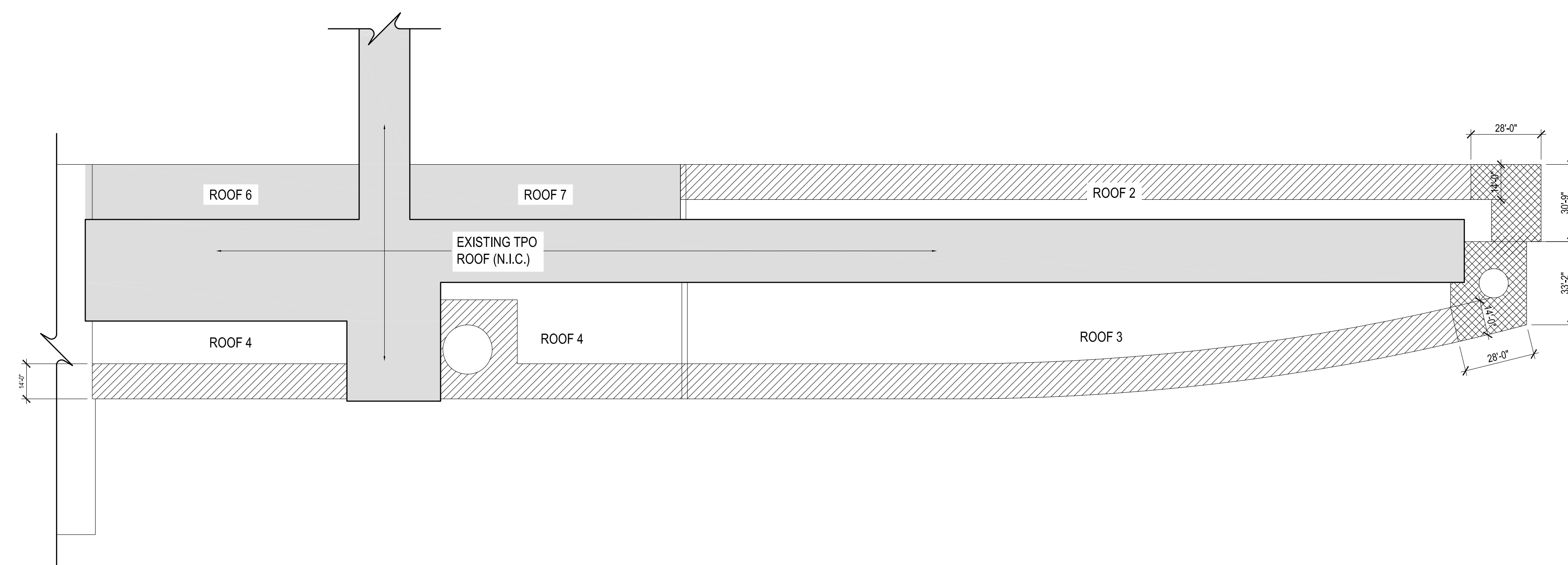
- .1 Sealant:
  - .1 Apply sealant in accordance with manufacturer's written instructions.
  - .2 Install foam back rod and sealant at existing brick veneer control joint locations.
  - .3 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
  - .4 Apply sealant in continuous beads.
  - .5 Apply sealant using gun with proper size nozzle.
  - .6 Use sufficient pressure to fill voids and joints solid.
  - .7 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
  - .8 Tool exposed surfaces before skinning begins to give slightly concave shape.
  - .9 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing:
  - .1 Cure sealants in accordance with sealant manufacturer's instructions.
  - .2 Do not cover up sealants until proper curing has taken place.
- .3 Cleanup:
  - .1 Clean adjacent surfaces immediately and leave work neat and clean.
  - .2 Remove excess and droppings, using recommended cleaners as work progresses.
  - .3 Remove masking tape after initial set of sealant.
- .4 Defective work:
  - .1 Shall include, but not be restricted to, joint leakage, cracking, crumbling, melting, runny, loss of adhesion, loss of cohesion, or staining of adjoining or adjacent work or surfaces. Contractor to make good any defective sealant work.

**END OF SECTION**





**1** ROOF KEY PLAN  
SCALE: 1/32" = 1'-0"



**ROOF SECUREMENT LEGEND**

- CORNER ZONE
- EDGE ZONE
- FIELD ZONE

**PHASE 2**

**ROOF 2, 3 & 4:**  
REMOVE EXISTING ROOF COMPONENTS AND PARAPET CONSTRUCTION DOWN TO EXISTING VAPOUR BARRIER.  
RE-BUILD PARAPETS AND INSTALL NEW ROOF SYSTEM.

**ROOF 5:**  
MECHANICALLY FASTEN EXISTING TPO ROOF MEMBRANE. REMOVE AND REPLACE EXISTING PARAPET CONSTRUCTION.

**ROOF 6 AND 7:**  
REMOVE EXISTING PARAPET CONSTRUCTION. RE-BUILD PARAPETS.

**PREVIOUS PHASE**

PHASE 1: ROOF 1

**LEGEND**

- ROOF AREA NOT IN CONTRACT (NIC)

**2** ROOF SECUREMENT PLAN  
SCALE: 1/32" = 1'-0"

**GENERAL NOTES**

- A. PROTECTION: PROVIDE FENCING AROUND PERIMETER OF WORK AREA AND OVERHEAD PROTECTION AT ALL DOORS AND ENTRANCES, PER SPECIFICATION SECTION 07 52 16. 3.3.
- B. ALL REMOVALS ARE TO BE COORDINATED WITH HRCE. WHERE REMOVALS REQUIRE POWER DISCONNECTS (SUCH AS MECHANICAL FANS, AC UNITS, ETC.), THE DISCONNECTS ARE TO BE DONE BY HRCE. HRCE IS TO BE PROVIDED WITH 3 DAYS MINIMUM NOTICE PRIOR TO SUCH REMOVALS.
- C. WORK RELATED TO LOWERING AND RAISING OF EXISTING DRAINS IS TO BE COORDINATED WITH HRCE PRIOR TO COMMENCING THE WORK.
- D. INSTALL 4' x 4' TAPERED INSULATION SUMP AT DRAINS, 4% SLOPE, 3" THICKNESS AT EDGE OF SUMP.
- E. TAPERED INSULATION SLOPE: 2% MINIMUM.



**ROOF ASSEMBLY**

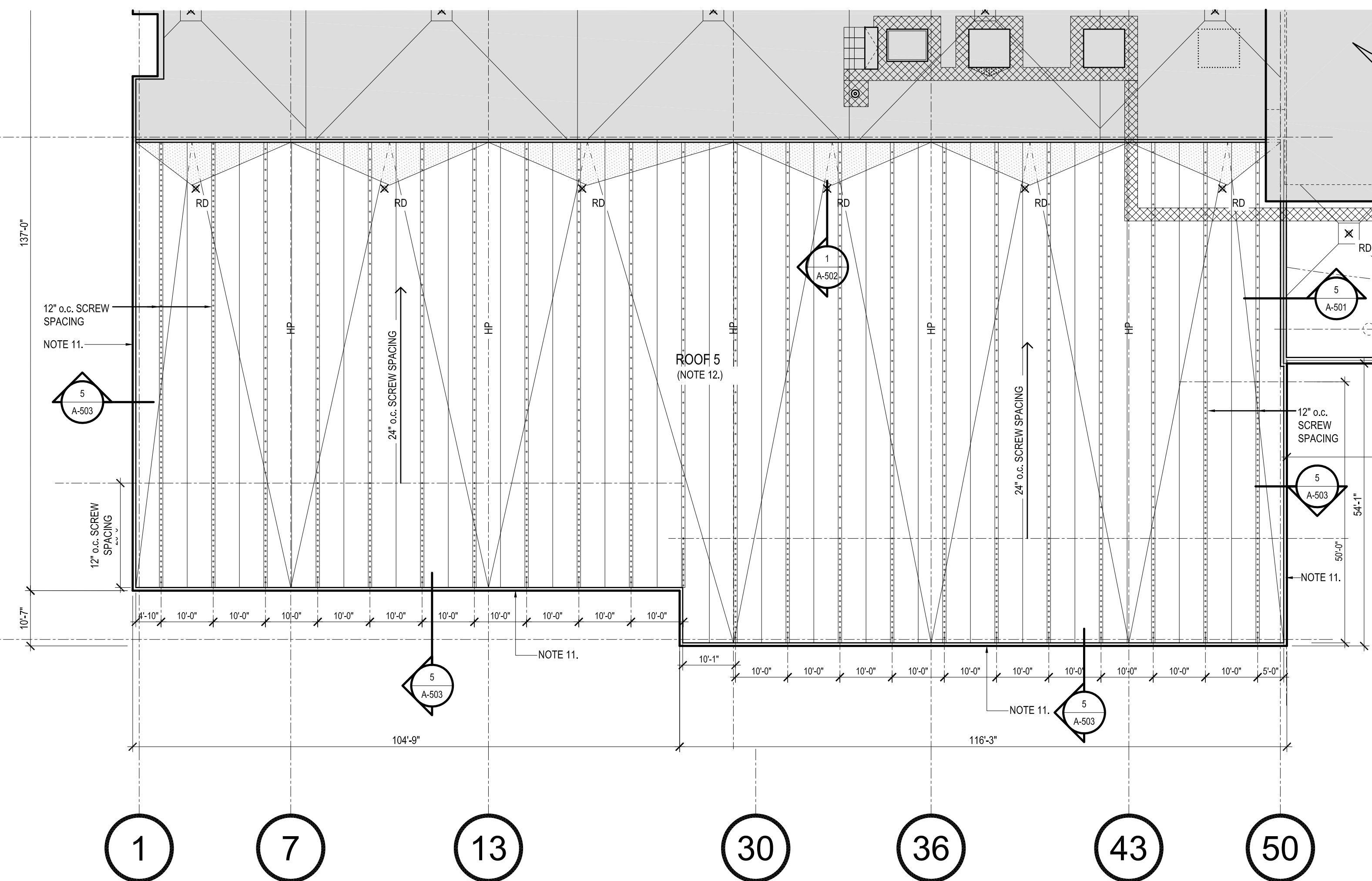
- MODIFIED BITUMEN CAP SHEET, TORCHED
- COVER BOARD WITH FACTORY APPLIED BASE SHEET, MECHANICALLY FASTENED
- POLYISO INSULATION, TAPERED
- MODIFIED BITUMEN VAPOUR BARRIER, TORCHED
- EXISTING ASPHALT VAPOUR BARRIER
- EXISTING GYPSUM DECK BOARD
- EXISTING STEEL DECK, FLAT

**NOTES**

1. SCUPPER: REMOVE EXISTING SCUPPERS AND PERFORATED GUARD. REINSTALL PER DETAIL 2/A-501 AND 6/A-501.
2. EQUIPMENT POSTS: FLASH EXISTING THALER FLASHING POSTS PER DETAIL 3/A-502.
3. EXISTING PARAPET: REMOVE EXISTING BRICK VENEER AND PARAPET WOOD FRAMING. REUSE EXISTING THREADED RODS. RE-BUILD PARAPET AS INDICATED IN DETAIL 1/A-501.
4. EXISTING PARAPET: REMOVE EXISTING PARAPET CONSTRUCTION. RE-USE EXISTING THREADED RODS. RE-BUILD PARAPETS AS INDICATED IN DETAIL 4/A-501.
5. EXISTING CONCRETE COLUMN: FLASH COLUMN WITH LIQUID MEMBRANE (PER DETAIL 5/A-502).
6. EXISTING GAS LINE ON PIPE SUPPORTS BOLTED TO CONCRETE PAVERS. PROTECT LINE DURING REMOVAL WORK. PROVIDE TEMPORARY SUPPORT FOR LINE UNTIL ROOFING WORK IS COMPLETE. RE-USE CONCRETE PAVES SUPPORTS.
7. EXISTING CONDUIT PENETRATION: SEAL WITH POURABLE SEALER/CURB SYSTEM, (SIMILAR TO DETAIL 1/A-503).
8. EXISTING THALER FLASHING AT CONDUIT AND PIPE PENETRATION. (REFER TO DETAIL 2/A-503).
9. EXISTING PARAPET: REMOVE EXISTING PARAPET CONSTRUCTION AT CURTAIN WALL. RE-BUILD PARAPET AS INDICATED IN DETAIL 3/A-501.
10. EXISTING EXPANSION JOINT CURB: REMOVE EXISTING CONSTRUCTION AND RE-BUILD AS INDICATED ON A-503.
11. EXISTING PARAPET: REMOVE EXISTING PARAPET CONSTRUCTION AT METAL CLADDING WALL. RE-BUILD PARAPET AS INDICATED IN DETAIL 5/A-503.
12. GYM ROOF: EXISTING TPO MEMBRANE ROOFING. RE-SECURE EXISTING MEMBRANE WITH SCREWS AND BATTEN BARS AT SPACING LOCATIONS INDICATED. HEAT WELD 8" WIDE REINFORCED TPO COVER STRIP OVER FASTENERS/BARS.

**LEGEND**

- AC EXISTING AC UNIT c/w SUPPORT FRAME AND POSTS, THERE ARE 4 SUPPORT POSTS PER UNIT (REFER TO DETAIL 3/A-502). THERE ARE 2 PIPE/CONDUIT PENETRATIONS PER UNIT (REFER TO DETAIL 2/A-503).
- RD ROOF DRAIN - REUSE EXISTING
- F EXISTING FAN - LIFT FAN TO FACILITATE ROOFING (REFER TO DETAIL 2/A-502).
- V EXISTING VENT - INSTALL ALUMINUM STACK JACK FLASHING.
- EJ EXISTING EXPANSION JOINT CURB
- HP HIGH POINT/RIDGE OF SLOPE
-  NEW WALKWAY MAT. - CONTRASTING COLOUR CAP SHEET
-  ROOF AREA NOT IN CONTRACT (NIC)
- GN EXISTING GOOSENECK PIPE VENT - INSTALL POURABLE SEALER/CURB SYSTEM
- T EXISTING TURBINE VENT - LIFT TO FACILITATE ROOFING. RE-SET AFTER ROOFING IS COMPLETE (SIMILAR TO DETAIL 2/A-502).
- GW EXISTING GUY WIRE ANCHORS. NUMBER AND LOCATIONS SHOWN ON A-104 ARE APPROXIMATE. (REFER TO DETAIL 1/A-503).



**1** ROOF PLAN - SECTION A  
SCALE: 1/16" = 1'-0"

GRAPHIC SCALE

0	10'	20'	30'	40'	50'	60'
---	-----	-----	-----	-----	-----	-----

17 JUN 2020	MARK	ISSUED FOR TENDER
DATE	MARK	ISSUE

STAMP

SCALE

DRAWN BY:	LAA
CHECKED BY:	SD
REVIEWED BY:	SD
APPROVED BY:	GF
AS-BUILT CHECK	
DATE:	

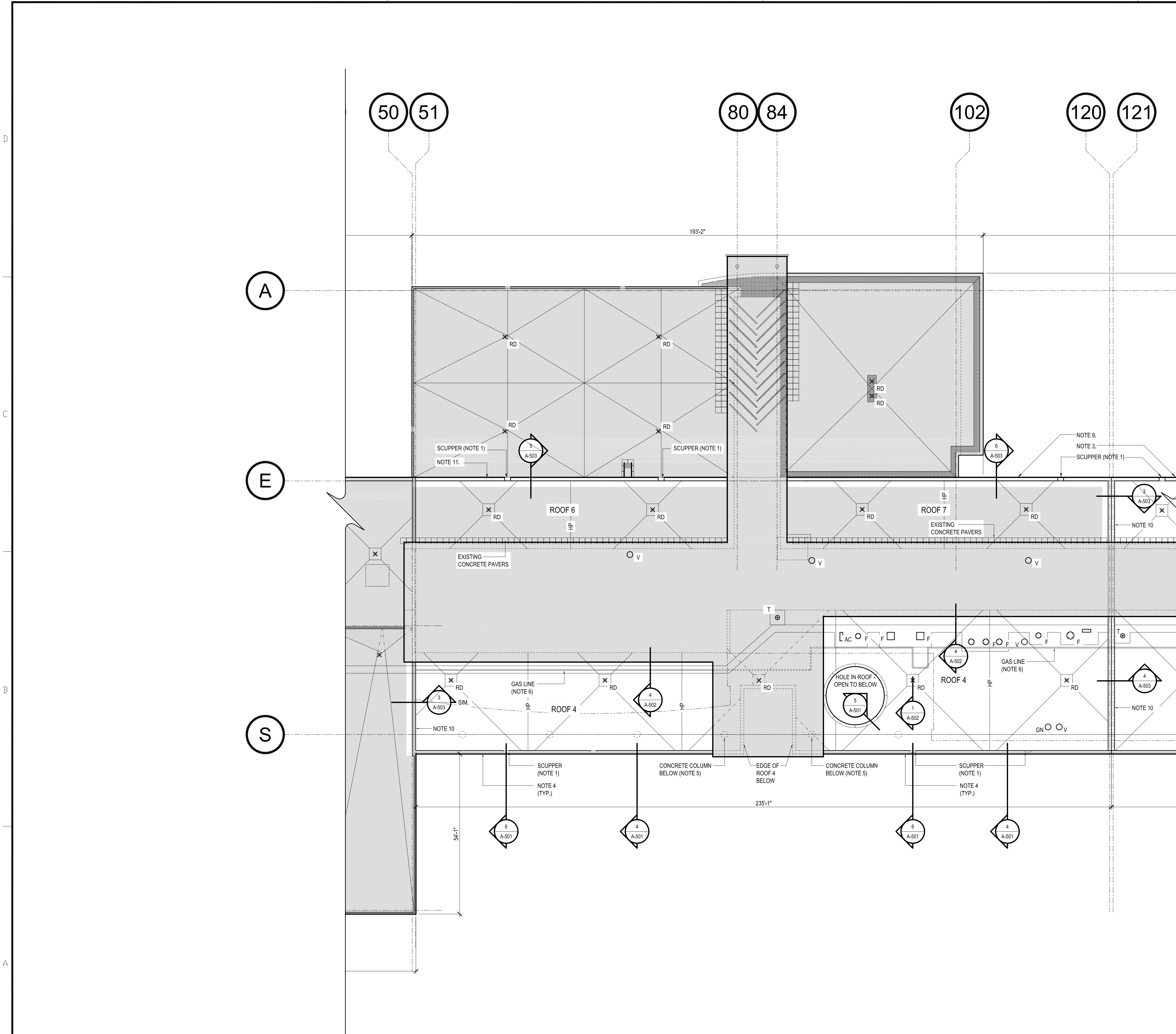
PROJECT  
CITADEL HIGH SCHOOL  
ROOF REPLACEMENT & REPAIR  
PHASE 2

HALIFAX, NOVA SCOTIA  
PROJECT NO.: 2019-102

SHEET TITLE  
ROOF PLAN - SECTION A

INTERNAL NO.:

**A-102**

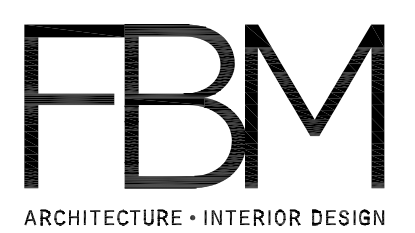


- GENERAL NOTES**
- PROTECTION; PROVIDE FENCING AROUND PERIMETER OF WORK AREA AND OVERHEAD PROTECTION AT ALL DOORS AND ENTRANCES, PER SPECIFICATION SECTION 07 52 16, 3.3.
  - ALL REMOVALS ARE TO BE COORDINATED WITH HRCE, WHERE REMOVALS REQUIRE POWER DISCONNECTS (SUCH AS MECHANICAL FANS, AC UNITS, ETC.), THE DISCONNECTS ARE TO BE DONE BY HRCE. HRCE IS TO BE PROVIDED WITH 3 DAYS MINIMUM NOTICE PRIOR TO SUCH REMOVALS.
  - WORK RELATED TO LOWERING AND RAISING OF EXISTING DRAINS IS TO BE COORDINATED WITH HRCE PRIOR TO COMMENCING THE WORK.
  - INSTALL 4' x 4' TAPERED INSULATION SUMP AT DRAINS, 4% SLOPE, 3" THICKNESS AT EDGE OF SUMP.
  - TAPERED INSULATION SLOPE: 2% MINIMUM.

- ROOF ASSEMBLY**
- MODIFIED BITUMEN CAP SHEET, TORCHED
  - COVER BOARD WITH FACTORY APPLIED BASE SHEET, MECHANICALLY FASTENED
  - POLYISO INSULATION, TAPERED
  - MODIFIED BITUMEN VAPOUR BARRIER, TORCHED
  - EXISTING ASPHALT VAPOUR BARRIER
  - EXISTING GYPSUM DECK BOARD
  - EXISTING STEEL DECK, FLAT

- NOTES**
- SCUPPER: REMOVE EXISTING SCUPPERS AND PERFORATED GUARD, REINSTALL PER DETAIL 2/A-501 AND 6/A-501.
  - EQUIPMENT POSTS: FLASH EXISTING THALER FLASHING/POSTS PER DETAIL 3/A-502.
  - EXISTING PARAPET: REMOVE EXISTING BRICK VENEER AND PARAPET WOOD FRAMING, REUSE EXISTING THREADED RODS, RE-BUILD PARAPET AS INDICATED IN DETAIL 1/A-501.
  - EXISTING PARAPET: REMOVE EXISTING PARAPET CONSTRUCTION, RE-USE EXISTING THREADED RODS, RE-BUILD PARAPETS AS INDICATED IN DETAIL 4/A-501.
  - EXISTING CONCRETE COLUMN: FLASH COLUMN WITH LIQUID MEMBRANE (PER DETAIL 5/A-502).
  - EXISTING GAS LINE ON PIPE SUPPORTS BOLTED TO CONCRETE PAVERS, PROTECT LINE DURING REMOVAL WORK, PROVIDE TEMPORARY SUPPORT FOR LINE UNTIL ROOFING WORK IS COMPLETE, RE-USE CONCRETE PAVER SUPPORTS.
  - EXISTING CONDUIT PENETRATION: SEAL WITH POURABLE SEALER/CURB SYSTEM, (SIMILAR TO DETAIL 1/A-503).
  - EXISTING THALER FLASHING AT CONDUIT AND PIPE PENETRATION, (REFER TO DETAIL 2/A-503).
  - EXISTING PARAPET: REMOVE EXISTING PARAPET CONSTRUCTION AT CURTAINWALL, RE-BUILD PARAPET AS INDICATED IN DETAIL 3/A-501.
  - EXISTING EXPANSION JOINT CURB: REMOVE EXISTING CONSTRUCTION AND RE-BUILD AS INDICATED ON A-503.
  - EXISTING PARAPET: REMOVE EXISTING PARAPET CONSTRUCTION AT METAL CLADDING WALL, RE-BUILD PARAPET AS INDICATED IN DETAIL 5/A-503.
  - GYM ROOF: EXISTING TPO MEMBRANE ROOFING, RE-SECURE EXISTING MEMBRANE WITH SCREWS AND BATTEN BARS AT SPACING LOCATIONS INDICATED, HEAT WELD 6" WIDE REINFORCED TPO COVER STRIP OVER FASTENERS/BARS.

- LEGEND**
- AC EXISTING AC UNIT *dw* SUPPORT FRAME AND POSTS, THERE ARE 4 SUPPORT POSTS PER UNIT (REFER TO DETAIL 3/A-502), THERE ARE 2 PIPE/CONDUIT PENETRATIONS PER UNIT (REFER TO DETAIL 2/A-503).
  - RD ROOF DRAIN - REUSE EXISTING
  - F EXISTING FAN - LIFT FAN TO FACILITATE ROOFING (REFER TO DETAIL 2/A-502).
  - V EXISTING VENT - INSTALL ALUMINUM STACK JACK FLASHING.
  - EJ EXISTING EXPANSION JOINT CURB
  - HP HIGH POINT/RIDGE OF SLOPE
  - [Cross-hatched] NEW WALKWAY MAT. - CONTRASTING COLOUR CAP SHEET
  - [Grey] ROOF AREA NOT IN CONTRACT (NIC)
  - GN EXISTING GOOSENECK PIPE VENT - INSTALL POURABLE SEALER/CURB SYSTEM
  - T EXISTING TURBINE VENT - LIFT TO FACILITATE ROOFING; RE-SET AFTER ROOFING IS COMPLETE (SIMILAR TO DETAIL 2/A-502).
  - GW EXISTING GUY WIRE ANCHORS, NUMBER AND LOCATIONS SHOWN ON A-104 ARE APPROXIMATE, (REFER TO DETAIL 1/A-503).



HSI-1050 Hills Street  
Halifax, Nova Scotia B3J 1V7  
Canada  
T: (902) 429-4100  
architects@fbm.ca  
fbm.ca

17JUN2020	ISSUED FOR TENDER
DATE	ISSUE

STAMP

SCALE	
DRAWN BY:	LAA
CHECKED BY:	SD
REVIEWED BY:	SD
APPROVED BY:	GF
AS-BUILT CHECK	
DATE:	

PROJECT  
CITADEL HIGH SCHOOL  
ROOF REPLACEMENT & REPAIR  
PHASE 2

HALIFAX, NOVA SCOTIA  
PROJECT NO.: 2019-102

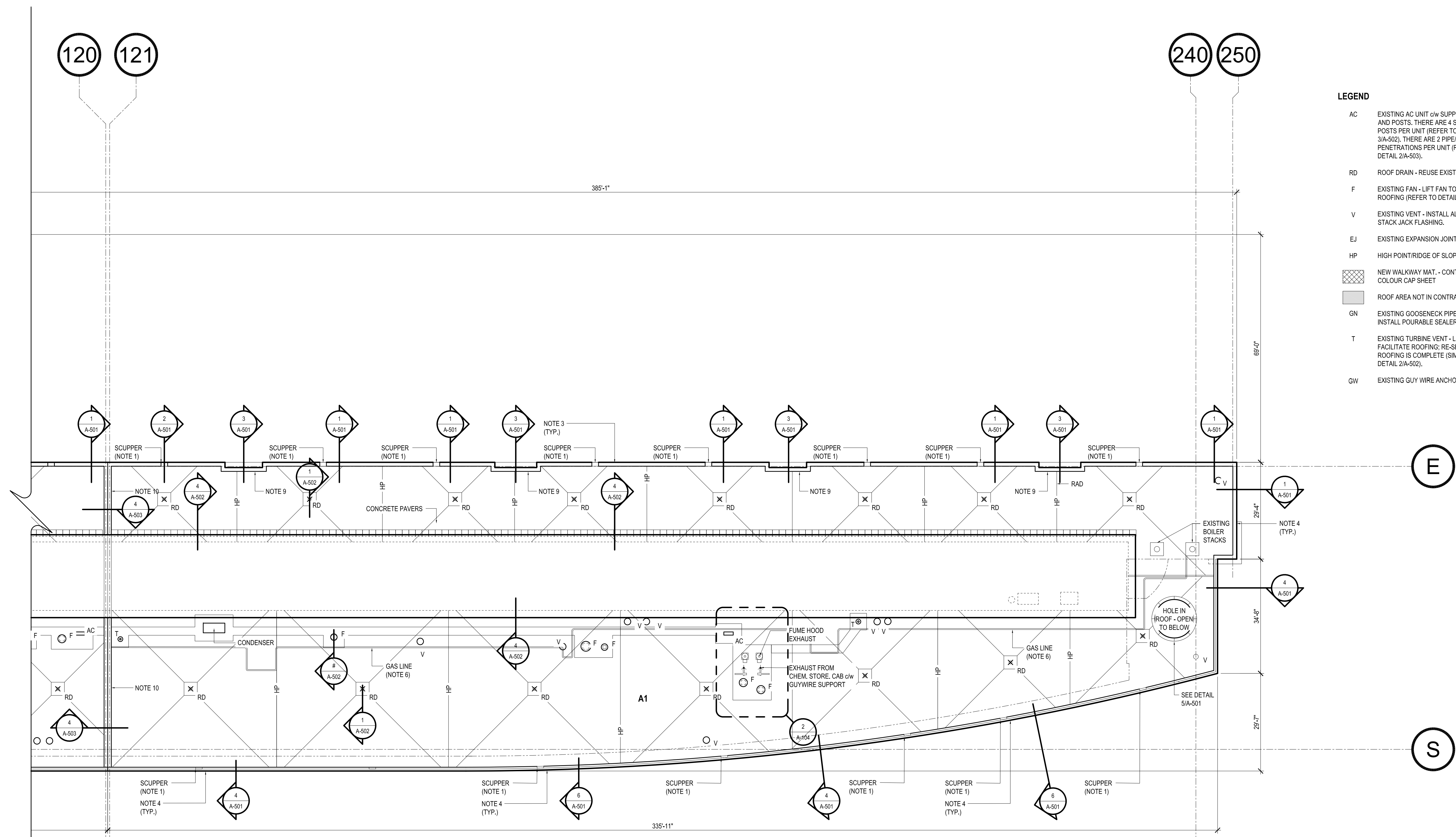
SHEET TITLE  
ROOF PLAN - SECTION B

INTERNAL NO.:

A-102

**1** ROOF PLAN - SECTION B  
SCALE: 1/16" = 1'-0"

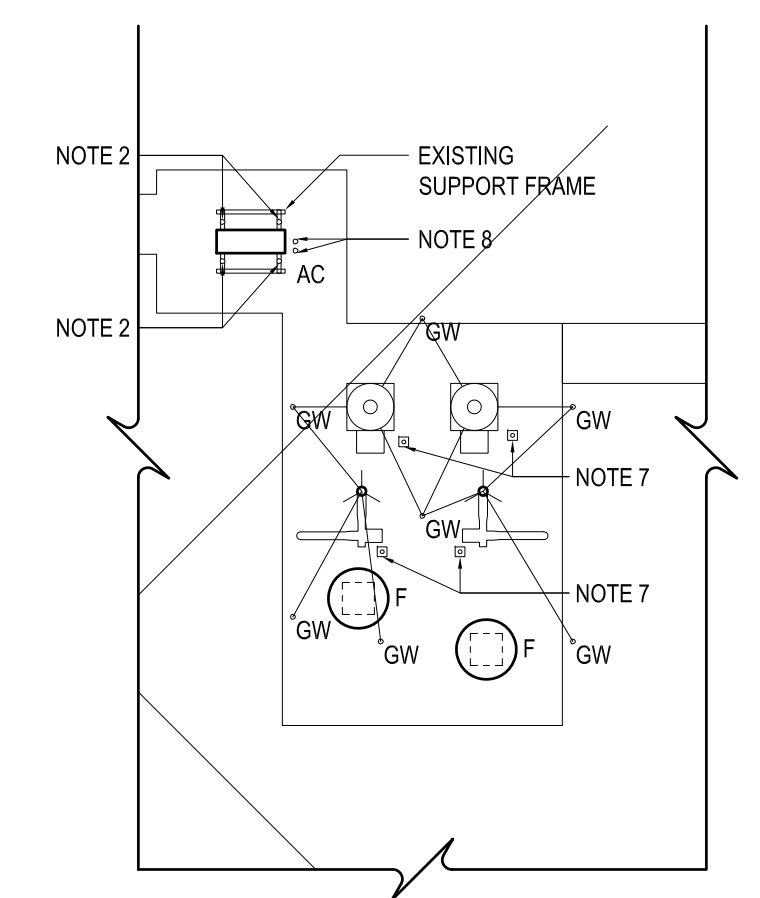
- LEGEND**
- AC EXISTING AC UNIT c/w SUPPORT FRAME AND POSTS. THERE ARE 4 SUPPORT POSTS PER UNIT (REFER TO DETAIL 3/A-502). THERE ARE 2 PIPE/CONDUIT PENETRATIONS PER UNIT (REFER TO DETAIL 2/A-503).
  - RD ROOF DRAIN - REUSE EXISTING
  - F EXISTING FAN - LIFT FAN TO FACILITATE ROOFING (REFER TO DETAIL 2/A-502).
  - V EXISTING VENT - INSTALL ALUMINUM STACK JACK FLASHING.
  - EJ EXISTING EXPANSION JOINT CURB
  - HP HIGH POINT/RIDGE OF SLOPE
  - NEW WALKWAY MAT. - CONTRASTING COLOUR CAP SHEET
  - ROOF AREA NOT IN CONTRACT (NIC)
  - GN EXISTING GOOSENECK PIPE VENT - INSTALL POURABLE SEALER/CURB SYSTEM
  - T EXISTING TURBINE VENT - LIFT TO FACILITATE ROOFING; RE-SET AFTER ROOFING IS COMPLETE (SIMILAR TO DETAIL 2/A-502).
  - GW EXISTING GUY WIRE ANCHORS. NUMBER



- GENERAL NOTES**
- A. PROTECTION: PROVIDE FENCING AROUND PERIMETER OF WORK AREA AND OVERHEAD PROTECTION AT ALL DOORS AND ENTRANCES. PER SPECIFICATION SECTION 07 52 16. 3.3.
  - B. ALL REMOVALS ARE TO BE COORDINATED WITH HRCE. WHERE REMOVALS REQUIRE POWER DISCONNECTS (SUCH AS MECHANICAL FANS, AC UNITS, ETC.), THE DISCONNECTS ARE TO BE DONE BY HRCE. HRCE IS TO BE PROVIDED WITH 3 DAYS MINIMUM NOTICE PRIOR TO SUCH REMOVALS.
  - C. WORK RELATED TO LOWERING AND RAISING OF EXISTING DRAINS IS TO BE COORDINATED WITH HRCE PRIOR TO COMMENCING THE WORK.
  - D. INSTALL 4' x 4' TAPERED INSULATION SUMP AT DRAINS. 4% SLOPE. 3" THICKNESS AT EDGE OF SUMP.
  - E. TAPERED INSULATION SLOPE: 2% MINIMUM.

- ROOF ASSEMBLY**
- MODIFIED BITUMEN CAP SHEET, TORCHED
  - COVER BOARD WITH FACTORY APPLIED BASE SHEET, MECHANICALLY FASTENED
  - POLYISO INSULATION, TAPERED
  - MODIFIED BITUMEN VAPOUR BARRIER, TORCHED
  - EXISTING ASPHALT VAPOUR BARRIER
  - EXISTING GYPSUM DECK BOARD
  - EXISTING STEEL DECK, FLAT

- NOTES**
1. SCUPPER: REMOVE EXISTING SCUPPERS AND PERFORATED GUARD. REINSTALL PER DETAIL 2/A-501 AND 6/A-501.
  2. EQUIPMENT POSTS: FLASH EXISTING THALER FLASHING/POSTS PER DETAIL 3/A-502.
  3. EXISTING PARAPET: REMOVE EXISTING BRICK VENEER AND PARAPET WOOD FRAMING. RE-USE EXISTING THREADED RODS. RE-BUILD PARAPET AS INDICATED IN DETAIL 1/A-501.
  4. EXISTING PARAPET: REMOVE EXISTING PARAPET CONSTRUCTION. RE-USE EXISTING THREADED RODS. RE-BUILD PARAPETS AS INDICATED IN DETAIL 4/A-501.
  5. EXISTING CONCRETE COLUMN: FLASH COLUMN WITH LIQUID MEMBRANE (PER DETAIL 5/A-502).
  6. EXISTING GAS LINE ON PIPE SUPPORTS BOLTED TO CONCRETE PAVERS. PROTECT LINE DURING REMOVAL WORK. PROVIDE TEMPORARY SUPPORT FOR LINE UNTIL ROOFING WORK IS COMPLETE. RE-USE CONCRETE PAVER SUPPORTS.
  7. EXISTING CONDUIT PENETRATION: SEAL WITH POURABLE SEALER/CURB SYSTEM. (SIMILAR TO DETAIL 1/A-503).
  8. EXISTING THALER FLASHING AT CONDUIT AND PIPE PENETRATION. (REFER TO DETAIL 2/A-503).
  9. EXISTING PARAPET: REMOVE EXISTING PARAPET CONSTRUCTION AT CURTAINWALL. RE-BUILD PARAPET AS INDICATED IN DETAIL 3/A-501.
  10. EXISTING EXPANSION JOINT CURB: REMOVE EXISTING CONSTRUCTION AND RE-BUILD AS INDICATED ON A-503.
  11. EXISTING PARAPET: REMOVE EXISTING PARAPET CONSTRUCTION AT METAL CLADDING WALL. RE-BUILD PARAPET AS INDICATED IN DETAIL 5/A-503.
  12. GYM ROOF: EXISTING TPO MEMBRANE ROOFING. RE-SECURE EXISTING MEMBRANE WITH SCREWS AND BATTEN BARS AT SPACING LOCATIONS INDICATED. HEAT WELD 8" WIDE REINFORCED TPO COVER STRIP OVER FASTENERS/BARS.



**1** ROOF PLAN - SECTION C  
SCALE: 1/16" = 1'-0"

**1**  
A-102

**2** PARTIAL PLAN AT FUME HOOD AREA  
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE

17JUN2020	ISSUED FOR TENDER
DATE	ISSUE

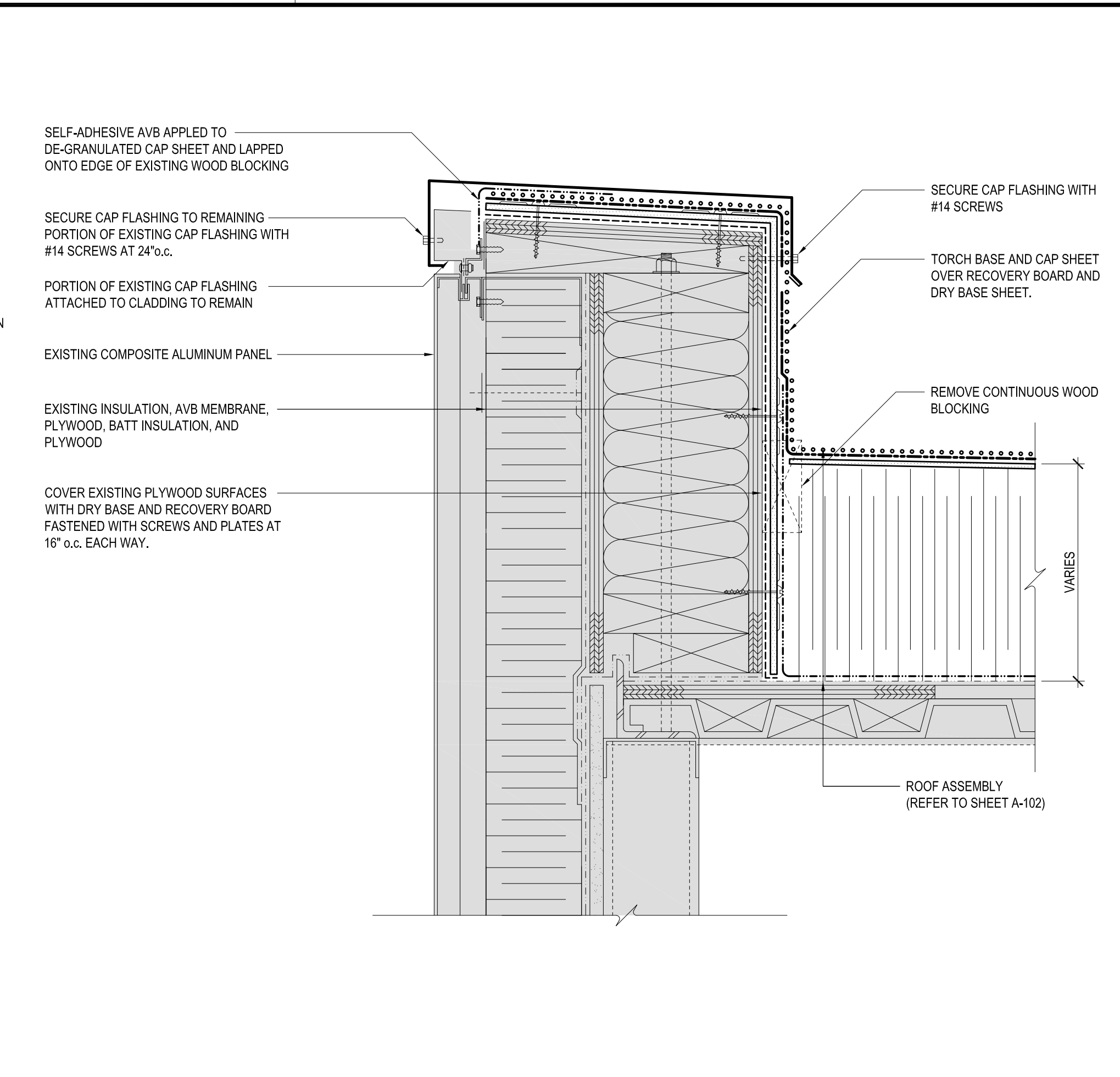
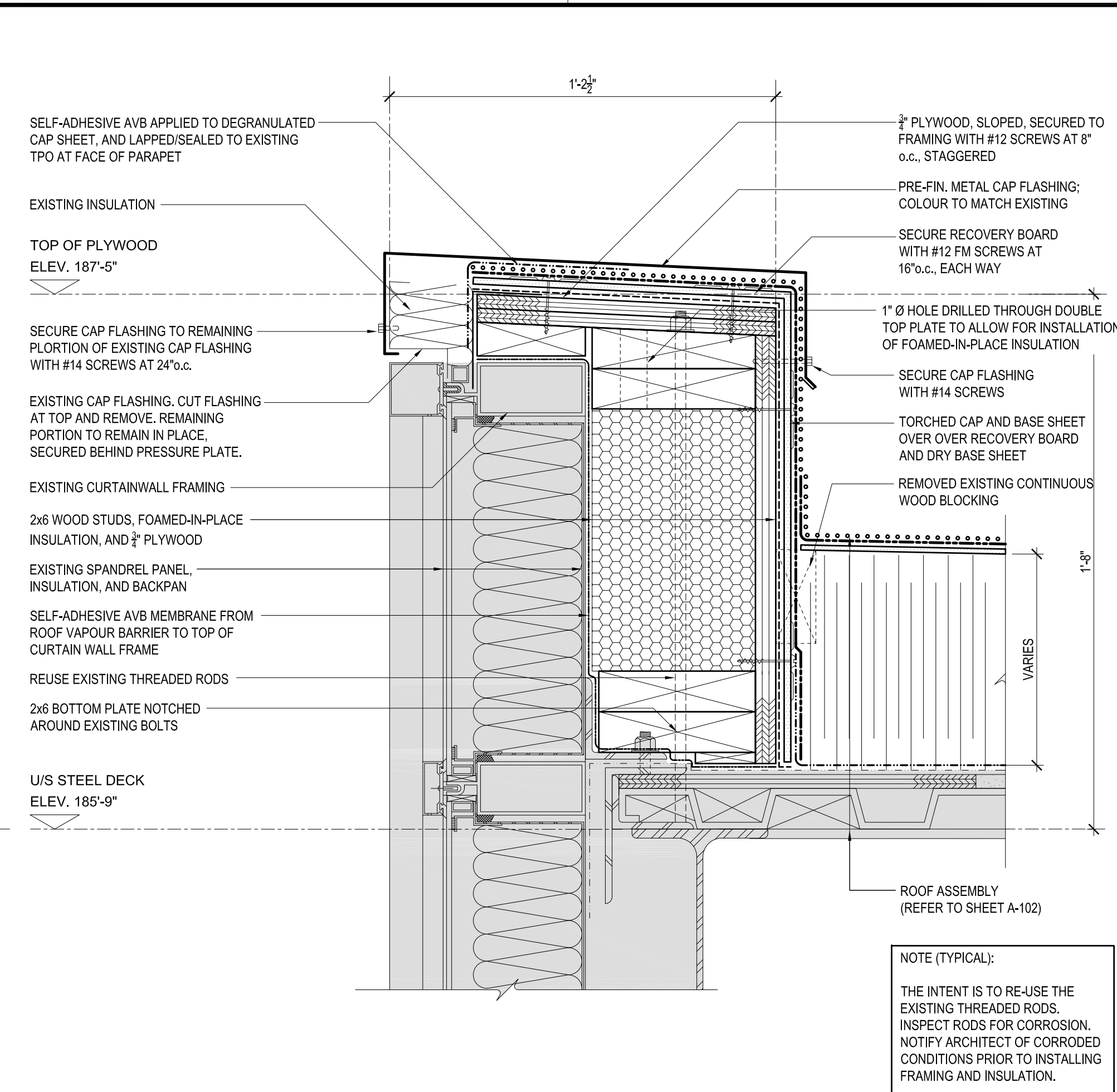
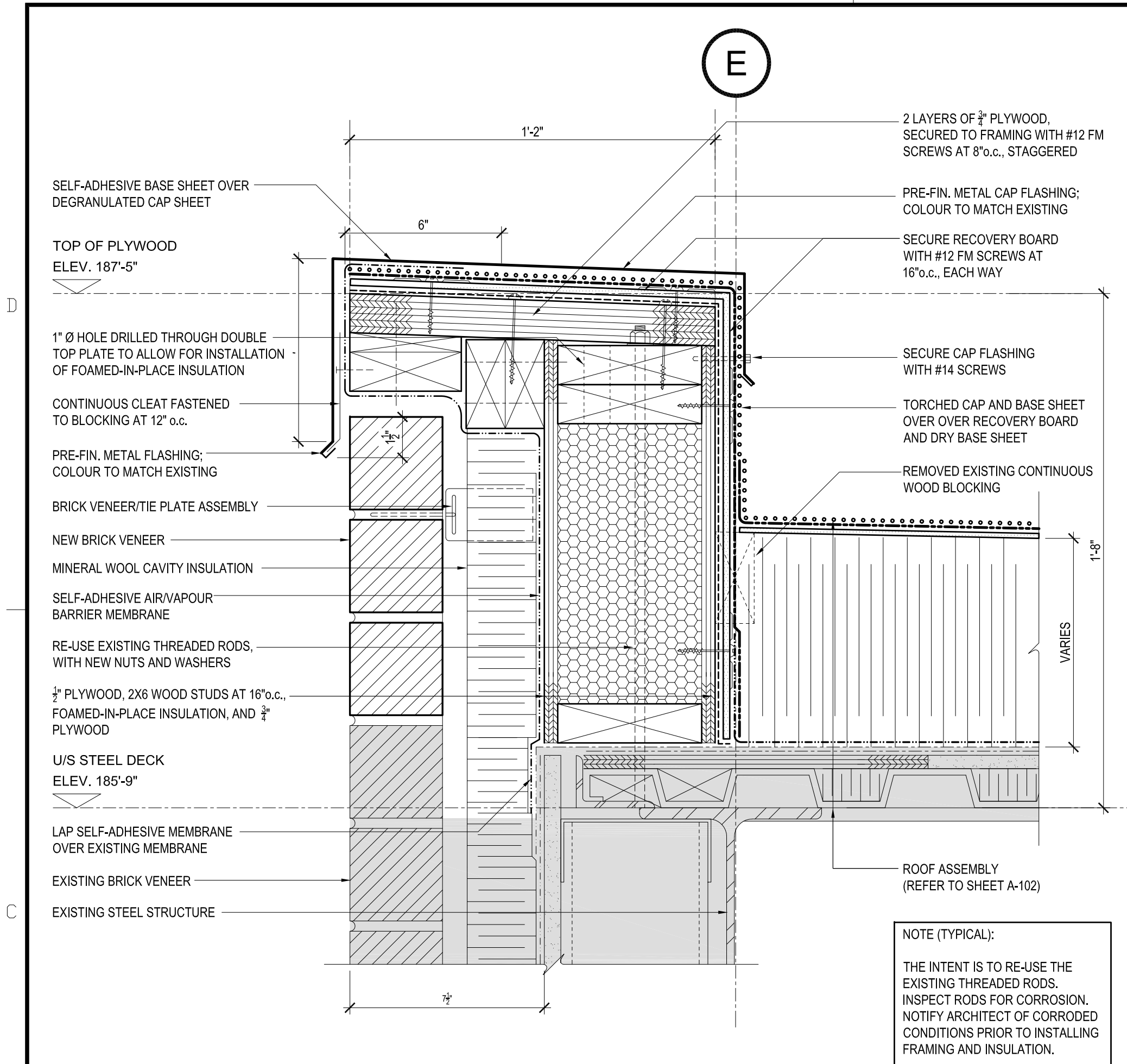
STAMP

SCALE	LAA
DRAWN BY:	SD
CHECKED BY:	SD
REVIEWED BY:	GF
APPROVED BY:	GF
AS-BUILT CHECK	
DATE:	

PROJECT  
**CITADEL HIGH SCHOOL  
ROOF REPLACEMENT & REPAIR  
PHASE 2**

HALIFAX, NOVA SCOTIA  
PROJECT NO.: 2019-102  
SHEET TITLE  
**ROOF PLAN - SECTION C**

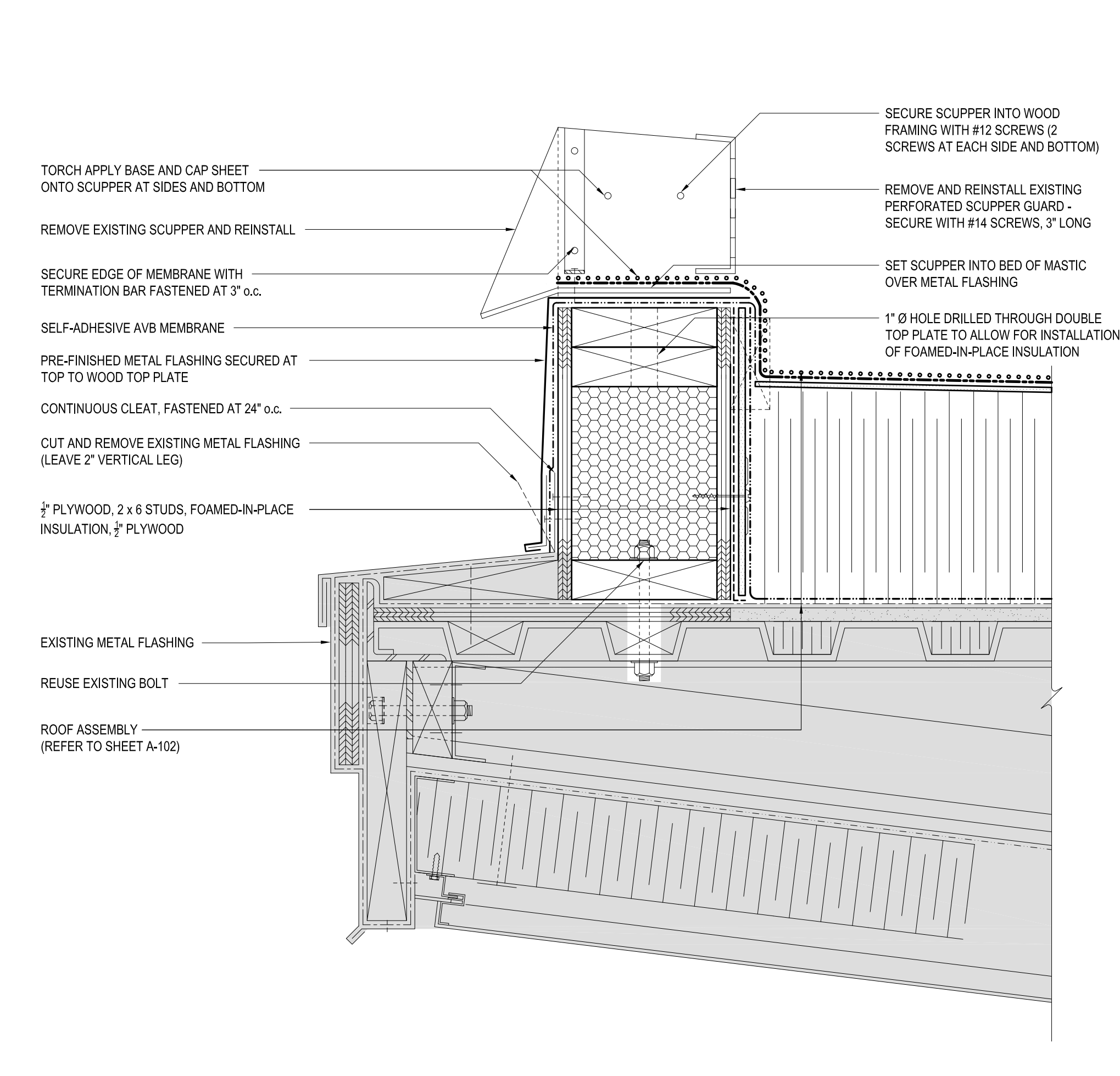
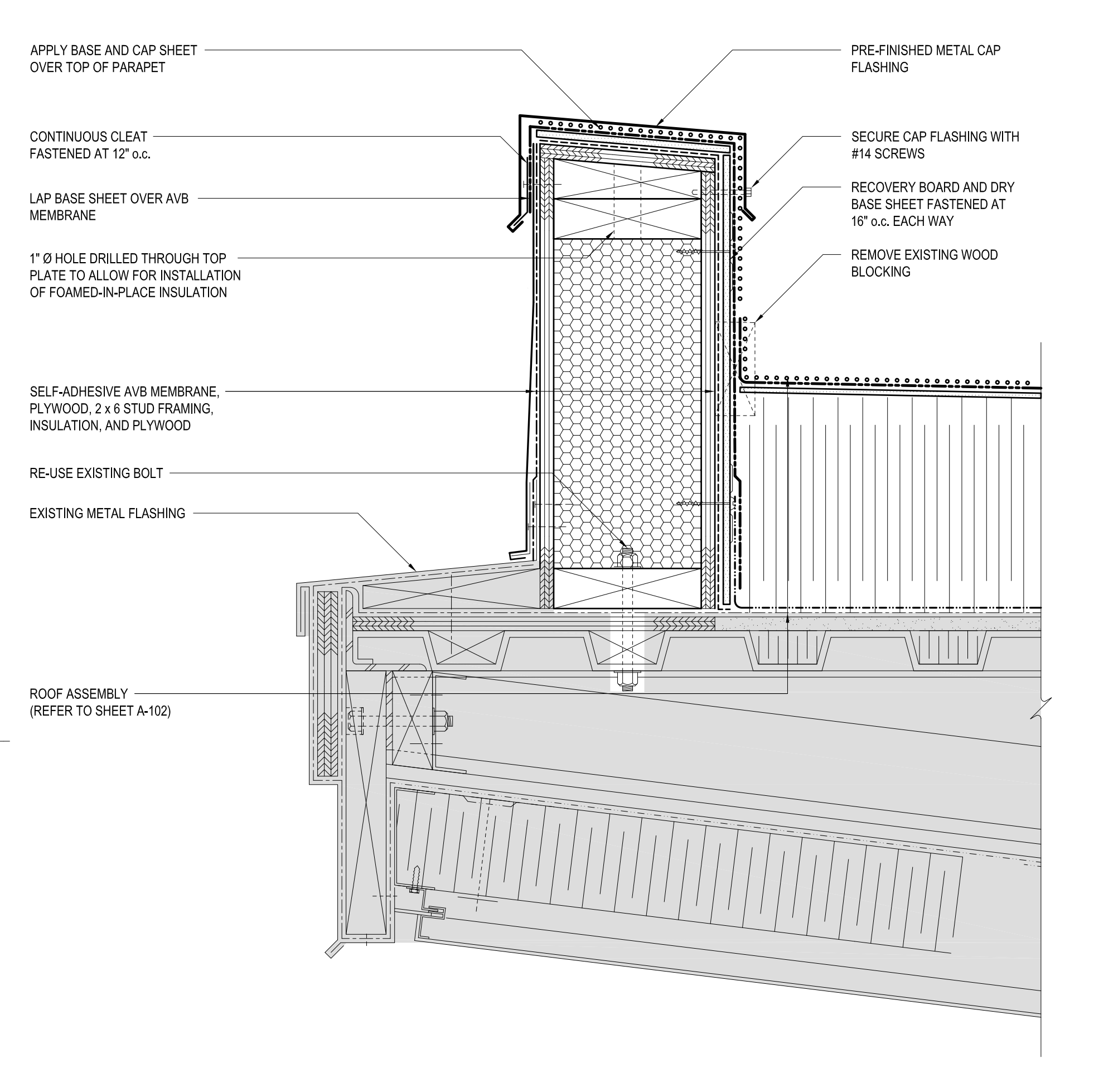
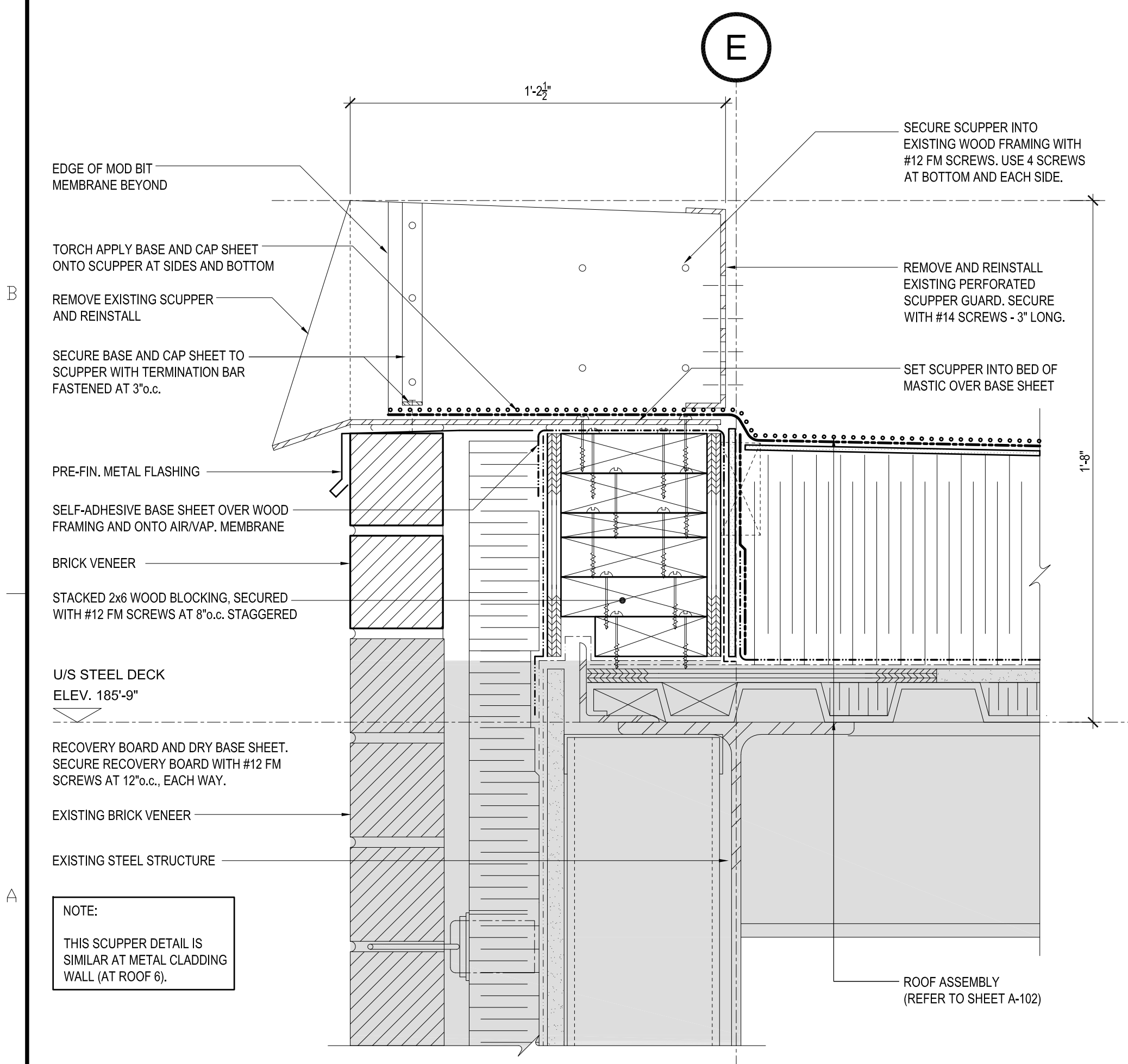
INTERNAL NO.:  
**A-103**  
SHEET 0F



**1** PARAPET AT BRICK VENEER  
SCALE: 3" = 1'-0"

**3** PARAPET AT CURTAINWALL  
SCALE: 3" = 1'-0"

**5** PARAPET AT OPENING IN ROOF  
SCALE: 3" = 1'-0"



**2** SCUPPER AT BRICK VENEER  
SCALE: 3" = 1'-0"

**4** PARAPET AT GRID S  
SCALE: 3" = 1'-0"

**6** SCUPPER AT GRID S  
SCALE: 3" = 1'-0"

**Halifax Regional Centre for Education**

KEY PLAN

LOGO

**FBM**  
ARCHITECTURE • INTERIOR DESIGN

H51-1000 Hills Street  
Halifax, Nova Scotia B3J 1V7  
Canada  
T: (902) 429-4100  
architect@fbm.ca  
fbm.ca

GRAPHIC SCALE

17JUN2020	ISSUED FOR TENDER
DATE	ISSUE

SCALE

DRAWN BY:	LAA
CHECKED BY:	SD
REVIEWED BY:	SD
APPROVED BY:	GF

AS-BUILT CHECK  
DATE:

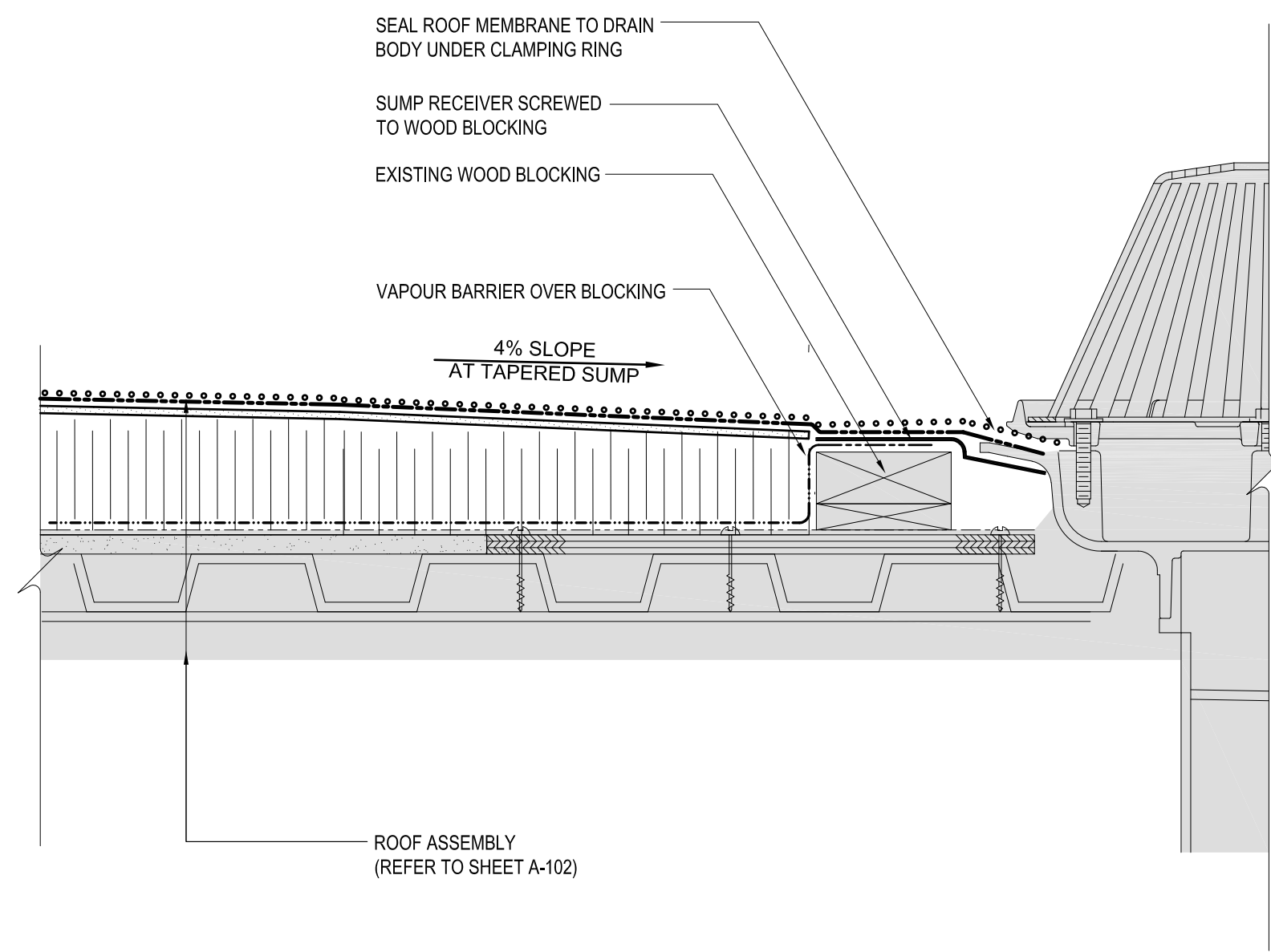
PROJECT  
**CITADEL HIGH SCHOOL  
ROOF REPLACEMENT & REPAIR  
PHASE 2**

HALIFAX, NOVA SCOTIA  
PROJECT NO.: 2019-102  
SHEET TITLE  
**SECTION DETAILS**

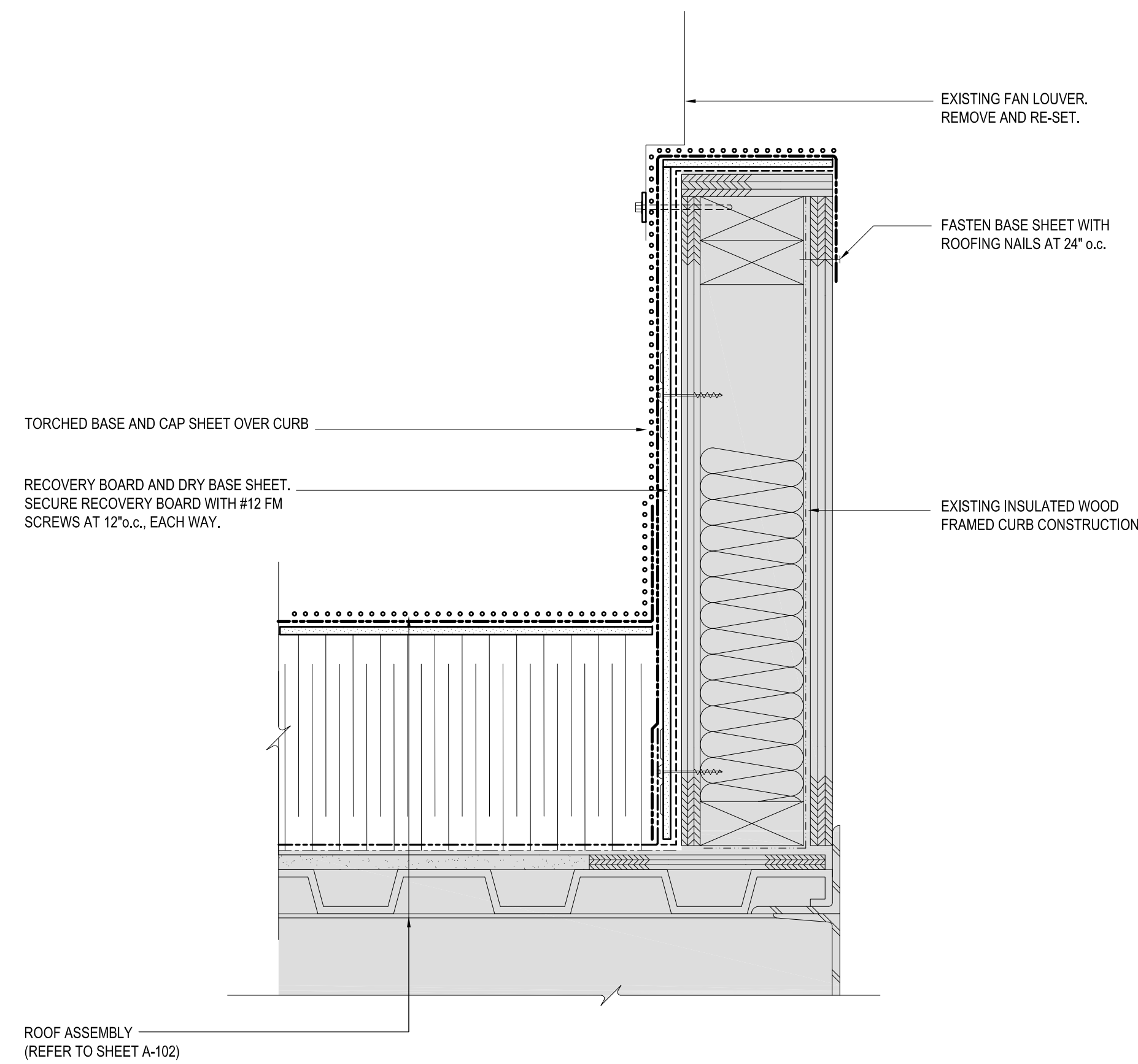
INTERNAL NO.:

**A-501**

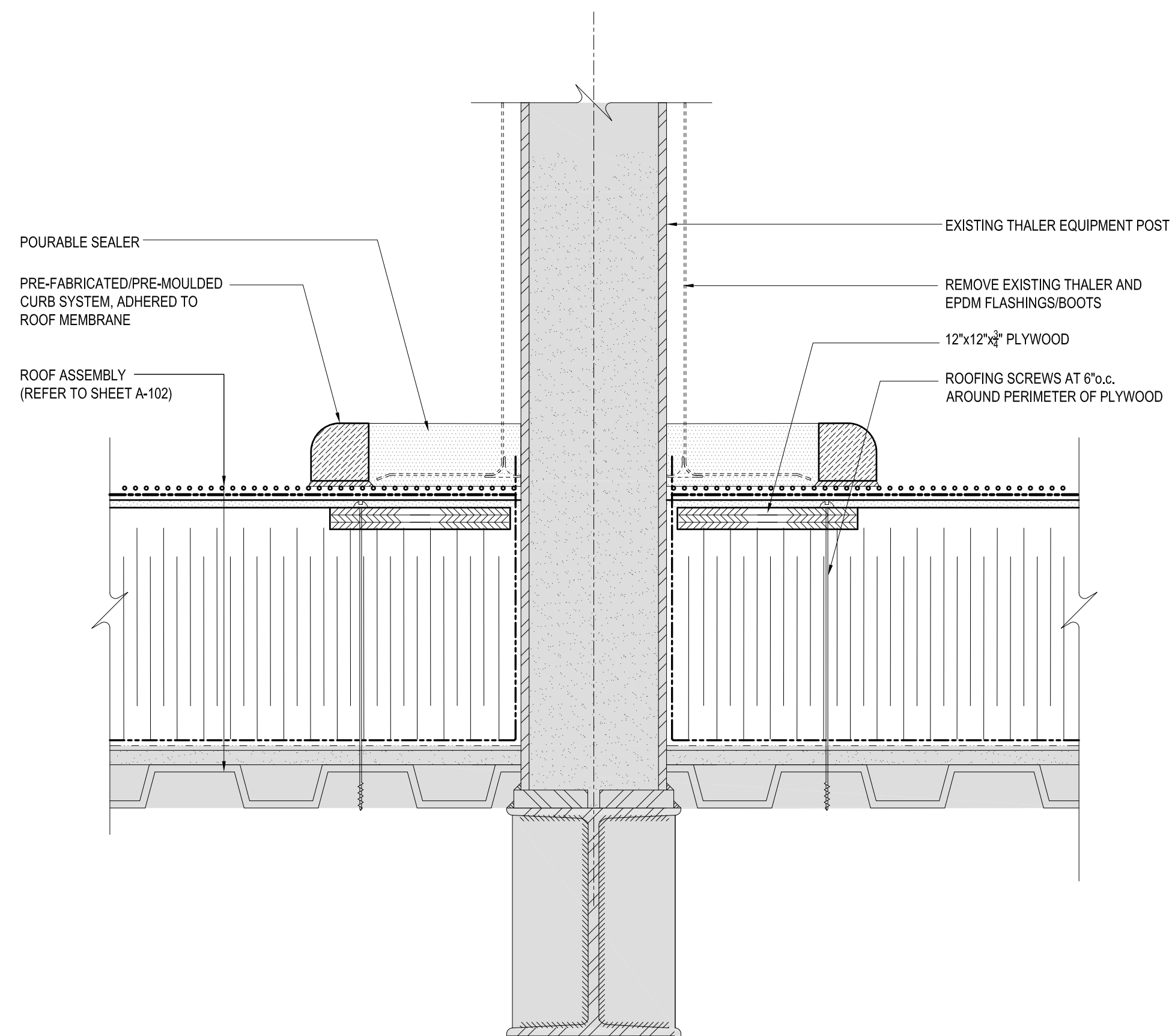
SHEET OF



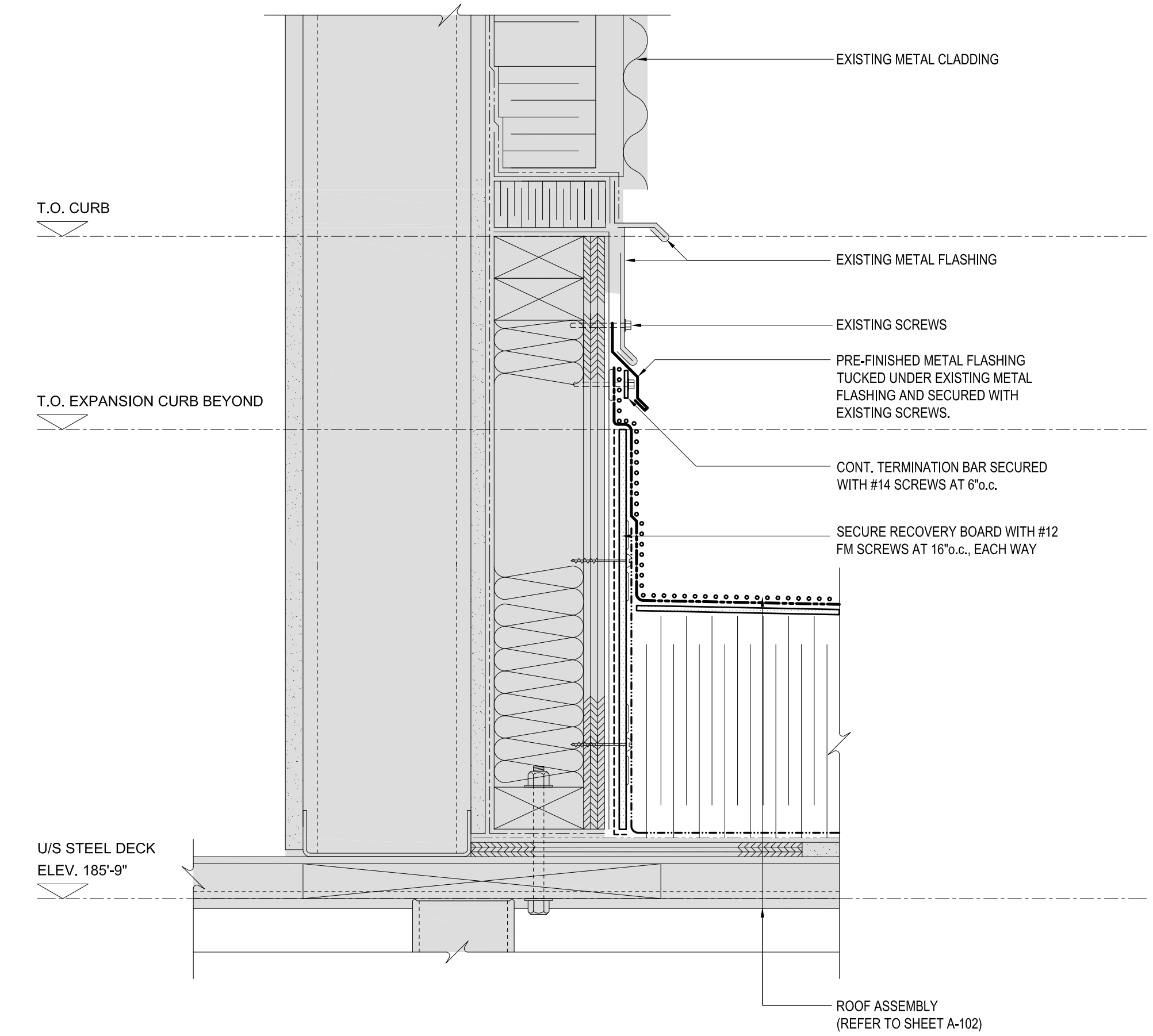
**1** SECTION AT DRAIN  
SCALE: 3" = 1'-0"



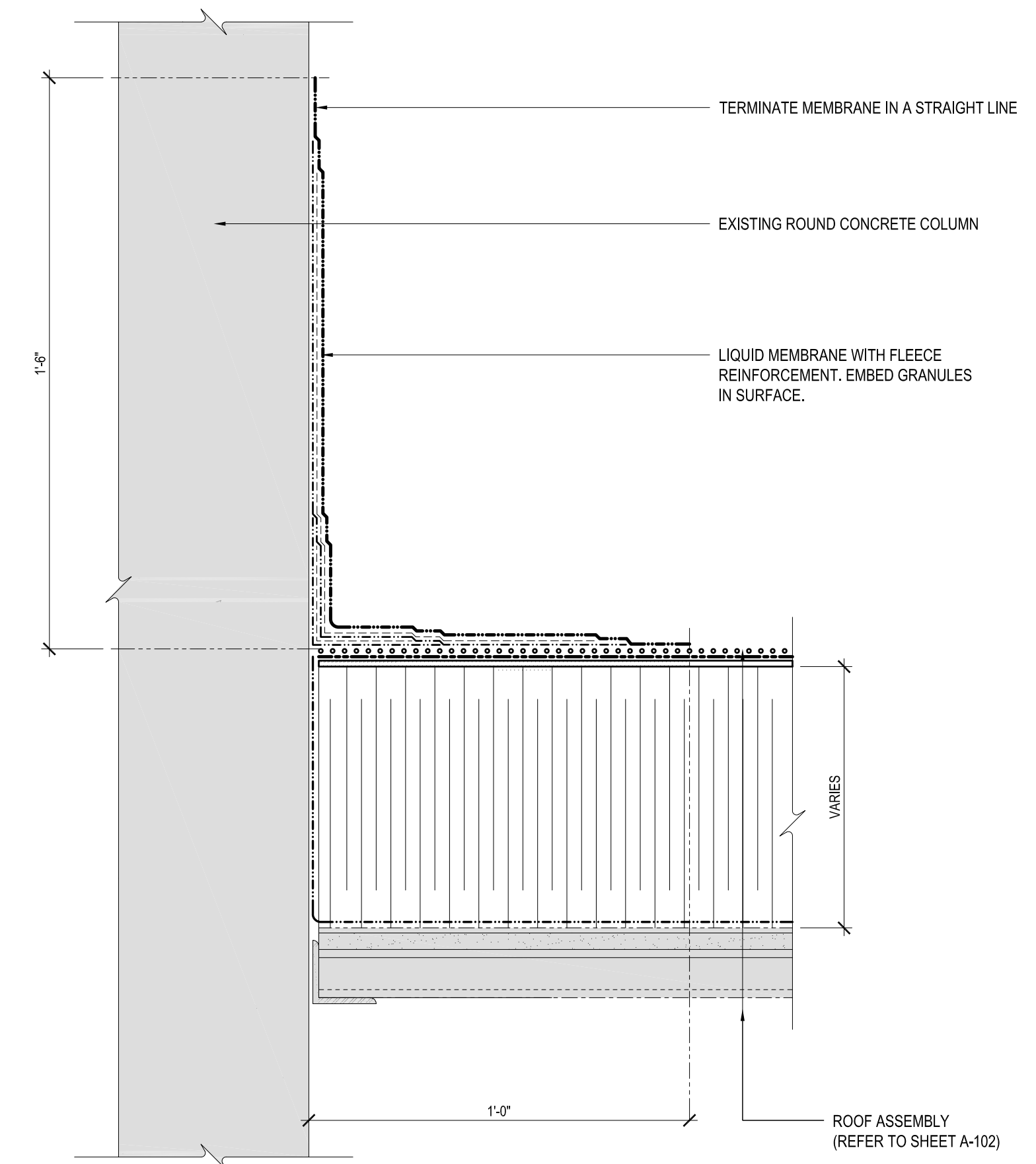
**2** SECTION AT EXHAUST FAN CURB  
SCALE: 3" = 1'-0"



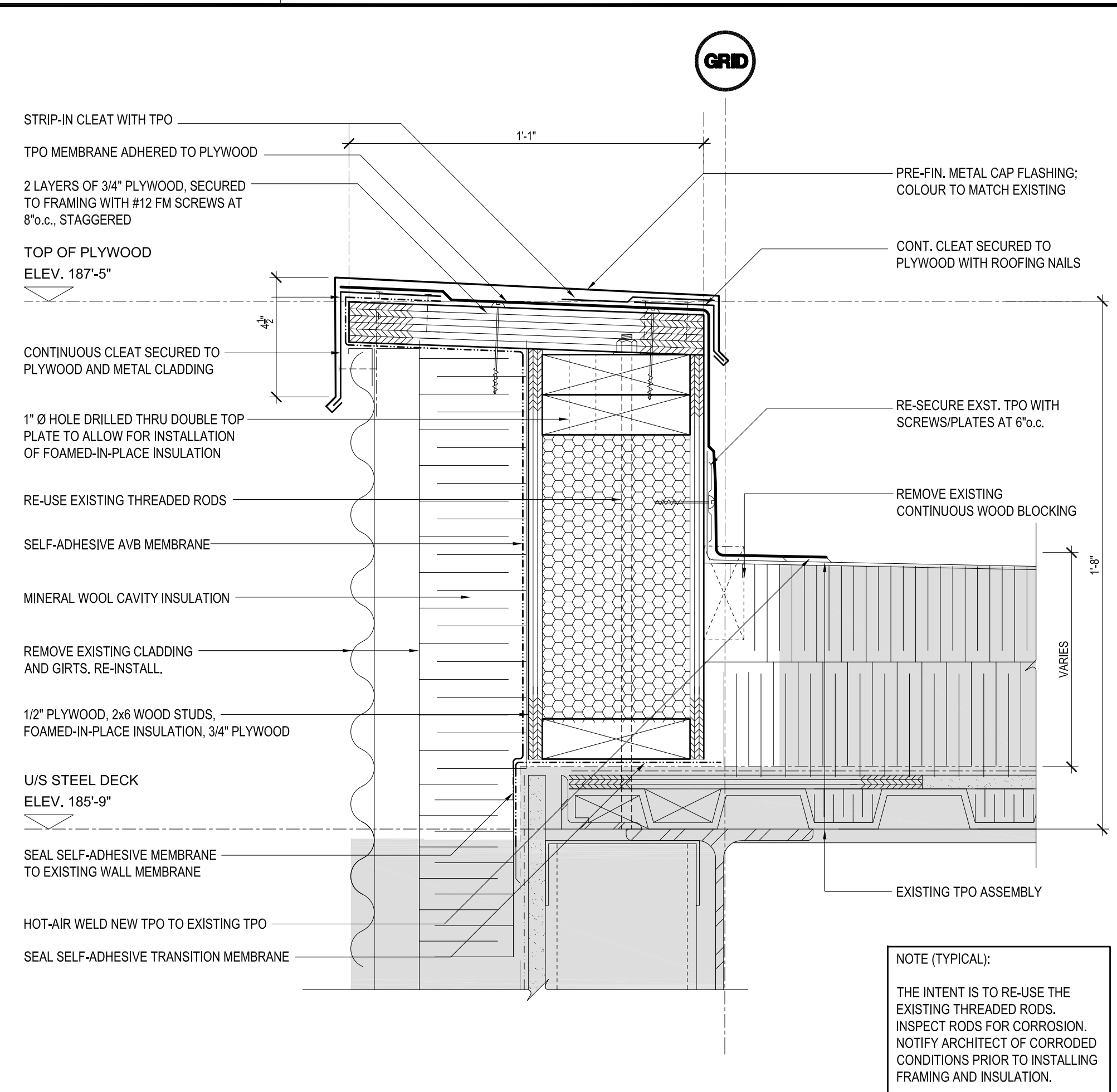
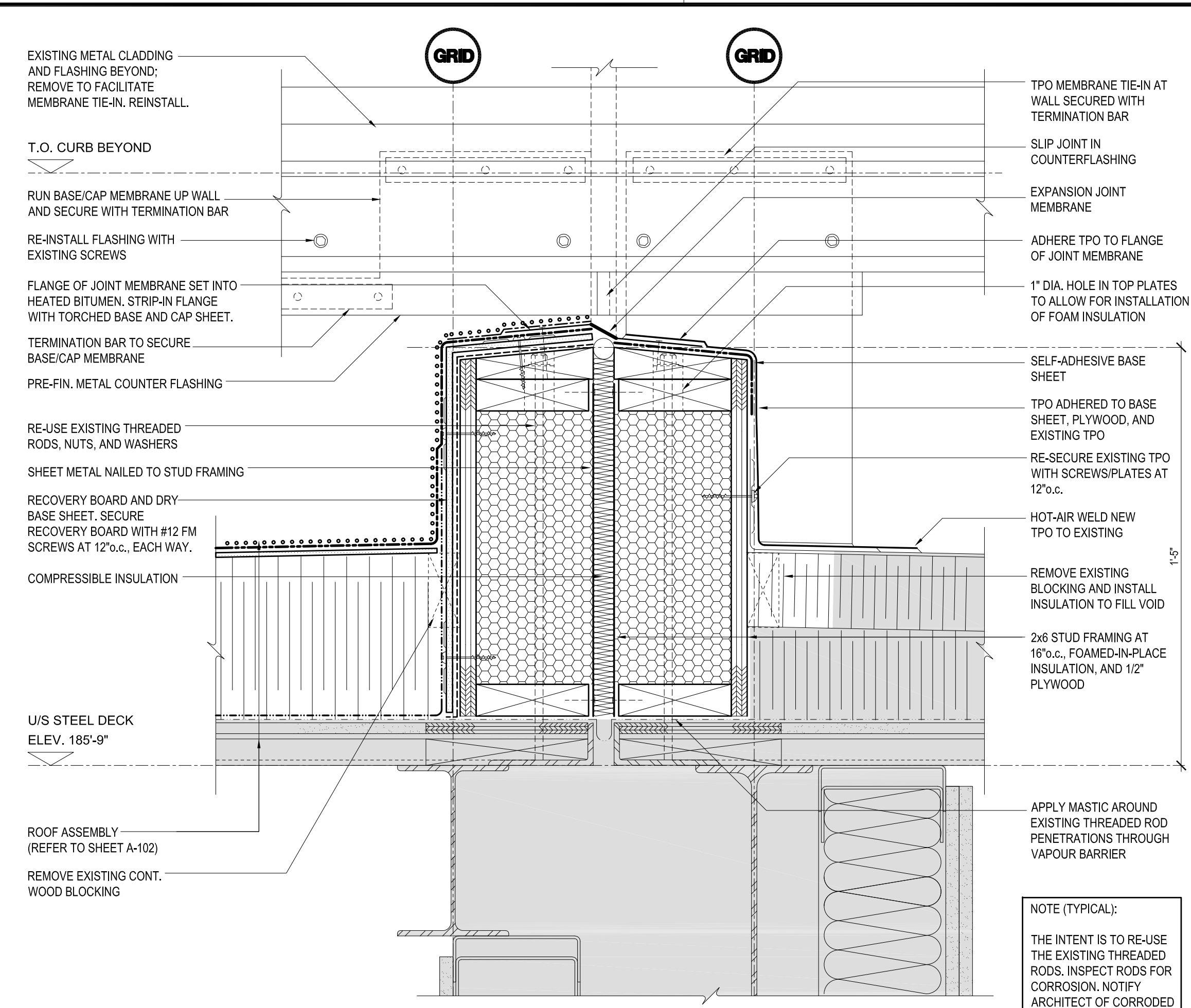
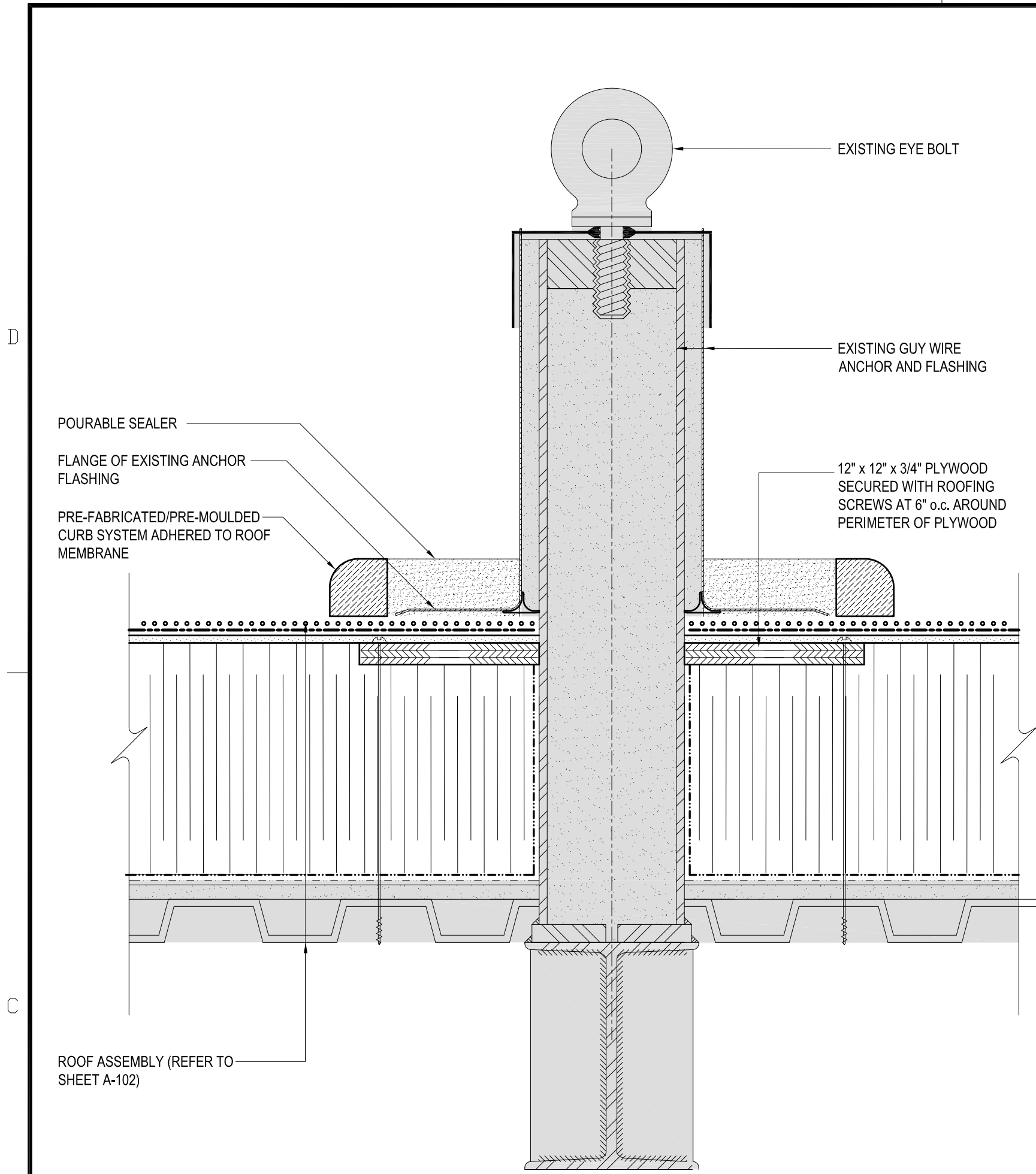
**3** THALER EQUIPMENT SUPPORT POST  
SCALE: 3" = 1'-0"



**4** SECTION AT PENTHOUSE WALL  
SCALE: 3" = 1'-0"



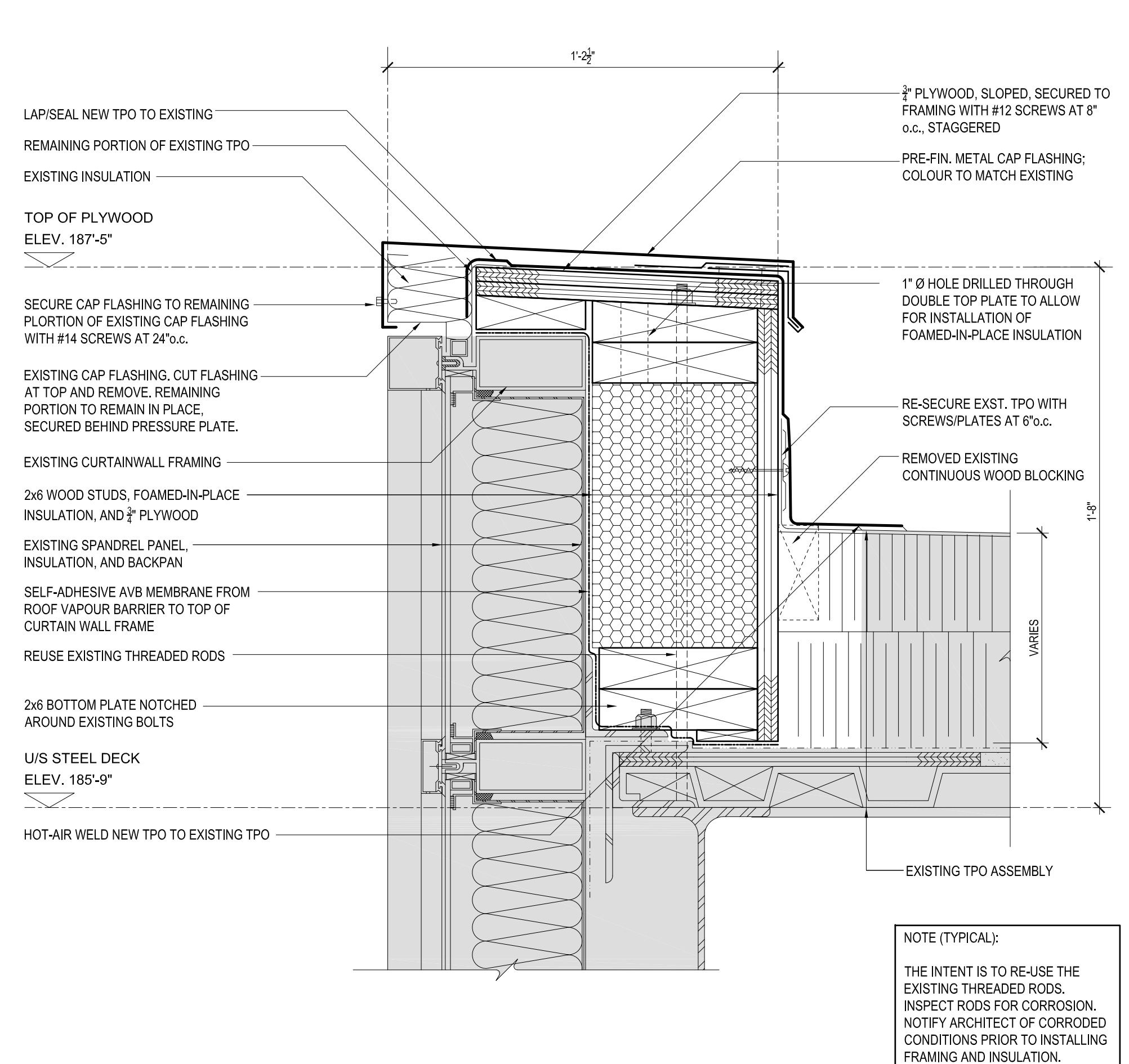
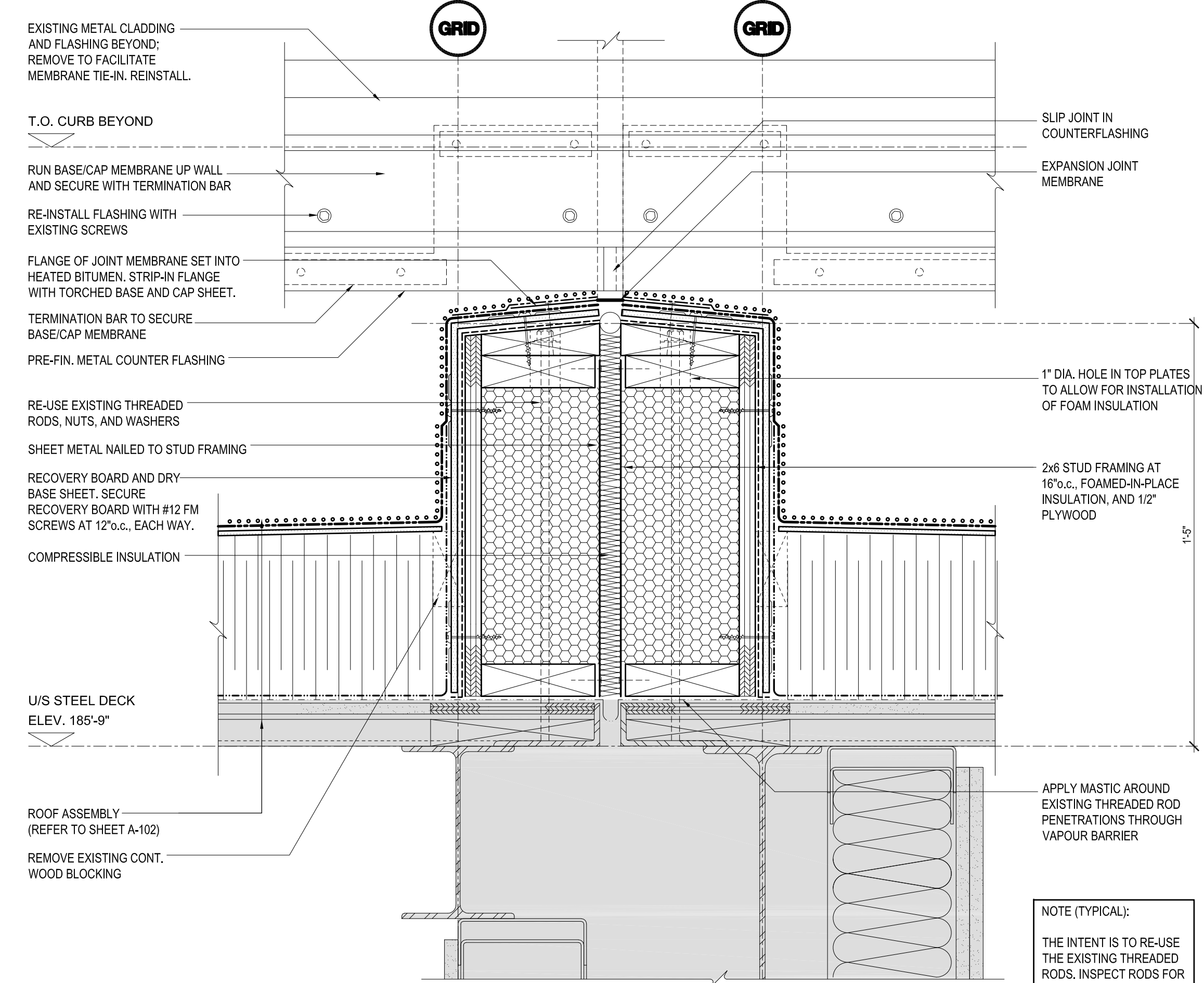
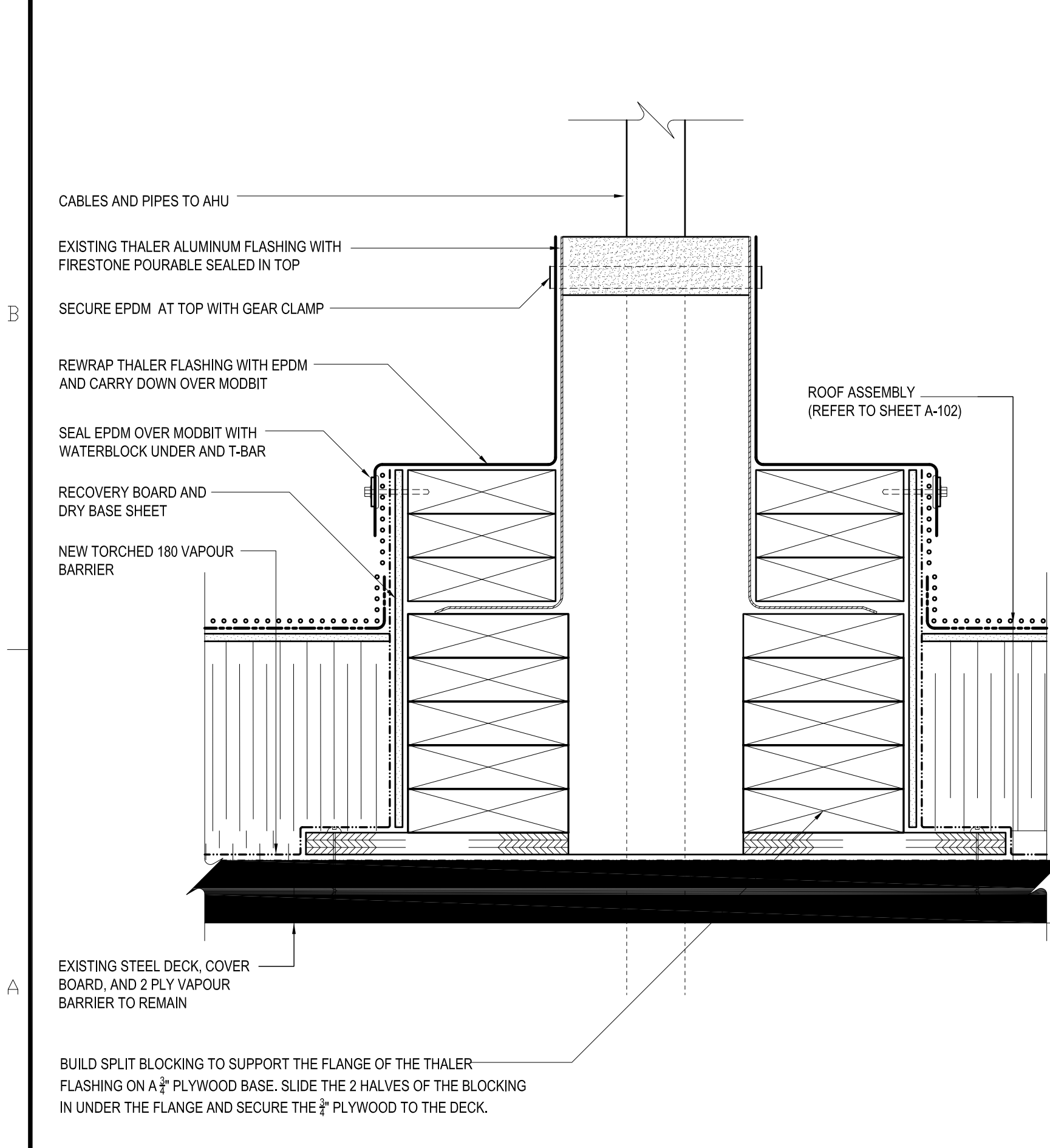
**5** SECTION AT CONC. COLUMN  
SCALE: 3" = 1'-0"



**1** SECTION AT GUY WIRE SUPPORT  
SCALE: 3" = 1'-0"

**3** EXPANSION JOINT 1  
SCALE: 3" = 1'-0"

**5** PARAPET AT METAL CLADDING (EXISTING TPO)  
SCALE: 3" = 1'-0"



**2** SECTION AT AHU CABLE AND PIPE FLASHING  
SCALE: 3" = 1'-0"

**4** EXPANSION JOINT 2  
SCALE: 3" = 1'-0"

**6** PARAPET AT CURTAINWALL (EXISTING TPO)  
SCALE: 3" = 1'-0"

**Halifax Regional Centre for Education**

KEY PLAN

LOGO

**FBM**  
ARCHITECTURE • INTERIOR DESIGN

H51-1650 Halls Street  
Halifax, Nova Scotia B3J 1V7  
Canada  
T: (902) 429-4100  
architect@fbm.ca  
fbm.ca

GRAPHIC SCALE

17 JUN 2020	ISSUED FOR TENDER
DATE	ISSUE

SCALE

DRAWN BY: LAA  
CHECKED BY: SD  
REVIEWED BY: SD  
APPROVED BY: GF  
AS-BUILT CHECK  
DATE:

PROJECT  
**CITADEL HIGH SCHOOL ROOF REPAIR**

HALIFAX, NOVA SCOTIA  
PROJECT NO.: 2019-102  
SHEET TITLE  
**SECTION DETAILS**

INTERNAL NO.:

**A-503**

SHEET OF