Halifax
Regional Centre for Education

RFT #4298

Roof Replacement - Halifax West High School

RFT Closing Date: Friday, May 29, 2026
RFT Closing Time: 2:00 PM (ATL)

Ready-for-Takeover Date: Friday, August 28, 2026

HRCE Procurement Contact:
Nancy Rideout, Purchasing Manager
Tel: (902) 464-2000 Ext 2222
Email: nrideout@hrce.ca

Operations Contact:
Patrick Ross, Project Manager
Tel: (902) 399-4345 (W)
Email: patrick.ross@hrce.ca

School Location:
Halifax West High School
283 Thomas Raddall Drive
Halifax, NS B3S 1R1

Mandatory Site Meeting for Bidders:
Tuesday, May 19 at 11:00 AM
Halifax West High School
Please meet at the School Entrance

RFT submission email address: hrcetenders@hrce.ca

To obtain documents, please download from the HRCE's Website:
https://www.hrce.ca/about-hrce/financial-services/tenders/tender-listing

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 a pandemic.

The Terms and Conditions of the RFT Package, including but not limited to the Contract Type and Supplementary Conditions, have been modified. It is the Proponent's Responsibility to review all sections of the RFT prior to submitting a Proposal/Bid.

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

1. General

The work of this contract includes the provision of all materials, labour, and equipment necessary to replace a roof section, as noted on the drawings and specifications prepared by **FBM Architecture.** This includes removal of hazardous materials required to complete the above work scope. The Hazardous Building Material Assessment and other important documents are included in the Appendices. An abridged scope description is as follows:

1.1 It is the intent of the Halifax Regional Centre for Education (HRCE) to have all work completed, to the point of Ready-for-Takeover, prior to **August 29, 2026**. 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.

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

1.3 The HRCE will be using the CCDC-2, 2020 to contract for this work. A copy of the Standard Construction Contract CCDC 2 – 2020 is available upon request and will form part of the Contract Documents.

1.5 HRCE's Supplementary General Conditions for the CCDC-2, 2020 applicable to this Work is available for review under Section 0073 00 of the RFT document.

2. Drawings

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 B3B 1X7

Nancy Rideout, Purchasing Manager
Office: (902) 464-2000 Ext 2222
nrideout@hrce.ca

Consultant:

FBM Architecture Ltd.
101-5560 Cunard Street
Halifax, NS B3K 1C4

Shawn Doyle
Office: (902) 429-4100 ext 113
doyle@fbm.ca

END OF SECTION 00 05 00

SECTION 00 21 13 – INFORMATION FOR PROPONENTS

Invitation:

1. Bid Call

1.1. The Halifax Regional Centre for Education (HRCE) will receive offers in the form of a bid from proponents which is signed and electronically received on or before the date and time specified on the cover page of this document. The HRCE deems the correct time to be the time indicated on the email received date and time. The email address to submit submissions and amendments is hrcetenders@hrce.ca. Submission files should be submitted in Adobe (pdf) format. If the electronic submission is larger than 30MB, proponents are asked to notify the HRCE Procurement Contact to make arrangements for an alternate secure submission method. If difficulties are encountered, kindly contact the HRCE Procurement team for assistance, at any time.

1.2. Bids received after the closing time/date will not be considered.

1.3. Proponents are to submit completed Request for Tender (RFT) documents by email. The electronic file should be named:

4298 – Roof Replacement – Halifax West

1.4. Bids will be opened at the time indicated on the cover sheet of this document. All bid submissions are subject to review after opening and before award of contract. The successful proponent and award amount will be posted on the Procurement Services website https://procurement-portal.novascotia.ca/tenders after award.

1.5. Amendments to the submitted offer will be permitted if received by email prior to bid closing and if endorsed by the same party or parties who signed and executed the offer.

1.6. Bid submissions **will not** be accepted by fax, mail, courier or hand delivery.

2. Intent

2.1. The intent of this Request for Tender (RFT) is to obtain an offer to perform all work associated with **RFT 4298, Roof Replacement – Halifax West High School** for a Stipulated Price Contract in accordance with the Contract Documents.

2.2. The HRCE will be using the CCDC-2, 2020 to contract for this work. A copy of the Standard Construction Contract CCDC 2 – 2020 is available upon request and will form part of the contract documents.

2.3. The HRCE Supplementary General Conditions for the CCDC-2, 2020, applicable to this work, is available for review under Section 0073 00 of the RFT document.

2.4. Ready-for-Takeover of the project is to be achieved on or before **August 29, 2026**.

2.4.1. In the event that the contract is not awarded within ten (10) business days of closing, the Ready-for-Takeover Date will be extended by one (1) business day for every business day that passes until the contract has been officially awarded.

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

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

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

2.7. The HRCE reserves the right to reduce the scope of work if the stipulated bid amount exceeds the budget for the relevant project.

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

4.2. RFT 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. Bid documents are on display at the offices of the Construction Association of Nova Scotia (CANS), Halifax, Nova Scotia.

5.2. Upon receipt of bid documents, proponents should verify that documents are complete. Proponents shall notify HRCE Procurement immediately should the documents be incomplete, or upon finding discrepancies or omissions in the bid documents.

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

6. Clarification and Addenda

6.1. Proponents must notify the HRCE Procurement Contact by email no less than **five (5)** working days before the RFT Closing regarding any questions, omissions, errors or ambiguities found in contract documents. If HRCE considers that correction, explanation or interpretation is necessary, a reply will be produced in the form of an addendum, a copy of which will be posted on the novascotia.ca/tenders and 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 RFT 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 Tender Form (section 00 41 13) acknowledging that addenda have been received.

6.5. Where the HRCE publishes Addenda modifying the terms of the RFT/RFP documents, or changing the Project or Contract Documents in any manner, HRCE shall not be liable for an expense, cost, loss, or any form of damage or damages incurred or suffered, whether directly or indirectly, by any Supplier or any other person in connection with or in any way relating to or resulting from the publication of an Addendum or Addenda, regardless of whether the publication occurs prior to or after a Supplier has submitted an RFT/RFP submission.

6.6. Any Addendum and all Addenda issued by HRCE shall be become part of the Contract Documents, unless specifically excluded from the Contract Documents in writing published by HRCE, and shall be allowed for in determining the total contract price.

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 bid documents stipulate a particular product, alternatives may be considered by the Consultant up to five (5) working days before the RFT closing date and time. Bidders must forward their written requests by email

to the HRCE Procurement Contact by email. Requests will be forward 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 bid 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 RFT 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 GC 3.6 of CCDC-2020.

11. Bid Submission

11.1. The email subject line or body must identify the name of the proponent/company and the RFT name and number.

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

12. Conditions of the Request for Tender (RFT) Process

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

13. Amendment or Withdrawal of Bids

13.1. Bid packages may be **withdrawn** from the RFT process in writing by email notification sent to the submission email address, prior to date and time of closing.

13.2. As previously stated in Section 00 21 13, item 1.6 - Amendments to the submitted offer will be permitted if received by email prior to the RFT closing time and if endorsed by the same party or parties who signed and executed the offer. If the amendment relates to the price, it must be labeled "Price Amendment" along with the RFT number of the project and the company name. The price amendment file must include the signed "Price Amendment Form" (Section 00 41 73).

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

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

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

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

14. Bid Ineligibility (Reason for Rejection)

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

14.1.1. The bid is not submitted on the required forms (Section 00 41 13) included herein.

14.1.2. The bid is submitted by facsimile or regular mail, or hand delivery.

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

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

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

14.1.6. All addenda have not been acknowledged.

14.1.7. Any other defect which, in the opinion of the HRCE, brings the meaning of the bid into question.

14.1.8. The required bid security is not provided within the Price Submission file.

14.1.9. 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 technical submission or price submission forms submitted by facsimile or mail delivery or hand delivery are not acceptable and will be rejected.

16. Right to Accept or Reject any Tender

16.1. The HRCE reserves the right to reject any bid in its sole and absolute discretion for any reason whatsoever and the HRCE will not necessarily accept the lowest bid.

16.2. The HRCE specifically reserves the right to reject all bids 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 bids.

16.3. Without limiting the generality of any other provision herein, the HRCE reserves the right to accept or reject any bid in accordance with item #14 above (Bid 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 bid received by the HRCE. The HRCE reserves the right to reject any or all bids, or to accept any bid, or portion thereof, deemed in its best interest.

16.5. In the event that more than one proponent submit bids in an identical amount, the HRCE will flip a coin to determine the successful contractor.

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

17. Right to Cancel Competition/No Award

17.1. Issuing an RFT/RFT implies no obligation on HRCE to accept any submission, or a portion of any submission. The lowest or any RFT/RFT submission will not necessarily be accepted.

17.2. Without limiting the generality of the foregoing, an RFT/RFT may be cancelled in whole or in part by HRCE in its sole discretion, whether before or after the time for RFT/RFT submissions has closed, when:

17.2.1. the RFT/RFT submission price exceeds the funds allocated for the purchase;

17.2.2. there has been a material change in the procurement requirements after the RFT/RFT has been issued;

17.2.3. information has been received by HRCE after issuance of the RFT/RFT that HRCE believes has materially altered the procurement or the need of HRCE for the procurement; or

17.2.4. there was insufficient competition in order to provide the level of service, quality of goods or pricing required.

17.3. If no compliant RFT/RFT submission is received in response to an RFT/RFT, the HRCE reserves the right to enter into negotiations with one or more suppliers in order to complete the procurement or to reject all Bids and re-issue the RFT/RFT on new or modified RFT/RFT Documents.

17.4. HRCE will be the sole judge of whether there is sufficient justification to cancel any RFT/RFT.

17.5. No action or liability will lie or reside against HRCE in its exercise of its rights under this section

18. Construction Contract Guidelines

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

19. Submission and Security Forms – Signatures

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

20. Bid Security

20.1. Proponents must submit within the sealed Price Submission file, one of the following: bid security in the form of a certified cheque, Irrevocable Letter of Credit, or Bid Bond on CCDC Form 220, in the amount of ten percent (10%) of the Bid Price made payable to, or naming HRCE (as obligee). This bid security **must** accompany the Price Submission as an electronic file. HRCE will request an original hard copy from the successful proponent as required.

20.2. Where bid bond is provided as bid security:

20.2.1. 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.

20.2.2. 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.

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

20.2.4. **A legible scanned copy of the bid bond or an electronic bid bond can be submitted with the bid via email. If requested by the HRCE, the vendor should be in agreement to provide the original bid bond without delay.**

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

20.3.1. 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.

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

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

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

20.4.2. 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).

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

20.4.4. **A legible scanned copy of the bid bond or an electronic bid bond can be submitted with the bid via email. If requested by the HRCE, the vendor should be in agreement to provide the original bid bond without delay.**

20.5. Return of Bid Security:

20.5.1. 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.

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

21. Contract Security (Performance Assurance) – <u>Required for contracts valued over $100,000</u>

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

21.2. The successful contractor shall maintain performance assurance in force for a period of not less than twelve (12) months after Ready-for-Takeover is achieved.

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

21.4. 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.

21.5. 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.

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

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

21.6.1.1. 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.

21.6.1.2. 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.

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

21.6.2.1. 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.

21.6.2.2. 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.

21.6.2.3. The amount remaining will be returned without interest after a period of not less than twelve (12) months after Ready-for-Takeover is achieved.

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

21.6.3. Where an Irrevocable Standby Letter or Credit is used as Contract

21.6.3.1 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).

21.6.3.2 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.

21.6.3.3 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.

21.6.3.4 The Irrevocable Standby Letter of Credit is to be in effect for a period of not less than twelve (12) months after the Ready-for-Takeover is achieved.

22 Insurance

21.6 Proponents shall refer to project documents for the amount of insurance, the duration of coverage, and an alternate type of insurance, if applicable.

Section 00 72 13 -General Conditions of Contract,
Section GC 11.1 – Insurance, and
Section 00 73 00 – Supplementary General Conditions for form of Insurance.

21.7 The contractor shall carry such insurance as is required to protect the contractor, any sub-contractor, the HRCE, their agents and employees from all claims which may arise from the operations under this contract. The amounts of such insurance shall not be less than 22.3 below.

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

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

22.3.1.1 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 (five million dollars) per occurrence.

22.3.1.2 Wrap-Up Liability insurance is to include 24 months (2 years) of completed operations.

22.3.2 Commercial Auto Liability insurance covering all owned, non-owned and hired vehicles for a minimum combined single coverage of $2,000,000 (two million dollars) per occurrence.

22.3.3 Builders Risk: All risks in the amount of the contract Stipulated Bid Price. Insurance requirements as stipulated in the CCDC 2-2020.

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

22.3.5 Contractors Pollution Liability Insurance limits of not less than $2,000,000 (two million dollars) per occurrence

22.4 Primary Insurance: The Contractor agrees that the insurance as required shall be primary and non-contributory.

22.5 No Limitation: The Contractor is responsible for determining whether the minimum insurance coverage amounts contained in this RFT are adequate to protect its interests. These minimum coverage amounts do not constitute limitations upon Supplier's Liability.

22.6 Endorsements – For the policies in item 22.3 above, there shall contain an endorsement naming the Halifax Regional Centre for Education and its affiliates as Additional Insured, and eliminating and removing any exclusion of liability for:

22.6.1 injury, including bodily injury and death to an employee of the insured or of the Halifax Regional Centre for Education, or

22.6.2 any obligation of the insured to indemnify, hold harmless, defend, or otherwise make a contribution to the Halifax Regional Centre for Education because of damage arising out of injury, including bodily injury and death, to an employee of the Halifax Regional Centre for Education.

22.7 The Contractor shall provide a certificate of insurance evidencing the above prior to work being performed. The HRCE also requires a complete copy of the Builder's Risk and Wrap-Up Liability policies, in addition to the Certificate of Liability Insurance.

22.8 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.

22.9 Insurance documents (certificate and policies) shall be provided to the Purchasing Department within the timeframe indicated on the award letter. These documents are required before a purchase order will be issued. Work is not authorized and shall not commence until receipt of the purchase order.

23 Proof of Competency of Proponent

23.1 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.

23.1.1 The Nova Scotia Construction Safety Association or an approved, recognized association or program.

23.2 Bid Signing

23.2.1 The bid form must be signed and under seal (as applicable) by a duly authorized signing officer(s) in their normal signatures.

23.3 Contract Time

23.3.1 The bidder, in submitting an offer, agrees to achieve Ready-for-Takeover of the work by the date indicated in the contract documents.

24 Offer Acceptance / Rejection

24.1 Duration of offer

24.1.1 Bids shall remain open to acceptance and shall be irrevocable for a period of ninety (90) days after the RFT closing date.

24.2 Award/Selection/Acceptance of Offer

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

24.2.1.1 Compliance with bid requirements

24.2.1.2 Bid Price Submitted

24.2.1.3 All requirements stated in the tender package

24.2.2 The Owner's evaluation of any and all bids will be final

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

25 Agreement

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

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

26 Post-Award Submissions

26.1 Upon receipt of the award letter, the successful contractor will provide the following documents within five (05) business days:

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

The Contractor shall supply the following:

26.1.1.1 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;

26.1.1.2 All required contract security and insurance documentation;

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

26.1.1.4 A detailed Schedule of Work

26.1.1.5 A completed Safety Plan; and,

26.1.1.6 A detailed listing of subcontractors to be used.

26.1.2 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.

26.1.2.1 The Contractor and subcontractors (if applicable) shall remain in good standing for the duration of the contract.

27 Taxes

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

27.2 HRCE is not exempt from HST. As a result, the aggregate amount of the bid for contracts is subject to HST; however, **prices submitted shall not include HST.**

27.3 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.**

27.4 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.

27.5 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.

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

28 Purchase Orders

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

29 Invoices

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

29.2 Applications for progress payments should be submitted to:

i) HRCE's Consultant, ***and***

ii) HRCE's Project Manager.

END OF SECTION 00 21 13

SECTION 00 41 13 – TENDER FORM

1. Salutation:

To: **HALIFAX REGIONAL CENTRE FOR EDUCATION**
33 SPECTACLE LAKE DRIVE, DARTMOUTH, NS B3B 1X7
ATTN: HRCE PROCUREMENT CONTACT

For: **RFT #4298 – Roof Replacement – Halifax West High School**

Organization Name:	
Street Address:	
Email Address:	
Telephone:	
Authorized Signing Authority:	
Position Title:	

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 RFT.

3. Proponent Agrees:

3.1. To provide all necessary equipment, tools, labour, incidentals and other means of construction to do all the work and furnish all the materials of the specified requirements

which are necessary to complete the work in accordance with the Contract and agrees to accept, therefore, as payment in full the Lump Sum Price stated in Subsection 6 hereunder.

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

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

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

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

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

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

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

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

4. Owner Agrees

4.1. To examine this bid 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 bids; 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 bid at any time before the time fixed as indicated in the section 00 21 13, item 13.1.

5. Contract Documents include:

The HRCE will be using the CCDC-2, 2020 to contract for this work. A copy of the Standard Construction Contract CCDC 2 – 2020 is available upon request and will form part of the Contract Documents.

The HRCE Supplementary General Conditions for the CCDC-2, 2020 application to this Work is available for review under Section 0073 00 of the RFT document.

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) – Section 00 52 00
5.1.9. Definitions (CCDC 2) – Section 00 52 13
5.1.10. General Conditions of the Stipulated Contract Price (CCDC 2) – 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. Other Supporting Documents in the RFT
5.1.15. Addenda issued by HRCE
5.1.16. Post Bid Addenda issued by the HRCE, where applicable.
5.1.17. Executed Contract

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 – BASE BID, TPO MEMBRANE ROOFING:

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

6.3 LUMP SUM PRICE – ALTERNATE BID, EPDM MEMBRANE ROOFING:

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

Award will be subject to Budget Availability.

The HRCE reserves the Right to:

- **Award to one or more contractors who bid**
- **Accept bids on any or all sections of this work**
- **Reduce the Scope of Work if the Bid amount Exceeds the Available Budget**

Contract Price to be completed in written form on the lines provided above, with cents expressed as numerical fraction of a dollar. Contract price to be completed in numerical form on the line bounded by parenthesis above, with cents expressed as a decimal of a dollar.

WHERE THERE IS A CONFLICT, WRITTEN WORD WILL GOVERN.

7. Completion Time:

7.1. The proponent agrees to achieve Ready-for-Takeover on or before the following date:

7.1.1.1. August 29, 2025

7.1.1.2. The undersigned Proponent agrees, if awarded the Contract, to achieve the Ready-for-Takeover Date, providing the contract is awarded within ten (10) business days of RFT closing time.

Addenda Acknowledgement

We have received and noted the following addenda:

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

8. Supporting Information

8.1. References: (Minimum of three)

Tenderer to furnish particulars of at least three (3) similar contracts successfully completed or currently being carried to completion. The projects quoted should preferably be approximate in nature to the work now tendered for and be of comparable or greater size. References are to be submitted with the bid prior to closing date and time.

Contact Name & Phone #	Date		Contract Value
	From	To	
			$
			$
			$
			$

8.2. Bid submission to include a minimum of two letters of endorsement from clients commenting upon the contractor's ability to deliver quality projects, similar in scope and size, which met schedule and budget.

9. Proof Of Competency of Tenderer

9.1. Any tenderer 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.

9.1.1. The Tenderer acknowledges, as part of their bid submission, their responsibility and contract obligations to ensure that the proposed sub-contractors will fully perform the project requirements and meet the timings as detailed in this tender call.

9.2. **Sub-Contractors:** The Tenderer to provide the name and address of each major sub-contractor used in making up this tender. This list of sub-contractors is to be submitted with the bid prior to closing date and time. Only one sub-contractor shall be named for each part of the work to be sublet.

Subcontractor/Suppliers/Manufacturers	Service/Material
Site Works	
Electrical	
Mechanical	
Building Controls	

9.2.1. **Project Personnel:** The Tenderer to include below, the names, qualifications and previous experience of those people who will be directly involved with the project. The names shall, for example, include foremen, superintendent, project engineer and/or project manager, labourer's and trade staff. This list of personnel is to be submitted with the bid prior to closing date and time.

Name	Position	Qualifications/Experience

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.

RFT 4298 – Roof Replacement – Halifax West High School

SIGNATURE:

SIGNED AND DELIVERED
in the presence of:

CONTRACTOR

_____
Company name

_____
Witness

_____
Signature of Signing Officer

_____
Name and Title (printed)

_____
Date

10. Acknowledgement of Student Safety

The Halifax Regional Centre for Education (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.

_____
Company name

_____
Witness

_____
Signature of Signing Officer

_____
Name and Title (printed)

_____
Date

END OF SECTION 00 41 13

SECTION 00 41 73 - PRICE AMENDMENT FORM
4298 – Roof Replacement – Halifax West High School

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

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

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

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

Submitted by:

_____

Company Name (please print as it appears on original RFT file)

_____

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

_____

Authorized Proponent's Signature

_____

Date

_____

END OF SECTION 00 41 73

SECTION 00 52 00 - AGREEMENT BETWEEN OWNER AND CONTRACTOR

CCDC 2 – 2020

(A copy of Section 00 52 00, Standard Construction Contract CCDC 2 – 2020 (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 - 2020

(A copy of section 00 52 13, Standard Construction Contract CCDC 2 – 2020 (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 - 2020

(A copy of section 00 72 13, Standard Construction Contract CCDC 2 – 2020 (22 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 – 2020

The Canadian Standard Construction Document for Stipulated Price Contract (CCDC 2, 2020 version), Definitions and General Conditions governing same, shall be used by the project. The following Supplementary General Conditions (the "**Supplementary 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.

2 ARTICLE A-5 PAYMENT

Change 5.2.1 to delete the letter "s" from the word "rates".

Change 5.2.1(1) to read: "1% per annum above the prime rate."

Delete 5.2.1(2) in its entirety.

Delete 5.2.2. in its entirety.

DEFINITIONS

Add the following defined term to the Definitions:

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.

3 GC 1.1 CONTRACT DOCUMENTS

Add to the end of subparagraph 1.1.6.2:

1.1.6.2 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 13.1.1.3.

Add subparagraph 1.1.4.1:

1.1.4.1 Notwithstanding GC 1.1.4, should one or more conflict exist between Contract Documents and any work is done without consulting the Consultant for correction, Additional information, or a finding, the Contractor shall assume full and sole responsibility for any Additional costs incurred related to the conflict(s).

4 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.

5 PART 3 EXECUTION OF THE WORK

6 GC 3.1 CONTROL OF THE WORK

Add new paragraphs 3.1.3 and 3.1.4:

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

3.1.4 The Contractor shall make all reasonable efforts to ensure that the Work is carried out in a continuous manner. The Contractor shall not knowingly permit Construction Equipment and/or Products to be stored at the Place of Work when they are not being used in

connection with or implemented into the Work, except in accordance with paragraph 3.7.7.1.

7 GC 3.6 SUBCONTRACTORS AND SUPPLIERS

Add the following paragraph 3.6.7:

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

8 GC 3.7 LABOUR AND PRODUCTS

Add the following paragraph 3.7.4:

3.7.4 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.

Add the following paragraph 3.7.5:

3.7.5 The Contractor shall confine Construction Equipment, Temporary Work, storage of Products, waste products and debris, and operations of employees and Subcontractors to limits indicated by laws, ordinances, permits, or the Contract Documents and shall not unreasonably encumber the Place of the Work.

Add the following paragraph 3.7.6:

3.7.6 The Contractor shall maintain the Work in a safe and tidy condition and free from accumulation of waste products and debris.

Add the following paragraphs 3.7.7.1 and 3.7.7.2:

3.7.7 1. The Contractor shall not permit Products or Construction Equipment to be stored at the Place of Work unless:

(i) the Products and/or Construction Equipment are used within fourteen (14) days of their arrival at the Place of Work; or

(ii) the Owner provides written permission for Products and/or Construction Equipment to be stored at the Place of Work, in which case the Contractor shall

comply with the written instructions provided by the Owner in that regard, and said permission may be withdrawn by the Owner upon five (5) business days' notice, in which case the Contractor will be solely responsible for any costs, losses, or damages the Contractor incurs in connection the withdrawal of said permission;

2. Notwithstanding any other provision of the Contract Documents, and subject only to the provisions of any Payment Legislation, the Owner shall not be liable to pay any amount greater than 25% of the actual cost of any Products and/or costs associated with Construction Equipment that is/are stored at the Place of Work and not used within 14 days of their arrival at the Place of Work. The Owner shall only become liable to pay for the remainder of said Products and/or costs of said Construction Equipment after those Products and/or Construction Equipment are actually used at the Place of Work and is/are invoiced in accordance with the terms of the Contract Documents.

Add the following paragraphs 3.7.8.1., 3.7.8.2, 3.7.8.3, and 3.7.8.4:

3.7.8 The Contactor shall:

.1 furnish competent and adequate labour and staff, who shall be in attendance at the Place of Work at all times, as necessary, for the proper administration, co-ordination, supervision, and superintendence of the Work;

.2 organize the procurement of all Products and Construction Equipment so that labour and staff will be available at the requisite times to complete the Work in accordance with GC 3.4 Construction Schedule;

.3 keep an adequate force of skilled workers at the Place of Work, as necessary, to complete the Work in accordance with all requirements of the Contract Documents and in accordance with GC 3.4 Construction Schedule; and

.4 provide the Owner, Project Manager, and Consultant, with the names, work addresses, and telephone numbers of the appointed representative of the Contract and other responsible field persons who may be contacted during non-working hours.

9 GC 3.8 SHOP DRAWINGS AND OTHER SUBMITTALS

Add the words "AND OTHER SUBMITTALS" to the Title after SHOP DRAWINGS in GC 3.8.

Add "and Submittals" after each instance of the words "Shop Drawings" in paragraphs 3.8.1, 3.8.2, 3.8.3, 3.8.3.2, 3.8.5, 3.8.6, and 3.8.7.

Add the following paragraph 3.8.1.1:

3.8.1.1 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 3.8.4.1:

3.8.4.1 The following paragraph shall apply to each Shop Drawing and Submittal reviewed in connection with the project. The Consultant's review conducted pursuant to GC 3.8.3 shall not imply that the Consultant has approved the detailed design inherent in the Shop Drawings or Submittals, responsibility for which shall remain with the Contractor submitting same. The Contractor is responsible for information that pertains solely to fabrication processes or to techniques of construction and installation, and for coordination of the work of all sub trades.

Delete the following words in paragraph 3.8.7:

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

Add new GC 3.9 as follows:

10 GC 3.9 CONTRACTOR RESPONSIBILITY FOR WATER TIGHTNESS

GC 3.9 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 3.10 as follows:

11 GC 3.10 PERFORMANCE BY CONTRACTOR

GC 3.10 In performing the Work and all 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.

12 GC 4.1 CASH ALLOWANCES

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 3.4, at which items called for under cash allowances and items that are specified to be purchased by the Owner and installed or hooked up by the Contractor are required to be at the Place of the Work 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.

13 GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

Delete section GC 5.1 in its entirety.

14 GC 5.2 APPLICATION FOR PROGRESS PAYMENT

Add to paragraph 5.2.1, "the Project Manager, " after the word "Owner".

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 therein. The form of the Statutory Declaration, Waiver of Lien, or receipt shall meet the approval of the Consultant.

Add the following paragraph 5.2.9:

5.2.9 The reference to payment for Products delivered to the Place of the Work in Article 5.2.8 shall not be construed as covering day-to-day financing of the Project. Products delivered to the Place of the Work shall be construed to mean major items of equipment or quantities of items that are essential for the expedient conduct of the Work.

Add the following paragraph 5.2.10:

5.2.10 The Contractor shall submit all applications for payment and invoices (with supporting documents as required by the Contract Documents) to the Owner via the following email address: operations-invoices@hrce.ca

15 GC 5.3 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 5.3.1.2 as follows:

5.3.1.2 Delete "28" and replace with "30."

16 GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK

Add the following paragraph 5.4.7:

5.4.7. 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.

Add the following subparagraph 5.4.8:

5.4.8 After the issuance of a certificate of Substantial Performance of the Work by the Consultant, the Contractor shall promptly submit to the Consultant and the Owner (i) a Certificate from a barrister stating that there are no Builders' Liens filed relating to the Work and (ii) a Clearance Letter from the Workers' Compensation Board.

17 GC 5.5 FINAL PAYMENT

Add the following subparagraphs 5.5.1.1, 5.5.1.2, 5.5.1.3, and 5.5.1.4:

5.5.1.1 The Contractor's application for final payment is considered to be valid only when all of 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, deficiencies have been completed, and the Place of Work is (i) free of waste products and debris, and (ii) clean and suitable for use or occupancy by the Owner.

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.

5.5.1.2 If Work is deemed incomplete by the Consultant, the Contractor shall complete outstanding items and request re-inspection.

5.5.1.3 If, within sixty (60) days after the issuance by the Consultant of the Certificate of 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 Documents and subject to the provisions of the Builders' Lien legislation of Nova Scotia.

5.5.1.4 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 when Ready-For-Takeover has been attained and the Contractor shall promptly 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 reasonably 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.

18 GC 6.2 CHANGE ORDER

Add the following paragraphs 6.2.3, 6.2.4, 6.2.5, 6.2.5, 6.2.6, 6.2.7, and 6.2.8:

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. The Contractor acknowledges that failure to do so will result in foreseeable delay to the approval and payment of changes in the Work and foreseeable Additional costs to the Owner.

6.2.5 Quotation for changes shall be priced in sufficient detail (GC 6.6 applies).

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

6.2.7 The Contractor shall take reasonable measures to stop Work or minimize the Work in areas affected by or related to the contemplated change(s).

6.2.8 For each change in the Work, the Contract Price shall be increased by the net cost of that change in the Work, plus the following mark-ups for all overhead and profits:

a. a 10% mark-up on the direct cost of the net change in the Work for change work performed by the Contractor’s own forces; and

b. a 5% mark-up on the change work performed by Subcontractors.

Credits for reduced or Deleted portions of the Work shall be the actual cost of that Work, without Addition or subtraction of any amount by the Contractor for overhead and profit, and shall be included in the actual cost of the net change.

19 GC 6.3 CHANGE DIRECTIVE

Delete paragraph 6.3.6.3 of GC 6.3 and replace with:

6.3.6.3. The Contractor's percentage fee referred to in paragraphs 6.3.6.1 and 6.3.6.2 shall be calculated and determined applying the following percentage mark-ups for overhead and profit:

a. a 10% mark-up on the direct cost of the net change in the Work for change work performed by the Contractor's own forces; and

b. a 5% mark-up on the change work performed by Subcontractors.

Add to GC 6.3 the following paragraphs 6.3.14 and 6.3.15:

6.3.14 If unit prices are set out in the Contract or subsequently agreed upon, then the unit process alone shall govern in relation to determining the cost of any item for a Change Directive.

6.3.15 Payment of the cost of performing work attributable to a Change Directive shall be made only if and to the extent that the Contractor has taken all reasonable steps to mitigate and minimize the impact of the change and the resulting cost.

20 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 3.10, 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 anything which could reasonably have been ascertained by the Contractor by such careful investigation undertaken prior to the submission of the bid.

21 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 Ready-for-Takeover date stated in Article A-1 herein (subject to any adjustment in accordance with the Contract Documents) and any later, actual date Ready-for-Takeover is attained by the Contractor.

Add new paragraph 6.5.7:

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

22 GC6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE

Add the following to the end of paragraph 6.6.1, deleting the "." after the word "Consultant":

> "in no case more than 10 Working Days from the event or series of events giving rise to the claim".

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.

Add the following paragraph 6.6.7:

6.6.7 If the Contractor claims for an increase in the Contract Price pursuant to this GC 6.6, the amount of any such claim shall be limited to the amount determined in accordance with the methods of quantification set out in paragraphs 6.3.6, 6.3.7, and 6.3.14 of GC 6.3, and the Contractor shall promptly submit a detailed breakdown of all labour, materials, overhead, and profits claimed, including those of Subcontractors. Contemporaneous records are required to support a claim for an increase in the Contract Price, and the Owner retains the right to verify all submitted records through an independent audit. The Owner is not liable for costs not so substantiated. Any mark-up for overhead and profit on the claimed amount under this GC 6.6 shall be limited to the amounts provided for under GC 6.3.6.3, as Amended by these Supplementary Conditions.

23 GC 8.3 NEGOTIATION, MEDIATION, AND ARBITRATION

Add the following paragraphs 8.3.9, 8.3.10, 8.3.11, 8.3.12, 8.3.13, 8.3.14, and 8.3.15:

8.3.9 Within five (5) days of receiving a Notice in Writing requesting arbitration, the party receiving the notice shall give the Consultant a written notice containing:

a. a copy of the Notice in Writing requesting arbitration;

b. a copy of supplementary conditions 8.2.9 to 8.2.14 of this contract, and;

c. a concise description of 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.

8.3.10 The Owner and the Contractor agree that the Consultant may elect, within ten (10) days of receipt of the notice under paragraph 8.3.9, to become a full party to the arbitration under paragraph 8.3.6 if the Consultant:

a. has a vested or contingent financial interest in the outcome of the arbitration;

b. gives the notice of its 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 8.3.6, and;

d. agrees to be bound by the arbitral award made in the arbitration.

8.3.11 If an election is made under paragraph 8.3.10, the Consultant may participate in the appointment of the arbitrator and, notwithstanding the rules referred to in paragraph 8.3.6, 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.

8.3.12 The arbitrator in the arbitration in which the Consultant has elected under paragraph 8.3.10 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 8.3.10, and;

b. make any procedural order considered necessary to facilitate the Addition of the Consultant as a party to the arbitration.

8.3.13 The provisions of paragraph 8.3.9 shall apply mutatis mutandis to written notice to be given by the Consultant to any sub-consultant.

8.3.14 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 8.3.10, and is deemed to be bound by the arbitration proceeding.

8.3.15 An application for arbitration shall be accompanied by security in the amount of $1,000 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.

24 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 or omissions in the Contract Documents which the Contractor could not have discovered applying the standard of care described in paragraph 3.10.

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 the Work exercising the degree of care and skill described in paragraph 3.10.

25 GC 9.2 TOXIC AND HAXARDOUS SUBSTANCES

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

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

26 GC 9.4 Construction Safety

Add to the end of paragraph 9.4.1:

The Contractor shall be responsible for and ensure the safety of not only the workers, Subcontractors, tradespeople, and Suppliers, and their equipment, but also of all other persons who enter the Place of Work whether during working hours or not, and for that purpose shall erect such hoardings and signs and shall employ such safety measures as may be necessary to ensure the safety of such persons.

Delete paragraph 9.4.5 and replace with:

The Contractor shall be responsible for the cost to comply with any public health order(s) affecting the performance of the Work issued pursuant to the Health Protection act (Nova Scotia) or pursuant to any similar legislation, whether Federal or Provincial.

27 GC 9.5 MOULD

Add in subparagraph 9.5.3.4:

9.5.3.4 “and the Consultant” after “Contractor”

28 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. The Contractor’s HST registration number must appear on all invoices.

29 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 3.10, the”

30 GC 10.4 WORKERS' COMPENSATION

Add the following paragraphs 10.4.2, 10.4.3, 10.4.4, and 10.4.5:

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

10.4.3 The Contractor’s registration with the 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 its registration renewal one month prior to the expiration of the current certificate.

10.4.4 The Contractor shall furnish evidence of coverage under the Worker’s Compensation Act of Nova Scotia and a clearance Certificate providing proof of registration with the Worker’s Compensation Board prior to commencement of the 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.

10.4.5 The Contractor shall also maintain a Certificate of Recognition (COR) from a safety audit company recognized by the Workers’ Compensation Board, such as the Nova Scotia Construction Safety Association, for the duration of the Contract. The Contractor shall provide a copy of its COR to the Owner and Consultant prior to commencement of the Work and shall provide a copy of its COR to the Owner or Consultant upon request.

GC 11.1 INSURANCE

Delete sentences and replace with the following in subparagraph 11.1.1.1:

11.1.1.1 **Delete**: "General liability insurance shall be maintained from the commencement of the Work until one year from the date of Ready-for-Takeover. Liability coverage shall be provided for completed operations hazards from the date of Ready-for-Takeover on an ongoing basis for a period of 6 years following Ready-for-Takeover" **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 Ready-for-Takeover".

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, broad form property damage, broad form 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 ten million dollars ($10,000,000) is required with regard to operations of owned and non-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 to be 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 Ready-for-Takeover being attained, 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 Ready-for-Takeover;

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 supplemented as follows:

11.1.2 In addition, within seven (7) working days after notification of award or in any event prior to payment of the first progress claim, the Contractor shall submit certified true copies of each insurance policy to the Owner's Contract Authority. 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.

31 GC 11.2 CONTRACT SECURITY

Add the following paragraphs 11.2.1, 11.2.2, and subparagraph 11.2.2.1:

11.2.1 The Contractor shall, prior to commencement of the *Work* or within the specified time, provide to the *Owner* and the Consultant the *Contract* security specified in the *Contract Documents*.

11.2.2 If the *Contract Documents* require surety bonds to be provided, such bonds shall be issued by a duly licensed surety company authorized to transact the business of suretyship in the province or territory of the *Place of the Work* and shall be maintained in good standing until the fulfillment of the *Contract*. The form of such bonds shall be in accordance with the latest edition of the CCDC approved bond forms, or in such other form as specified by the Owner.

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 Ready-for-Takeover.

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. The Contract shall 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).

32 GC 12.3 WARRANTY

In paragraph 12.3.2, delete from the first line the word, "The" and substitute the words:

12.3.2 "Subject to paragraph 3.10, 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.

33 GC 13.3 INDEMNIFICATION

Add the following paragraph 13.1.1.3:

13.1.1.3 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 t Ready-for-Takeover, or within such shorter such period as may be prescribed by any limitation statute or the province or territory of the Place of the Work.

END OF SECTION 00 73 00

SECTION 01 11 00 - HRCE SUMMARY OF WORK

1. Project Location & General Scope

1.1. Halifax West High School, 283 Thomas Raddall Drive, Halifax, NS B3S 1R1

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 contract.

3. General Conditions

3.1. Halifax Regional Centre for Education and CCDC-2 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 Contact 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.** Obligee for Performance and Payment Bonds from Sub-contractors.
- **1.1.6.** Progress Claims.
- **1.1.7.** CO's & CCO's.
- **1.1.8.** Construction Schedule.
- **1.1.9.** Project Start-up.
- **1.1.10.** Job Meetings.
- **1.1.11.** Superintendent – General Contractor's Representative.
- **1.1.12.** Design / Administration authority.
- **1.1.13.** Owner's Representative.
- **1.1.14.** Special Consultants.
- **1.1.15.** Quality of Workmanship.
- **1.1.16.** Accountability.
- **1.1.17.** Harmonized Sales Tax.
- **1.1.18.** Contract Close-out Documentation.

2. Preconstruction Meeting

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

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

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

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

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

3. Progress Meeting

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

4. Suggested Agendum (Preconstruction Meeting)

4.1. Distribution and discussion of:
- **4.1.1.** List of major subcontractors and suppliers.
- **4.1.2.** Projected Construction Schedules.

4.2. Critical work sequencing.
4.3. Major equipment deliveries and priorities.
4.4. Project Coordination:
- **4.4.1.** Designation of responsible personnel.

4.5. Procedures and Processing of:
- **4.5.1.** Field decisions
- **4.5.2.** Bid 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/Toolbox 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:

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:

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:

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:

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, mold, fumes, lead or asbestos exposure may and have been identified, (Reference Hazardous Building Materials Assessment in Appendices).

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 widespread levels of contaminant which must be controlled to prevent exposure to building occupants. Boiler cleaning, ceiling replacement, long periods of hammer drilling, etc.

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

9. Hazard Assessment

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

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

10. Contaminant Controls

Procedure for initiating work for all Contaminant Controls:

10.1. Contaminant Control I

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

10.3.2. Seal all wall penetrations

10.3.3. Seal off all return and supply air handling ducts and close all windows.

10.3.4. Turn off the air handling system in the area of construction.

10.3.5. Maintain negative air pressure in the construction area using HEPA filter equipped exhaust ventilation. The pressure differential between the project area of contamination and the building's occupied areas shall be demonstrable by a means approved by the HRCE employee responsible for the project.

10.3.6. Ensure that the air is exhausted directly outside and away from intake vents.

10.3.7. Vacuum all horizontal surfaces including drop cloths with a hepa vacuum.

10.3.8. Remove drop clothes

10.3.9. Vacuum again all horizontal surfaces with HEPA Vacuum.
10.3.10. Restore ventilation.
10.3.11. Remove enclosure and equipment.

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

Fire Protection
10.5. Type V: General Fire Protection
10.5.1. Ensure fire exiting requirements and life safety systems are addressed or adequate mitigating plans are implemented for the building, construction staff and building occupants. Staff must be aware of temporary modifications to fire safety plans.
10.5.2. MSDSs for all materials to be used must be reviewed and available on site.
10.5.3. Construction materials stored outside must be a minimum distance of ten feet from the building and be in a secured area.
10.5.4. Flammable or Combustible liquids must be stored as per Fire Code requirements. All flammable and combustible liquids or materials must be kept in a secure area at all times.
10.6. Control VI: Fire Protection (minor hot work) - All Contaminant Control V shall apply as well as;
10.6.1. Notify the Principal that a risk of fire has increased and the area in which the hot work will occur.
10.6.2. Refer and implement the HRCE's hot work permit process. At a minimum the following should be considered;
10.6.2.1. Sweep the work area and remove all unnecessary materials in the vicinity; particularly all combustible and flammable materials and liquids shall be removed from the area (35 feet).

10.6.2.2. Have an appropriate size fire extinguisher available.

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

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

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

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

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

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

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

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

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

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

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

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

10.6.5.5. Before hot work is started, designate one employee responsible to complete the fire watch: while work is in progress, during lunch breaks and other breaks and for one hour after all flames are extinguished for the day and monitor the area for an additional

two hours. After three hours after the last flame has been extinguished, have a second employee do a final survey of the area for smells or evidence of smoldering or fire and record the inspection.

APPENDIX
Fire Watch Activation Checklist

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

Fire Watch De-Activation Checklist

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

END OF SECTION 01 35 13

SECTION 01 35 29 - OCCUPATIONAL HEALTH & SAFETY REQUIREMENTS

1. References

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

2. CONSTRUCTION SAFETY MEASURES

2.1. Observe construction safety measures of:

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

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

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

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

3. Equipment & Tools

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

4. WHMIS

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

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

5. Hazardous Material

5.1. A site specific HBMA has been provided in the Appendices for Halifax West High School. Asbestos containing material within the areas of work is present and will be required to be removed to complete the project workscope as per the contract documents. Contractors shall follow HRCE's Asbestos Management Program, (AMP), and all other applicable safety measures listed within the contract documents.

5.2. 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.

5.3. 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.

Safety Document Headings

10.2. Employee Safety Training

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

10.3. Company Safety Policy

10.3.1. 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.

10.4. Company Safety Rules in General Terms

10.4.1. 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.

10.5. Hazard Assessment

10.5.1. 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 workplace.

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

10.6. Emergency Action Plan

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

10.6.2. Arrange content under the following sub-headings:

10.6.2.1. First Aid

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

10.6.2.2. Contact of Emergency Support Groups:

10.6.2.2.1. 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.

10.6.2.2.2. Cessation of Work:

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

10.7. Joint Occupational Health & Safety Committee/Representative:

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

OCCUPATIONAL HEALTH & SAFETY SUMMARY FOLLOWS THIS PAGE

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

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

Indicate the applicable # number below:

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

List new Contractors on Site below:

_____
_____
_____
_____
_____
_____

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

Check

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

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

Prepared by

_____
(Contractor Project Manager)

Certified by

_____
(Contractor Senior Management)

END OF SECTION 01 35 29

SECTION 01 37 00 - SCHEDULE OF VALUES

1. Related Documents

1.1. General Conditions of Contract.

2. General

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

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

3. Form Of Submittal

3.1. Form included at end of this Section.

4. Preparing Schedule Of Values

4.1. Itemize separate line-item cost for work required.

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

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

5. Review And Submittal

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

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

SCHEDULE OF VALUES

Project Name ***RFT #4298 – Roof Replacement – Halifax West High School***

Architect .....

Contractor .....

Date .....

RFT #4298 – Roof Replacement – Halifax West High School

Halifax Regional Centre for Education – Schedule of Values		
Contract Item	**Percentage**	**Dollar Value**
Mobilization, bonding / insurance, safety, set up and schedule		
Demolition/removals		
Roofing Materials		
Installation: deck sheathing and vapour barrier.		
Wood Components: materials and installation.		
Installation: insulation, cover board, and roof membrane.		
Metal flashings		
Close out documentation, including copy of warranty		
Total	**100 %**	

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 liters 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 liters for work purposes, requires the permission of the Fire Chief.

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

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

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

6.6. Flammable and combustible waste liquids, for disposal, will be stored in approved containers located in a safe ventilated area. Quantities are to be kept to a minimum and the Fire Department is to be notified when disposal is required.

7. Hazardous Substances

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

7.2. Where flammable liquids, such as lacquers or urethanes are to be used, proper ventilation will be assured, and all sources of ignition are to be eliminated. The Fire Chief is to be informed prior to and at the cessation of such work.

8. Questions and/or Clarification

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

9. Fire Inspection

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

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

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

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

10. Reference Standards

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

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

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

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

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

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

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

END OF SECTION 01 41 00

SECTION 01 45 00 - QUALITY CONTROL

1. Section Includes

1.1. Inspection and testing, administrative and enforcement requirements

1.2. Tests and mix designs.

1.3. Mock-ups.

1.4. Mill tests.

1.5. Equipment and system adjust and balance.

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

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

1.8. Cutting & Patching: Section 01 11 41.

2. Related Sections

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

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

2.3. Section 01 77 00 Contract Closeout.

3. REVIEW OF WORK

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

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

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

4. Inspection, Special Tests, Approvals

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

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

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

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

5. Independent Inspection Agencies

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

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

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

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

6. Access To Work

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

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

7. Procedures

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

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

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

8. Rejected Work

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

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

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

9. Reports

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

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

10. Tests and Mix Designs

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

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

11. Mock-Up

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

11.2. Construct in all locations as specified in specific Section.

11.3. Prepare mock-up for Owner's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in the Work.

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

11.5. If requested the Owner will assist in preparing a schedule fixing the dates for preparation.

11.6. Mock-ups may remain as part of the Work, unless specified otherwise in the Contract Documents.

12. Mill Tests

12.1. Submit mill test certificates as may be requested.

13. Equipment And Systems

13.1. Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

13.2. Refer to Contract Documents for definitive requirements.

END OF SECTION 01 45 00

SECTION 01 52 00 – CONSTRUCTION & TEMPORARY FACILITIES

1. General

1.1. Include in the Work construction and temporary facilities required as construction aids or by jurisdictional authorities or as otherwise specified. Install to meet needs of construction as Work progresses. Maintain construction and temporary facilities during use, relocate them as required by the Work, remove them at completion of need and make good adjacent Work and property affected by their installation.

1.2. Include in the Work construction and temporary facilities to provide for construction safety such as: fences, barricades, bracing, supports, storage, sanitation and first aid facilities, fire protection, stand pipes, electrical supply, construction equipment with its supports and guards, stairs, ramps, platforms, runways, ladders, scaffolds, guardrails, temporary flooring, rubbish chutes, and walkway, morality and guard lights, and as otherwise required of the Constructor by the Construction Safety Act, of the Province of Nova Scotia, as well as all other applicable regulations or jurisdictional authorities.

1.3. Construct temporary Work of new materials unless use of second-hand materials is approved.

1.4. Ensure that structural, mechanical, and electrical characteristics of temporary facilities are suitable and adequate for use intended. Be responsible that no harm is caused to persons and property by failure of temporary facilities because of placing, location, stability, protection, structural sufficiency, removal, or any other cause.

1.5. Locate temporary facilities as directed and coordinated with School Administration and HRCE.

1.6. Relocate construction and temporary facilities as required by the Progress of the Work, and remove at completion of Work.

1.7. Do not permit construction personnel to use new washroom and toilet facilities.

1.8. Interior work zones to be complete with temporary negative air ventilation units to be functioning at all times to control dust migration to occupied areas.

1.9. Refer also to HRCE Policies & Guidelines contained in Appendix A of Section 01 35 13.

2. Services

2.1. Temporary Electric Power:

2.1.1. The Contractor will provide a source of electric power for all construction purposes.

2.1.2. Coordinate with the Building Operator locations of power sources and arrange to connect under his direction.

2.1.3. Install electric service distribution conductors and necessary components. Determine anticipated demand which will be placed on service during normal peak periods and obtain approval on this basis before making installation. Supply power of characteristics required by the Work. Install a power center 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 Contract Documents provided the Consultant 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 in accordance with GC 5.4 and the Contract Documents.

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. Subject to the provisions of the Contract Documents, 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 the Ready-for-Takeover date.

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 bid is compliant.
- Required Bid Security – 10% of the Contract price before HST.
- Please include a copy of your bid security with your Tender Form.
- Insurance Certificate
- Please submit your bid electronically by email to: hrcetenders@hrce.ca
- The HRCE will be using the CCDC-2, 2020 to contract for this work. A copy of the Standard Construction Contract CCDC 2 – 2020 is available upon request and will form part of the contract documents.
- HRCE's Supplementary General Conditions for the CCDC-2, 2020 applicable for this work is available for review under Section 0073 00 of the RFT document.

Post Award Document Requirements:

- Certificate of Recognition from a safety audit organization, jointly signed with the WCB
- Workers' Compensation Board Letter of Good Standing.
- Contract Security documentation – if required
- Complete Insurance Certificate – As identified in the RFT.
- Schedule of Values
- Detailed Schedule of Work
- Site Specific Safety Plan
- Hazard Assessment
- Listing of subcontractors
- Warranty information

The award letter will list the specific documents required and provide a submission timeframe.

A purchase order will be issued only after receipt of all required items.

Work is not authorized until purchase order is issued.

Project Experience and References Form

Project #1 – The most recent HRCE project, if applicable.

Company Name	
Brief Project Description	
Project Manager Name	
Project Dollar Value $	
Reference Name and Position Title	
Reference Contact Info **- Email Address** **- Phone Number**	

Project Experience and References Form

Project #2 – The next most recent HRCE project, if applicable

Company Name	
Brief Project Description	
Project Manager Name	
Project Dollar Value $	
Reference Name and Position Title	
Reference Contact Info **- Email Address** **- Phone Number**	

Project Experience and References Form

Project #3 – Any recent project

Company Name	
Brief Project Description	
Project Manager Name	
Project Dollar Value $	
Reference Name and Position Title	
Reference Contact Info **- Email Address** **- Phone Number**	

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	902-470-8161
Ambulance	911	Dangerous Goods	1-888-226-8832
Doctor	911	Waste Disposal	311
Police	911	Insurance	
HRCE Main Office	902-464-2000	Min/Dept of Labour	1-844-424-5301
Min./Dept. Of Transport.	(902) 424-2297	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 902-493-5110, after 4:00 pm 902-442-2476**

SAFETY MEETINGS:

On this project, given the nature of the work and the anticipated size of the workforce, 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, and 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 RELATED REQUIREMENTS

.1 Section 07 01 50, Preparation for Reroofing.

.2 Section 07 53 23, EPDM Membrane Roofing.

.3 Section 07 54 23, TPO Membrane Roofing.

.4 Section 07 62 00, Sheet Metal Flashing and Trim.

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 A653/A653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.3 ASTM D1761-12, Standard Test Methods for Mechanical Fasteners in Wood.

.4 ASTM E1333-14, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.

.5 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 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 Applies to roofing screws only.

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.

.3 Dimensions: as indicated.

2.2 PANEL MATERIALS

.1 Exterior grade plywood: exterior grade Douglas Fir (DFP) to CSA O121, 19mm or 13mm thickness, as indicated; waterproof glue bond;

.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 Screws for securing lumber and plywood at parapets and curbs: #12, unless indicated otherwise, self-drilling with flat or pancake head, to FM Approvals 4470.

.1 Length: to achieve 38mm minimum embedment into underlying wood member.

.2 Acceptable Manufacturer: Trufast, or approved alternative.

.5 Masonry/concrete anchors; one of the following:

.1 Steel screws designed for anchoring to concrete and masonry substrates, 6mm diameter, flat head, with 38mm minimum embedment.

.1 Genuine Tapcon, by ITW, or approved alternate.

.2 Pin bolts: light duty pin bolt anchor assembly comprised of corrosion resistant zinc/aluminum alloy anchor body with stainless steel pin; length to provide 38mm minimum embedment into existing masonry, 6mm (1/4") diameter.

.1 Standard of acceptance: Zamac Pin Bolt, by UCAN.

.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.

2.4 FASTENER FINISHES

.1 Galvanizing: use hot-dipped galvanized fasteners complying with ASTM A153 and connectors complying with ASTM A653, class G185, for all other applications.

.2 Screws: to FM Approvals 4470.

Part 3 Execution

3.1 COMPLIANCE

.1 Comply with requirements of National Building Code of Canada 2020 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.

3.2 INSTALLATION

.1 Install members true to line, levels and elevations, square and plumb.

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

.3 Plywood at steel deck: Secure plywood to existing deck below curbs, and at roof drains as indicated.

.4 Stacked wood blocking:

.1 Install wood blocking as indicated, per detail.

.5 Framed curbs:

.1 Construct in sections with studs spaced at 406mm on center with continuous top and bottom plates end nailed to studs; two framing nails per stud at top and bottom. Toe nailing is not acceptable.

.2 Secure framed sections to plywood/steel deck, as indicated, with specified FM screws at 200mm on center, staggered, through bottom plate.

.3 Secure plywood or lumber top plate, as indicated, to framed section top plate with specified FM screws at 200mm on center, staggered. Offset end joints from top plate below.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with HRCE's Requirements. Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment. Perform cleaning after installation to remove construction and accumulated environmental dirt.

.3 Manage and dispose of demolition and construction waste materials.

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 SUMMARY

.1 Section Includes:

.1 Complete removal of existing roofing materials, as indicated.

.2 Existing Roofing Systems:

.1 TPO membrane roofing, as indicated on A-101.

1.2 RELATED REQUIREMENTS

.1 New Roofing System: Section 07 53 23, EPDM Membrane Roofing.

.2 New Roofing System: Section 07 54 23, TPO Membrane Roofing.

.3 Sheet Metal Flashing: Section 07 62 00, Sheet Metal Flashing and Trim.

1.3 PRECONSTRUCTION MEETING

.1 Conduct preconstruction meeting within fifteen (15) days after award of contract, or in accordance with HRCE's requirements.

.2 Required Participants:

.1 Contractor's project manager.

.2 Contractor's foreman.

.3 Consultant.

.4 HRCE's project manager.

.3 Meeting Agenda: In addition to items required by HRCE, the following items are to be addressed at the meeting:

.1 Removal and installation schedule and sequence.

.2 Preparatory work.

.3 Protection before, during, and after installation.

.4 Temporary roofing including daily terminations.

.5 Transitions and connections to other work.

1.4 SUBMITTALS

.1 Submit manufacturer's literature and data for products used to achieve a watertight vapour barrier/temporary roof, including:

.1 Description of each product.

.2 Description of temporary roof system and components.

.3 Description of patching materials.

.4 Description of tie-in/transition to existing asphalt membrane roofing.

1.5 QUALITY ASSURANCE

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

.2 Installer Qualifications: Same as required for Section 07 54 23, TPO Membrane Roofing and 07 53 23, EPDM Membrane Roofing.

1.6 FIELD CONDITIONS

.1 Examine information provided in the Contract documents before beginning work of this section.

.2 Weather Limitations: Proceed with reroofing preparation and removals only during dry weather conditions as specified for new roofing installation in Section 07 54 23, TPO Membrane Roofing and 07 53 23, EPDM Membrane Roofing.

.3 Remove only as much roofing in one day as can be made watertight in same day.

.4 Do not disturb suspected hazardous materials. When discovered, notify HRCE immediately.

.5 Ensure Work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.6 Fires and burning of waste or materials is not permitted on site.

.7 Do not bury rubbish waste materials.

.8 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.

.9 Ensure proper disposal procedures are maintained throughout project.

.10 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.

.11 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction.

.12 Protect trees, plants and foliage on site and adjacent properties where indicated.

.13 Protect adjacent vehicles and parking areas.

.14 Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.

1.7 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.

.3 Do not proceed with Work until conditions have been reviewed by Consultant and deemed acceptable.

1.8 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's 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.

1.9 WARRANTY

.1 Provide warranty as required for Section 07 54 23, TPO Membrane Roofing and 07 53 23, EPDM Membrane Roofing.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Refer to Section 07 54 23, TPO Membrane Roofing and 07 53 23, EPDM Membrane Roofing.

PART 3 - EXECUTION

3.1 EXAMINATION

.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 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 thermal barrier to insulation and insulation cover board layers as work progresses. The roofer is responsible for repair of any damaged services.

3.2 PREPARATION AND PROTECTION

.1 Cover walls, walks and adjacent work where materials are hoisted or used.

.2 Use warning signs and barriers. Maintain in good order until completion of Work.

.3 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. Coordinate location of stair tower with HRCE.

.4 Fencing:

.1 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.

.2 Fencing shall be continuous around the work area. Ensure that fencing is properly secured and anchored at its base to prevent displacement and collapse.

.5 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.

.6 Waste disposal Bins: Coordinate location of bin with HRCE.

.7 Clean off drips and smears of primer and adhesive material immediately.

.8 Protect post and chain railing around perimeter of roof area.

.9 Protect adjacent exterior wall surfaces from damage, including surface contamination (primer and bonding adhesive, for example).

.10 Protect roof from traffic and damage.

.11 Do not impede drainage with roof protection materials.

.12 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.

.13 Examine and verify substrate suitability for product installation.

.14 Maintain temporary protection until replacement roofing is completed.

.15 Protect existing construction and completed work from damage.

.16 Maintain access to existing exits and walkways.

.17 Coordinate use of rooftop fresh air intakes with HRCE's Representative to minimize effect on indoor air quality.

.18 Ensure temporary protection materials are available for immediate use in case of unexpected rain.

.19 Keep drainage systems clear of debris. Use filter fabric at drains.

.20 Prevent water, dust, and debris from entering building and existing roofing system.

.21 Coordinate rooftop utilities remaining active during roofing work with HRCE's Representative.

3.3 ROOFING SYSTEM REMOVAL

.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 from site and dispose of at designated disposal facilities in safe manner and in accordance with TDGA and other applicable requirements and Sections.

.3 Remove existing roofing assembly components down to the level of existing deck.

.4 Demolish and remove existing roofing elements as indicated. Removed elements include, but are not limited to, the following items:

.1 TPO membrane, cover board layer, insulation, vapour barrier, deck sheathing, and related wood blocking, metal flashings, membrane flashings, and fasteners.

.2 Concrete pad.

.3 Concrete pavers (currently used as temporary ballast).

.4 Drains.

.5 Vent flashings.

.6 Exhaust fans and vents (reinstall).

.5 Remove material in sections as work progresses.

.6 At end of each day's work, leave Work in safe and stable condition.

.7 Demolish to minimize dusting.

.8 Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.

.9 Remove all existing roofing fasteners.

.10 Dispose of all debris legally off site.

3.4 DECK PREPARATION

.1 Visually inspect existing deck. Notify consultant immediately of damaged or deteriorated steel deck conditions.

.2 Install deck sheathing per Section 07 53 23, to receive primer and vapour barrier membrane.

.1 Cleaning of steel deck:

.1 Field areas (adhered deck sheathing): Clean upper deck rib surfaces thoroughly. Remove asphalt, oils, primers, etc. and any other contaminants that are detrimental to the adhesive application, per the adhesive manufacturer’s instructions.

.3 Do not proceed with Work until conditions have been reviewed by the Consultant and direction has been given.

3.5 TEMPORARY ROOF

.1 The new self-adhering vapour barrier membrane is not to be used as a temporary roof.

.2 Install entire roof assembly, up to EPDM membrane as specified in Section 07 53 23 to maintain building watertight. Tie-in to existing asphalt membrane at the end of each work day.

.3 Alternate:

.1 A self-adhered, pressure sensitive modified bituminous vapour barrier membrane can be used in place of the specified vapour barrier, provided it is approved by the roofing membrane manufacturer, in accordance with the specified warranty, per Section 07 53 23.

3.6 FIELD QUALITY CONTROL

.1 Periodic site reviews will be conducted by the Consultant.

.2 Manufacturer: Inspect reroofing preparation and roofing installation to verify compliance with warranty conditions.

3.7 DISPOSAL

.1 Separate waste materials for reuse and recycling.

.2 Remove waste materials from project site, regularly, to prevent accumulation.

END OF SECTION

Part 1 - General

1.1 SECTION INCLUDES

.1 Materials and installation for an adhered EPDM roofing system.

.2 Provide all labor, material, tools, equipment, and supervision necessary to complete the installation of a EPDM roofing system including flashings and insulation as specified herein and as indicated on the drawings in accordance with the manufacturer's most current specifications and details.

1.2 RELATED SECTIONS

.1 Section 06 10 00, Rough Carpentry.

.2 Section 07 01 50, Preparation for Reroofing.

.3 Section 07 62 00, Sheet Metal Flashing and Trim.

1.3 REFERENCES

.1 American National Standards Institute/Single Ply Roofing Industry (ANSI/SPRI):

.1 SPRI Guidelines for the Fabrication of Field Splices Using Tape Adhesive for Vulcanized EPDM Sheets Used in Roofing Applications.

.2 American Society for Testing and Materials International, (ASTM).

.1 ASTM D1970/D1970M-11, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

.2 ASTM D4637/D4637M-15, Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.

.3 Canadian Roofing Contractors Association (CRCA).

.1 CRCA Roofing Specifications Manual-2013.

.4 Factory Mutual (FM Global).

.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 Applies to roofing screws only.

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

.1 Material Safety Data Sheets (MSDS).

.6 Underwriters Laboratories' of Canada (ULC).

.1 CAN/ULC S704, Thermal Insulation, Polyisocyanurate, Boards and Pipe Covering.

.2 CAN/CSA-A123.21-14 (R201), Standard Test Method for the Dynamic Wind Uplift Resistance of Membrane Roofing Systems.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit two copies of most recent technical roofing components data sheets describing materials' physical properties.

.2 Submit WHMIS MSDS - Material Safety Data Sheets.

.1 Indicate VOC content for:

.1 Primers, adhesives, and sealers.

.3 Submit shop drawings in accordance with Division 01 requirements.

.4 Indicate flashing, control joints, and tapered insulation layout and details.

.5 Manufacturer's Installation Instructions: indicate special precautions required for seaming the membrane.

.6 Manufacturer's Certificate: certify that products meet or exceed specified requirements.

.7 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 EPDM roofing systems with 5 years documented experience approved by manufacturer.

.2 Member in good standing with Canadian Roofing Contractors Association (C.R.C.A.).

.3 Member in good standing with Roofing Contractors Association of Nova Scotia (R.C.A.N.S.).

.4 The applicator shall, upon request, be able to document three (3) installations completed in the last 5 years, utilizing components of the proposed manufacturer, that are comparable to those required for the work and similar in scope and complexity. Provide complete contact information, warranty history for previous installations and demonstrate in-service performance.

.5 All products within the system shall be from a single manufacturer.

1.6 STORAGE AND HANDLING

.1 Provide and maintain dry, off-ground weatherproof storage.

.2 Store rolls of felt and membrane in upright position. Store membrane rolls with selvage edge up.

.3 Remove only in quantities required for same day use.

.4 Place plywood runways over completed Work to enable movement of material and other traffic.

.5 Store sealants at +5°C minimum.

.6 Store insulation protected from daylight, weather and deleterious materials.

.7 Handle roofing materials in accordance with manufacturer's written directives, to prevent damage or loss of performance.

1.7 PROTECTION

.1 Refer to Section 07 01 50, Preparation for Reroofing.

.2 Do not overload any portion of the building by either use of or placement of equipment, storage of debris or temporary storage of materials.

.3 Fire extinguishers: there is no smoking on the roof: Provide and maintain 9 kg size ULC labeled for A,B, and C class, stored pressure rechargeable type fire extinguishers with hose and shut off nozzle for fire protection. Frequency - one unit on the roof, close to the work area, for every 6 meters of application length where primers and adhesives are

being used.

.4 Protect finished areas of roof where construction traffic is expected.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.2 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.

.3 Separate for reuse and recycling and place in designated containers waste in accordance with Waste Management Plan.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with CEPA, TDGA , Regional and Municipal regulations.

.6 Clearly label location of salvaged material's storage areas and provide barriers and security devices.

.7 Ensure emptied containers are sealed and stored safely.

.8 Divert unused metal materials from landfill to recycling facility as approved by Project Manager.

.9 Unused adhesive, sealant and asphalt materials 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.

.10 Fold up metal banding, flatten and place in designated area for recycling.

1.9 ENVIRONMENTAL REQUIREMENTS

.1 Ambient Conditions:

.1 Apply EPDM membrane only when surfaces and ambient temperatures are within manufacturers' prescribed limits.

.2 Do not install EPDM membrane when air and substrate temperature remains below 5 degrees, in accordance with manufacturer's recommendations, or when wind chill gives equivalent cooling effect.

.2 Install EPDM 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.

.3 Containers of adhesive must be at a minimum of 21 degrees C at time of use.

.4 Comply with manufacturer’s cold weather installation requirements and recommendations, as required.

1.10 WARRANTY

.1 Contractor hereby warrants the EPDM roofing and membrane flashings as follows:

.1 Provide Manufacturer's 15-year total system warranty covering both labour and material with no dollar limit.

.2 The maximum wind speed coverage shall be peak gusts of 128 km/hour (80 miles per hour) measured at 10 meters above ground level.

Part 2 – Products

2.1 ROOF ASSEMBLIES

.1 Adhered and mechanically fastened EPDM membrane roof system composed of the following layers and components:

- .1 60 mil reinforced EPDM membrane, adhered and mechanically attached.
- .2 High density polyisocyanurate board, adhered.
- .3 Tapered polyisocyanurate insulation, adhered.
- .4 Self-adhesive (pressure sensitive) vapour barrier membrane.
- .5 Gypsum deck sheathing.
- .6 Existing steel decking.

.2 Alternate assembly:

- .1 Same as 2.1.1 above, except with 1.52mm (60 mil) thick unreinforced fleecebacked EPDM membrane (2.92mm (115 mil) total thickness).
  - .1 Option: FleeceBACK RapidLock EPDM, by Carlisle.
- .2 Acceptance criteria: The alternate assembly and option will only be considered if it satisfies the following:
  - .1 Meets or exceeds the performance criteria and manufacturer warranty requirements specified in this Section.
  - .2 Cost (bid price) is equal to or less than the specified reinforced membrane system.

2.2 PERFORMANCE CRITERIA

.1 Compatibility: Compatibility between components of roofing system is essential. Provide written declaration to Architect stating that materials and components, as assembled in system, meet this requirement.

.2 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.

.3 Tested wind uplift load capacity of roofing system assembly shall be determined in accordance with CSA A123.21.

- .1 Field zone: 1.91 kPa (40 psf).
- .2 Edge zone: 2.87 kPa (60 psf).
- .3 Corner zone: 5.26 kPa (110 psf).

.4 Refer to ROOF SECUREMENT PLAN on sheet A-101.

.5 Governing fastening requirements: Should there be a discrepancy between CSA A123.21 fastening requirements and the manufacturer's specified wind warranty fastening requirements, the more stringent requirements shall govern.

2.3 ROUGH CARPENTRY

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

2.4 DECK SHEATHING

.1 Glass Mat Gypsum Board: to ASTM C 1177/C 1177M or ASTM C1278, 12.7mm thick.

- .1 Densdeck Prime, by Georgia Pacific

.2 Securock Gypsum Fibre Roof Board, by CGC.

2.5 VAPOUR BARRIER

.1 Self-adhering rubberized asphalt sheet membrane laminated to a woven polyethylene film: to ASTM D1970, 40 mil thick

.1 Acceptable Material:

.1 VapAir Seal 725TR, by Carlisle.

.2 V-Force, by Elevate

2.6 POLYISOCYANURATE INSULATION

.1 Tapered polyisocyanurate Insulation: To CAN/ULC-S704:

.1 Size: 1220mm x 1220mm.

.2 LTTR R-value: 5.7 (for 25mm thickness)

.3 Facer: inorganic coated glass

.4 Sump: 25mm sump at drains (4% slope), 2440mm x 2440mm tapered insulation area.

.5 Board thickness: 100mm; two layers.

.6 Acceptable Materials:

.1 SecureShield Polyiso, by Carlisle Syntec.

.2 Isogard CG, by Elevate.

.7 Accessories:

.1 5-gallon buckets of gravel ballast, or other similarly weighted material to weigh down individual insulation boards until adhesive is set.

2.7 COVER BOARD

.1 Rigid insulation panel, to CAN/ULC-S704, comprised of high density polyisocyanurate panel.

.1 Size: 1220mm x 1220mm.

.2 Total thickness: 13mm.

.3 Compressive strength (high density panel): 100 psi, minimum.

.4 Facer: Inorganic, coated glass.

.5 Acceptable Materials:

.1 Secure Shield HD, by Carlisle.

.2 Isogard HD, by Elevate.

2.8 EPDM MEMBRANE

.1 Ethylene propylene diene monomer (EPDM sheet membrane): to ASTM D 4637:

.1 Type II, Class A, 1.5mm (60 mil) thick, reinforced membrane, 3050mm wide sheets, with 150 mm wide factory applied seam tape.

.2 Acceptable Material:

.1 Sure-Tough EPDM, by Carlisle.

.2 Rubbergard Max PT EPDM, by Elevate.

.3 Walkway Pads: Pressure sensitive molded EPDM walkway pads.

.1 Standard of Acceptance: Pressure Sensitive Molded walkway Pads, by Carlisle.

2.9 LIQUID FLASHING

.1 Two-component polyurethane-based, reinforced, liquid flashing membrane, as recommended by manufacturer, for use with EPDM membranes.

.2 Standard of acceptance: Liquiseal, by Carlisle.

.3 For use at new-to-existing EPDM membrane tie-in.

2.10 EXPANSION JOINT

.1 Manufacturers' curb-mounted pre-manufactured expansion joint membrane support; rounded bellows profile; to suit 25mm joint width.

2.11 ADHESIVES, PRIMERS, TAPES, AND SEALANTS

.1 Bonding Adhesive: High strength, synthetic rubber adhesive for bonding EPDM membrane to various substrates; for use at parapets, walls, and curbs.

.1 Standard of Acceptance: 90-8-30A Bonding Adhesive, by Carlisle.

.2 Polyurethane adhesive: Two-component, low-rise foamable polyurethane adhesive, per manufacturer's tested system to CSA A123.21.

.1 For use with cover board, insulation, and thermal barrier.

.3 Primer: as recommended by manufacturer for use with EPDM, vapour barrier membrane, and liquid membrane.

.4 Perimeter Fastening Strip: Reinforced EPDM membrane, 150mm (6") wide, with 75mm (3") factory laminated adhesive tape; for use at roof walls and curbs.

.1 To be used in conjunction with fasteners and pressure distribution plates, as specified and approved by manufacturer.

.5 Seam tape: 150mm wide pressure sensitive seam tape, recommended by manufacturer for use with EPDM system.

.6 Flashing accessories: pressure sensitive T-joint covers, inside/outside corners, and cover strips.

.7 Cover strip: Pressure sensitive semi-cured EPDM, 60 mil minimum thickness.

.8 Lap Sealant: as recommended by manufacturer.

.9 Water Cut-Off Mastic: as recommended by manufacturer.

.10 Membrane Cleaner: EPDM membrane cleaner for use at existing (weathered) and new membrane at splice areas; as recommended by manufacturer.

.11 Sealers: as recommended by manufacturer.

.12 Termination bar: aluminum flat bar, 3mm thick x 25mm wide, pre-punched at 152mm on center.

2.12 DRAINS

.1 Acceptable material, complete with under deck clamps and metal dome.

.1 Zurn; model Z100

.2 Jay R. Smith; model 1010.

.3 Watts; model RD-100.

.2 Drains supplied by the roofer and installed by a qualified plumber retained by the roofer. Coordinate drain removals and access to related interior spaces with HRCE.

2.13 VENT FASHING

.1 Pre-molded pressure sensitive EPDM flashings by membrane manufacturer, complete with stainless steel draw band.

2.14 METAL FLASHING

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

2.15 FASTENERS

.1 EPDM Membrane Fasteners: #14 or #15 corrosion resistant self-drilling screw with flat or pancake head, with and 50mm diameter (nominal) pressure distribution plates to FM Approvals 4470, as required by manufacturer's tested system to CSA A123.21.

.2 Perimeter fastening strip fasteners:

.1 Wood substrate: manufacturer's #12 corrosion resistant self-drilling screw with flat or pancake head, to FM Approvals 4470. Length of screw to provide 38mm minimum penetration into wood. To be used with membrane manufacturer's 50mm diameter pressure distribution seam plates.

.1 Standard of acceptance: #12 DP Roofing Fastener, by Trufast, or as approved by membrane manufacturer.

.2 Thermal Barrier Fasteners: #12 screws and 75mm diameter (nominal) pressure distribution plates must meet Factory Mutual 4470 Standard for corrosion resistance and be acceptable by the board manufacturer.

.1 Acceptable manufacturers: DekFast, Trufast, OMG, or as required by manufacturer, in accordance with tested wind uplift requirements to CSA A123.21.

.3 Plywood Fasteners:

.1 Plywood to steel deck: #12 roofing screws must meet Factory Mutual 4470 Standard for corrosion resistance.

.1 Wood framing/blocking fasteners: per Section 06 10 00.

.2 Fastener length and embedment into various substrates:

.1 40mm minimum embedment into lumber substrates.

.2 40mm minimum embedment into masonry and concrete.

.3 25mm minimum penetration beyond concealed side of plywood and metal substrates.

Part 3 - Execution

3.1 WORKMANSHIP

.1 Meet National Building Code of Canada 2020 requirements.

.2 Do examination, preparation and roofing Work in accordance with Roofing Manufacturer's Specification Manual.

3.2 EXAMINATION OF ROOF DECKS

.1 Inspect deck conditions including parapets and construction joints to determine readiness to proceed and immediately inform Consultant in writing of any defects.

.2 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 or salt for ice or snow removal.

.2 Curbs have been built.

.3 Plywood and lumber elements have been installed.

.3 Do not install roofing materials during rain or snowfall.

3.3 PROTECTION

.1 Refer to Section 07 01 50 – Preparation for Re-roofing.

.2 Cover walls, walks and adjacent work where materials are hoisted or used.

.3 Use warning signs and barriers. Maintain in good order until completion of Work.

.4 Clean off drips and smears of bituminous material immediately.

.5 Dispose of rain water off roof and away from face of building until roof drains or hoppers installed and connected.

.6 Protect roof from traffic and damage. Comply with precautions deemed necessary by Project Manager.

.7 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.

3.4 PREPARATION

.1 Refer to Section 07 01 50 – Preparation for Reroofing.

.2 Immediately before any roofing materials are applied, clean deck in accordance with roofing manufacturer's recommendations. Remove ice and snow and dry decks. Do not use salt or calcium to remove snow or ice.

.3 Do no roofing work during rain, fog, sleet or snow, or upon surfaces covered with dust, water, dew, ice, frost, snow and similar detrimental conditions.

.4 Before commencing work, ensure environmental and site conditions are suitable for installation of material in accordance with manufacturer's recommendations.

.5 Prevent debris from blocking drain pipes during work of this Section.

3.5 REMOVALS

.1 Perform removal work in accordance with Section 07 01 50 – Preparation for Reroofing. Remove materials as indicated.

.2 Only remove as much material as can be re-roofed in a day.

.3 Do not leave vapour barrier membrane layer exposed at the end of any work-day.

3.6 CARPENTRY

.1 Per Section 06 10 00, Rough Carpentry.

3.7 DECK SHEATHING

.2 Mechanically fasten to steel deck with specified screws and pressure distribution plates to steel deck's upper rib surfaces, at the following rates, per 1220mm x 2440mm board:

.1 Field, edge, and corner zones: 15 fasteners.

.1 Fastening pattern: as indicated on drawing A-101 and A-801.

.2 Alternate fastening: Deck sheathing can be adhered to steel deck, provided manufacturer has a tested assembly to CSA A123.21 for such attachment, meeting the specified wind uplift performance criteria.

.1 Deck preparation: Ensure upper deck rib surface is thoroughly cleaned to remove contaminants detrimental to adhesion, per 3.4 of Section 07 01 50, Preparation for Reroofing.

.3 Place with long axis of each board transverse to steel deck ribs, with end joints staggered and fully supported on ribs.

3.8 VAPOUR BARRIER

.1 Prime deck covering in accordance with manufacturer’s instructions.

.2 Install self-adhesive vapour barrier membrane to primed sheathing surface. Install membrane free of voids and fishmouths. Immediately after installation, roll membrane with 100-150lb steel roller.

.3 Seal vapour barrier at curb and vent pipe penetrations; refer to details.

3.9 POLYISOCYANURATE INSULATION

.1 General:

.1 Install insulation in accordance with insulation manufacturer’s installation instructions.

.2 Install insulation system over the vapour barrier in two layers, as indicated.

.3 Place boards in firm contact with one another, with no gap greater than 6mm.

.4 Stagger end joints of boards, 150mm minimum.

.5 Offset side and end joints of top layer from joints of bottom insulation layer, 150mm minimum.

.6 Cut end pieces to suit.

.2 Adhesive attached application (field, edge, and corner zones):

.1 Refer to adhesive application detail on drawing A-101.

.2 Install insulation with ribbons of the specified two-component low-rise foam insulation adhesive. The ribbon width is to be 13-19mm as measured immediately upon exiting the nozzle.

.3 Spacing of ribbons: in accordance with manufacturer’s tested system to CSA A123.21, per reviewed submittals.

.4 Set insulation into fresh adhesive before it has started to skin over.

.5 Immediately after setting the insulation in the adhesive, weigh down each piece of insulation with specified weights until the adhesive is set.

3.10 COVER BOARD

.1 Install cover board with specified adhesive in accordance with 3.9 POLYISOCYANURATE INSULATION.

3.11 EPDM MEMBRANE

.1 Unroll and position membrane without stretching. Allow the membrane to relax for approximately 30 minutes prior to splicing.

.2 Fold membrane sheet back so approximately half of the underside of the sheet is exposed. Sheet fold should be smooth without wrinkles or buckles.

.3 Apply Bonding Adhesive evenly, without globs or puddles, with a plastic core medium nap paint roller.

.4 Apply contact type bonding adhesive to both the membrane sheet and the substrate to achieve continuous coating of both surfaces at a coverage rate required by manufacturer.

.5 Allow adhesive to flash-off until it is tacky but will not string or transfer to a dry finger touch.

.6 Roll the coated membrane into the coated substrate while avoiding wrinkles.

.7 Brush down the bonded half of the membrane sheet, immediately after rolling the membrane sheet into the adhesive, with a soft bristle push broom to achieve maximum contact.

.8 Fold back the unbonded half of the membrane sheet and repeat the bonding procedure. Position membrane sheet to allow for required splice overlap. Mark the bottom sheets with an indelible marker approximately 6mm to 13mm from the top sheet edge. The pre-marked line on the membrane edge can also be used as a guide for positioning splice tape.

.9 Position membrane sheet to allow for required splice overlap. Mark the bottom sheets with an indelible marker approximately 6mm to 13mm from the top sheet edge. The pre-marked line on the membrane edge can also be used as a guide for positioning splice tape.

.10 Fold the top sheet back and clean the dry splice area (minimum 152mm wide) of both membrane sheets by scrubbing with clean natural fiber rags saturated with primer.

.11 Apply EPDM Primer to splice area.

.12 Pull the poly backing from factory applied seam tape beneath the top sheet and allow the top sheet to fall freely onto the exposed primed surface. Press top sheet on to the bottom sheet using firm even hand pressure across the splice towards the splice edge.

.13 For end laps, apply 152mm seam tape to the primed membrane surface in accordance with the manufacturer's specifications. Remove the poly backing and roll the top sheet onto the mating surface.

.14 Tape splices using 152mm wide seam tape extending 3mm minimum to 13mm maximum beyond the splice edge.

.15 Immediately roll the splice using positive pressure when using a 50mm wide steel roller. Roll across the splice edge, not parallel to it.

.1 Install continuous perimeter fastening strip at walls and curbs in accordance with manufacturer's instructions.

.2 Mechanically secure strip to vertical substrates with specified fasteners and

pressure distribution plates at 152mm o.c.; 38mm minimum embedment.

.2 Install lap sealant and pressure sensitive "T" joint covers at field splice intersections in accordance with manufacturer's instructions.

.3 Daily Seal: when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed.

3.2 EPDM FLASHINGS

.1 Wall, and curb flashing shall be cured EPDM membrane. Use Pressure-Sensitive Curb Wrap when possible to flash curb units.

.2 Install EPDM flashing membrane to substrate with bonding adhesive. Install bonding adhesive in accordance with manufacturer's instructions.

3.3 DRAINS

.1 Ensure that stacked wood blocking has been installed.

.2 Install drains and domes in accordance with manufacturer's instructions.

3.4 CLEANING

.1 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.

.2 Repair or replace defaced or disfigured finishes caused by work of this section.

.3 Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.

.4 Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation for an adhered and mechanically attached TPO (thermoplastic-polyolefin) membrane roofing system.

.2 Provide all labor, material, tools, equipment, and supervision necessary to complete the installation of a TPO system including flashings and insulation as specified herein and as indicated on the drawings in accordance with the manufacturer's most current specifications and details.

1.2 RELATED REQUIREMENTS

.1 Section 06 10 10, Rough Carpentry.

.2 Section 07 01 50, Preparation for reroofing

.3 Section 07 62 00, Sheet Metal Flashing and Trim.

1.3 REFERENCE STANDARDS

.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

.1 ASTM C1002, Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.2 ASTM C1177/C1177M, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

.3 ASTM D1970/D1970M-11, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

.4 ASTM D6878/D6878M - Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing.

.3 Canadian Roofing Contractors Association (CRCA)

.1 CRCA Roofing Specifications Manual.

.4 CSA Group (CSA)

.1 CSA A123.21, Standard Test Method for the Dynamic Wind Uplift Resistance of Mechanically Attached Membrane-Roofing Systems

.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 Applies to corrosion resistance of roofing screws only.

.6 Single Ply Roofing Industry (SPRI)

.1 Guidelines for the Fabrication of Seams of Thermoplastic Roofing Membranes Using Hot Air Welding Procedures

.7 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S704, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced.

.2 CAN/ULC-S706, Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams.

1.4 ADMINISTRATIVE REQUIREMENTS

.1 Convene pre-installation meeting one week prior to beginning roofing Work, with the roofing contractor's representative, Halifax Water representative, and Consultant, to discuss agenda items, in accordance with Section 07 01 50, Preparation for Reroofing.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product Data:

.1 Provide two copies of most recent technical roofing components datasheets describing materials' physical properties and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS SDS in accordance, and indicate VOC content for:

.1 Primers.

.2 Sealers.

.2 Shop Drawings:

.1 Provide layout for tapered insulation.

.3 Manufacturer's Certificate: certify that products meet or exceed specified requirements.

.4 Test report: manufacturer’s documentation of roof assembly and components tested to CSA A123.21 for dynamic wind uplift resistance.

.5 Design Letter: manufacturer’s documentation certifying roofing system’s wind uplift resistance, wind speed warranty, and system warranty.

.6 Test and Evaluation Reports: submit laboratory test reports certifying compliance of roofing materials and membrane with specification requirements.

.7 Manufacturer's Installation Instructions: indicate special precautions required for seaming the membrane.

.8 Manufacturer's field report.

1.6 QUALITY ASSURANCE

.1 Qualifications:

.1 Installers:

.1 Ensure roofing applicator is a member in good standing with CRCA and has a minimum of 5 years experience in installing single-ply roofing and has specialized equipment in proper operating condition to perform work in accordance with manufacturer's printed instructions and has 5 years’

experience in reroofing projects.

.2 Ensure applicator is trained and approved by manufacturer of system being installed.

.3 Member in good standing with Roofing Contractors Association of Nova Scotia (R.C.A.N.S.).

.2 Conform to CRCA's "Roofing Specifications" and Manufacturer's manual as amended to date of this Specification, except where indicated or specified otherwise.

.3 Do roofing work employing roofing Products, roof sheathing, plates and, fasteners, insulation and membrane as defined by ULC, CAN/CSA-A123.21.

.4 More stringent requirements in Consultant's opinion shall govern.

.5 This roofing system shall be applied only by a Roofing Contractor authorized by the manufacturer.

.6 Manufacturer will provide periodic site reviews of the installation.

.7 Any deficiencies indicated in the periodic site reviews shall be corrected in a timely matter.

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 TPO flat on cross supports.

.4 Remove only in quantities required for same day use.

.5 Store materials in accordance with manufacturer's written instructions.

.6 Store insulation protected from sunlight, weather, and deleterious materials.

.7 Store materials on site within temporary sheds or trailers; such facilities must be well sealed and kept at least 3 deg C (5 deg F) warmer than exterior ambient temperature to ensure materials remain dry in terms of roofing. Do not use wet, damp, frozen or damaged materials. Stack rolls of felt on end.

.8 Do not store more than 1 Day's supply of materials on the roof at any time. On roof, stack materials on pallets, and completely cover with incombustible waterproof tarpaulin whenever work is interrupted, or when there is precipitation of any kind. Securely tie covering to pallets in such way as to be weathertight. Plastic covers and shrinkwrap covers by manufacturers are not acceptable for site storage and be removed upon delivery to roof.

.9 Distribute materials stored on roof to stay within designated live load limits of the roof construction. Provide ample bases under equipment and materials to distribute weight to conform to these live-load limits. Do not store materials on, or transport materials across, completed roof areas.

.10 Provide fire extinguishers at each installation and storage location, of proper type for materials being used and stored.

1.8 SITE CONDITIONS

.1 Ambient Conditions:

.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 degrees 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.

1.9 WARRANTY

.1 15-year total system warranty, including all labour, materials, and workmanship, 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 TPO sheet and the total cost of repair(s) during the entire warranty period.

.2 Wind speed warranty: The maximum wind speed coverage shall be peak gusts of 128 km/hour (80 miles per hour) measured at 10 meters above ground level.

Part 2 Products

2.1 MANUFACTURERS

.1 Manufacturer List: Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:

.1 Carlisle Syntec

.2 Johns Manville

.3 Elevate

2.2 ASSEMBLY

.1 Primary roof system components include:

.1 Membrane: Reinforced TPO membrane with integral fleece backing.

.1 Edge and corner zones: adhered and mechanically attached, as indicated.

.2 Field zones: adhered.

.2 Membrane flashings: TPO membrane, adhered.

.3 Cover board: High-density polyisocyanurate board, adhered (low-rise foam).

.4 Insulation: Polyisocyanurate insulation, adhered (low-rise foam).

.5 Vapour barrier: Self-adhered air/vapour barrier membrane.

.6 Thermal barrier: Gypsum sheathing, mechanically attached.

.7 Existing steel deck.

2.3 PERFORMANCE CRITERIA

.1 Compatibility between components of roofing system is essential.

.1 Provide written declaration to Consultant stating that materials and components, as assembled in system, meet this requirement.

.2 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.

.3 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 Field zone: 1.91 kPa (40 psf).

.2 Edge zone: 2.87 kPa (60 psf).

.3 Corner zone: 5.26 kPa (110 psf).

.2 Refer to ROOF SECUREMENT PLAN on sheet A-101.

2.4 ROUGH CARPENTRY

.1 Refer to Section 06 10 00, Rough Carpentry.

2.5 THERMAL BARRIER

.1 Glass Mat, Gypsum Board: to ASTM C1177, 13mm thick, 1220mm x 2440mm.

.1 Acceptable material:

.1 Densdeck Prime, by Georgia Pacific.

.2 DEXcell FA Glass Mat Roof Board, by National Gypsum.

2.6 VAPOUR RETARDER

.1 Self-adhering rubberized asphalt sheet membrane laminated to a woven polyethylene film: to ASTM D1970, 30-40 mil thick

.1 Acceptable Material:

.1 VapAir Seal 725TR, by Carlisle.

.2 JM Vapour Retarder SA, by Johns Manville.

.3 V-Force, Elevate.

2.7 POLYISOCYANURATE INSULATION

.1 Polyisocyanurate Insulation: Type 2, Class 3, To CAN/ULC-S704:

.1 Size: 1220mm x 1220mm.

.2 LTTR R-value: 5.7 (for 25mm thickness)

.3 Facer: inorganic coated glass

.4 Sump: 25mm sump at drains (4% slope), 2440mm x 2440mm tapered insulation area.

.5 Board thickness: 100mm; two layers.

.6 Acceptable Material:

.1 SecureShield Polyiso, by Carlisle.

.2 Energy CGF, by Johns Manville.

.3 Isogard CG, by Elevate.

2.8 COVER BOARD

.1 Lightweight, rigid insulation panel, to CAN/ULC-S704, Type 3, Class 2, comprised of 13mm high density polyisocyanurate.

.1 Panel Size: 1220mm x 2440mm.

.2 LTTR R-value: 2.5 (for 13mm thickness).

.3 Compressive strength (high density panel): 100 psi, minimum.

.4 Facer: Inorganic coated glass.

.5 Acceptable Material:

.1 SecureShield HD, by Carlisle.

.2 ProtectoR HD, by Johns Manville.

.3 Isogard HD, by Elevate.

2.9 MEMBRANE

.1 Flexible thermoplastic polyolefin (TPO) sheet membrane: to ASTM D6878; polyester reinforced, ultra-violet light resistant, elastomeric sheet, with integral fleece backing.

.1 Thickness: 2.92mm (115mil).

.1 Membrane: 1.52mm (60mil).

.2 Fleece backing: 1.40mm (55mil)

.2 Sheet width: 2.4m (8’-0”).

.3 Acceptable materials:

.1 FleeceBACK TPO, by Carlisle.

.2 JM TPO FB 115, by Johns Manville.

.3 UltraPly TPO XR, by Elevate.

.4 Colour: Grey.

.5 Flashing membrane: Same material and thickness as specified for TPO membrane, without fleece backing.

2.10 WALKWAYS

.1 TPO walkway rolls, with a textured non-slip surface, adhered and heat weldable, 760mm minimum wide; yellow colour.

.1 Acceptable materials:

.1 Sure-Weld TPO Walkway Roll, by Carlisle.

.2 JM TPO Safety Walkpad, by Johns Manville.

.3 UltraPly TPO Walkway Pad, by Elevate.

2.11 LIQUID FLASHING

.1 Two-component polyurethane-based, reinforced, liquid flashing membrane, as recommended by manufacturer, for use with TPO membranes.

.2 Standard of acceptance: Liquiseal, by Carlisle.

.3 For use at new-to-existing TPO membrane tie-in.

2.12 EXPANSION JOINT

.1 Manufacturers' curb-mounted pre-manufactured expansion joint membrane support; rounded bellows profile; to suit 25mm joint width.

2.13 VENT FASHING

.1 Prefabricated TPO flashings by membrane manufacturer, heat weldable, 1.5mm (60mil) minimum thickness, complete with stainless steel draw band and water cut-off mastic.

2.14 METAL FLASHING

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

2.15 ADHESIVES, PRIMERS, TAPES, AND SEALANTS

.1 Polyurethane adhesive: Two-component, low-rise foamable polyurethane adhesive, per manufacturer's tested system to CSA A123.21.

.1 For use with fleecebacked field membrane, cover board, insulation, and thermal barrier.

.2 Flashing Membrane Adhesive: Solvent based adhesive for bonding barebacked TPO membranes to various substrates, as recommended by membrane manufacturer; for use at parapets, walls, and curbs.

.3 Primer: as recommended by manufacturer for use with TPO and vapour barrier membranes.

.4 Flashing accessories: pressure sensitive T-joint covers, inside/outside corners, overlayment strips, and cover strips.

.5 Lap Sealant: as recommended by manufacturer.

.6 Water Cut-Off Mastic: as recommended by manufacturer.

.7 Membrane Cleaner: TPO membrane cleaner, as recommended by manufacturer.

.8 Tapes and Sealers: as recommended by manufacturer.

.9 Termination bar: aluminum flat bar, 3mm thick x 25mm wide, pre-punched at 150mm on center.

2.16 FASTENERS

.1 Thermal Barrier Fasteners: #12 screws and 75mm diameter (nominal) pressure distribution plates must meet Factory Mutual 4470 Standard for corrosion resistance and be acceptable by the board manufacturer.

.1 Acceptable manufacturers: DekFast, Trufast, OMG, or as recommended by manufacturer, in accordance with tested wind uplift requirements to CSA A123.21.

.1 Plywood Fasteners:

.1 Plywood to steel deck: #12 roofing screws must meet Factory Mutual 4470 Standard for corrosion resistance.

.2 TPO Membrane Fasteners: #14 or #15 corrosion resistant self-drilling screw with flat or pancake head, with and 50mm diameter (nominal) pressure distribution plates to FM Approvals 4470, as required by manufacturer's tested system to CSA A123.21, and as approved by membrane manufacturer.

.3 Perimeter fastening/fixation (base of walls, curbs, and parapets):

.1 Separate Flashing Membrane:

.1 Secure field membrane with one of the following:

.1 Spaced plates: Manufacturer's 50mm (nominal) diameter pressure distribution plates, spaced at 150mm o.c.

.2 Continuous bar: Manufacturer's steel or aluminum fixation bar, pre-punched at 150mm o.c. maximum.

.2 Fasteners: #14 or #15 corrosion resistant self-drilling screw with flat or pancake head, to FM Approvals 4470, as required by manufacturer's tested system to CSA A123.21, and as approved by membrane manufacturer.

.4 Termination bar fasteners: as specified for spaced plates.

.5 Fastener length and embedment into various substrates:

.1 40mm minimum embedment into lumber substrates.

.2 40mm minimum embedment into masonry and concrete.

.3 25mm minimum penetration beyond concealed side of plywood and metal substrates.

2.17 DRAINS

.1 Acceptable material, complete with under deck clamps and metal dome.

.1 Zurn; model Z100

.2 Jay R. Smith; model 1010.

.3 Watts; model RD-100.

.2 Drains supplied by the roofer and installed by a qualified plumber retained by the roofer. Coordinate drain removals and access to related interior spaces with HRCE.

Part 3 Execution

3.1 WORKMANSHIP

.1 Meet National Building Code of Canada 2020 requirements.

.2 Do examination, preparation and roofing Work in accordance with Roofing Manufacturer's Specification Manual and CRCA's Roofing Specification Manual.

3.2 EXAMINATION OF ROOF DECKS

.1 Refer to Section 07 01 50 – Preparation for Re-roofing.

.2 Inspect deck conditions including parapets and construction joints to determine readiness to proceed and immediately inform Consultant in writing of any defects.

.3 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 or salt for ice or snow removal.

.2 Curbs have been built.

.4 Ensure plywood and lumber nailer plates and parapets are installed and secure as shown. Verify sleeves, anchors and other items to be secured to or to pass through roof membrane are installed. Verify that units and curbs are properly secured in place.

.5 Do not install roofing materials during rain or snowfall.

3.3 PROTECTION OF IN-PLACE CONDITIONS

.1 Refer to Section 07 01 50 – Preparation for Re-roofing.

.2 Cover walls, walks and adjacent work where materials are hoisted or used.

.3 Use warning signs and barriers. Maintain in good order until completion of Work.

.4 Clean off drips and smears of bituminous material immediately.

.5 Dispose of rain water off roof and away from face of building until roof drains or hoppers installed and connected.

.6 Protect roof from traffic and damage. Comply with precautions deemed necessary by Project Manager.

.7 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.

3.4 PREPARATION

.1 Refer to Section 07 01 50 – Preparation for Reroofing.

.2 Immediately before any roofing materials are applied, clean deck in accordance with roofing manufacturer's recommendations. Remove ice and snow and dry decks. Do not use salt or calcium to remove snow or ice.

.3 Do no roofing work during rain, fog, sleet or snow, or upon surfaces covered with dust, water, dew, ice, frost, snow and similar detrimental conditions.

.4 Before commencing work, ensure environmental and site conditions are suitable for

installation of material in accordance with manufacturer's recommendations.

.5 Prevent debris from blocking drain pipes during work of this Section.

3.5 REMOVALS

.1 Perform removal work in accordance with Section 07 01 50 – Preparation for Reroofing. Remove materials as indicated.

.2 Only remove as much material as can be re-roofed in a day.

3.6 CARPENTRY

.1 Per Section 06 10 00, Rough Carpentry.

3.7 THERMAL BARRIER

.1 Mechanically fasten to steel deck with specified screws and pressure distribution plates to steel deck's upper rib surfaces, at the following rates, per 1220mm x 2440mm board:

.1 Field, edge, and corner zones: 15 fasteners.

.1 Fastening pattern: as indicated on drawing A-101 and A-801.

.2 Alternate fastening: Thermal barrier can be adhered to steel deck, provided manufacturer has a tested assembly to CSA A123.21 for such attachment, meeting the specified wind uplift performance criteria.

.1 Deck preparation: Ensure upper deck rib surface is thoroughly cleaned to remove contaminants detrimental to adhesion, per 3.4 of Section 07 01 50, Preparation for Reroofing.

.2 Place with long axis of each board transverse to steel deck ribs, with end joints staggered and fully supported on ribs.

3.8 VAPOUR BARRIER

.1 Clean, prepare, and prime thermal barrier, in accordance with manufacturer’s instructions.

.2 Perform installation in accordance with manufacturer’s instructions.

.3 Install self-adhering vapour barrier membrane to primed surface. Achieve minimum 75mm membrane lap at all side laps and 150mm lap at end laps. Install membrane free of voids and fishmouths. Immediately after installation, roll membrane with 100 lb minimum steel roller.

.4 Seal vapour barrier at curb and vent pipe penetrations.

3.9 POLYISOCYANURATE INSULATION

.1 General:

.1 Install insulation in accordance with insulation manufacturer’s installation instructions.

.2 Install insulation system over the vapour barrier in two layers, as indicated.

.3 Place boards in firm contact with one another, with no gap greater than 6mm.

.4 Stagger end joints of boards, 150mm minimum.

.5 Offset side and end joints of top layer from joints of bottom insulation layer, 150mm minimum.

.6 Cut end pieces to suit.

.2 Adhesive attached application (field, edge, and corner zones):

.1 Refer to adhesive application detail on drawing A-101.

.2 Install insulation with ribbons of the specified two-component low-rise foam insulation adhesive. The ribbon width is to be 13-19mm as measured immediately upon exiting the nozzle.

.3 Spacing of ribbons: in accordance with manufacturer's tested system to CSA A123.21, per reviewed submittals.

.4 Set insulation into fresh adhesive before it has started to skin over.

.5 Immediately after setting the insulation in the adhesive, weigh down each piece of insulation with specified weights until the adhesive is set.

3.10 COVER BOARD

.1 Install cover board with specified adhesive in accordance with 3.9 POLYISOCYANURATE INSULATION.

3.11 TPO MEMBRANE ROOFING APPLICATION

.1 General:

.1 Perform all installation work in accordance with manufacturer's instructions and recommendations.

.2 All loose debris shall be swept from the substrate. The substrate shall be dry before continuing.

.3 Allow membrane sheets to relax the minimum time specified by the manufacturer, prior to adhesion and induction welding procedures.

.4 Place membrane sheets to achieve the required overlap at side and end lap seams, in accordance with manufacturer's instructions.

.5 Ensure membrane laps are shingled to avoid reverse lap conditions.

.6 Ensure membrane lays flat with no wrinkles or ridges.

.7 Seaming: Seal all laps by hot-air welding in accordance with manufacturer's instructions and SPRI guideline Guidelines for the Fabrication of Seams of Thermoplastic Roofing Membranes Using Hot Air Welding Procedures

.2 Field Membrane: Adhered Application (field, edge, and corner zones):

.1 Adhere membrane to cover board with specified adhesive. Apply the adhesive in ribbons, or full spray/splatter, in accordance with manufacturer's instructions, as determined by CSA A123.21 tested system or to requirements of wind warranty, whichever is more stringent. When the adhesive has risen sufficiently and developed 'strings', in accordance with manufacturer's instructions, roll the membrane with a 760mm wide, 150 lb weighted segmented steel roller to set the membrane into the adhesive.

.2 Overlay end lap joints with reinforced membrane, centered on joint and hot-air weld all edges.

.3 Do not apply adhesive to membrane splice/lap areas.

.3 Field Membrane: Mechanically attached application (edge and corner zones):

.1 Install mechanical fasteners at edge and corner zones, using specified screws and distribution plates.

.2 Spacing of fasteners: as indicated.

.3 Install 225mm (min.) wide overlayment strip over lines of fasteners in the field of the sheet and hot-air weld all edges.

.4 Perimeter Securement/Base fixation:

.1 Secure field membrane to vertical substrates at curbs and walls with specified fasteners, plates, and bars, at 150mm o.c., as indicated.

.5 Membrane Flashing:

.1 Install flashing membrane to vertical substrates, horizontal coping substrates and other vertical projections from roof, as indicated in details.

.2 The longest pieces of flashing material which are practical shall be used. All flashing and terminations shall be performed in accordance with the manufacturer/supplier's applicable details.

.3 Avoid any adhesive at lap area. Clean as necessary. Heat weld laps. Cut and weld interior corners and mitres as required. Overlap flashings at least 75 mm (3") onto roofing membrane and heat weld to produce a tight seal.

.6 Penetrations:

.1 All penetrations (pipes, supports, soil stacks, cold vents, etc.) passing through the roofing membrane shall be flashed in accordance with the manufacturer/supplier's specifications, and as indicated.

3.12 WALKWAYS

.1 Install walkway in accordance with manufacturer's instructions.

.2 Refer to roof plans for walkway locations and layout.

3.13 DRAINS

.1 Ensure that stacked wood blocking has been installed.

.2 Install drains and domes in accordance with manufacturer's instructions.

3.14 FIELD QUALITY CONTROL

.1 Periodic site reviews will be conducted by Consultant during the course of work.

.2 Site reviews and reports by a manufacturer's representative, as required for specified warranty.

.3 If deemed necessary by Consultant to inspect concealed conditions, make any cut tests required, as requested by the Consultant. Costs of such tests and making good afterwards to roofing to be paid by the roofing contractor.

.4 Check completed single ply membrane welds for continuity after cooling by use of a probe instrument run along welded seam. Ensure joints indicate an uninterrupted

extrusion of melted material from joint. Ensure seams are exposed for inspection.

.5 Inspect completed membrane and flashings for punctures, tears and discontinuous weld seams. Apply additional layer of membrane over punctures and tears, extending minimum 50 mm (2") beyond damaged area in any direction and heat weld. Re-weld seams where necessary.

3.15 CLEANING

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

.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 Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.

.5 Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

.6 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

.7 Clean to HRCE's and Consultant's approval, soiled surfaces, spatters, and damage caused by work of this Section.

.8 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 A653/A653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 ASTM F1667-17, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

.3 ASTM F468-15, Standard Specification for Nonferrous Bolts, Hex Cap Screws, Socket Head Cap Screws, and Studs for General Use.

.2 Approved American National Standard (ANSI)

.1 ANSI/SPRI/FM 4435/ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems

.3 Canadian Roofing Contractors Association (CRCA)

.1 Roofing Specifications Manual.

.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 Submit warranty.

1.4 QUALITY CONTROL

.1 General: Fabricate and install sheet metal flashing and trim in accordance with SMACNA Architectural Sheet Metal 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 0.70 mm (24 gauge) base galvanized 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: to match existing metal.

2.2 ACCESSORIES

.1 Isolation coating: alkali resistant bituminous paint.

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

.3 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.

.4 Cleats/hook-strips: Hot dip galvanized steel sheet to ASTM A653/A653M, with Z275 designation zinc coating.

.1 0.85 mm (22 gauge).

.5 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.

.6 Screws: #12 screws must meet Factory Mutual 4470 Standard for corrosion resistance and be acceptable by the roof membrane manufacturer for use with parapet edge flashing, to meet requirements of ANSI/SPRI/FM 4435/ES-1.

.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: #12 stainless steel self-drilling screws with integral nylon heads colour matched to pre-finished sheet metal; 38mm length.

.1 Standard of acceptance: Master Drillers, by Leland Industries.

.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 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 Form sections to profiles indicated for metal caps and cleats.

.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 existing wood blocking at parapets is in good condition and adequately secured. Notify consultant if decayed wood is encountered, or if wood is poorly secured.

.3 Verify that solid wood blocking or sheathing provided to back-up all flashings and that all nails, screws are set and wood provides a smooth flat plane.

.4 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 Install roof edge metal flashing assembly in accordance with manufacturer's requirements to meet ANSI/SPRI/FM 4435/ES-1.

.3 Verify shapes and dimensions of surfaces being covered before fabricating sheet metal.

.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 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.

.6 Install work with laps, joints, and seams that are watertight and weatherproof.

.7 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.

.8 Roof Edge Cleat:

.1 Fasten to existing wood blocking with specified screws at 150mm o.c.

.9 Roof Edge Flashing ('gravel stop'):

.1 Fasten horizontal flange to plywood with specified screws at 75mm o.c. spacing, staggered.

.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 Lock Seams:

.1 Fabricate non-moving seams in sheet metal with flat lock seams.

.12 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.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with HRCE's 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 HRCE's 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

DRAWING LIST

ARCHITECTURAL

A-101 ROOF PLAN
A-501 SECTION DETAILS
A-801 MISCELLANEOUS DETAILS

HALIFAX WEST ROOF REPLACEMENT

283 THOMAS RADDALL DRIVE, HALIFAX, NS

ISSUED FOR TENDER

PROJECT NAME:

CLIENT:

Halifax
Regional Centre for Education

FBM PROJECT NO.: 2026-055 | DATE: 08 MAY 2026

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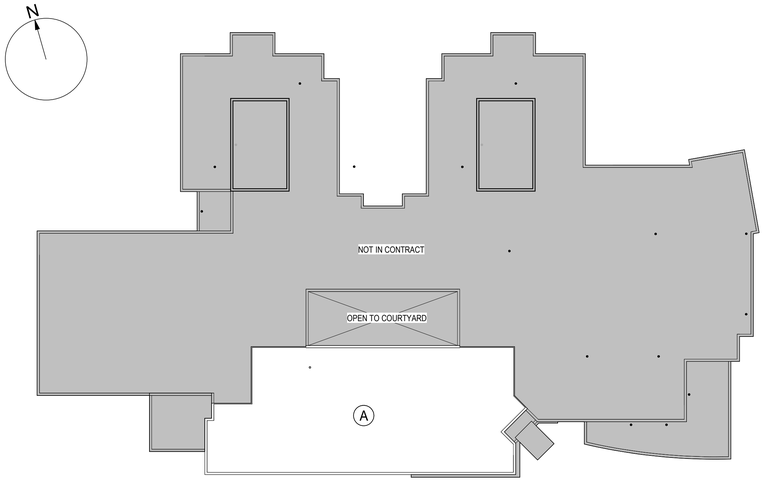

1 / A-101 KEY PLAN
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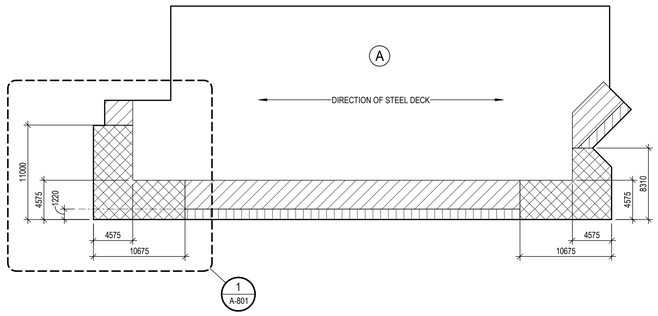

3 / A-101 ROOF SECUREMENT PLAN
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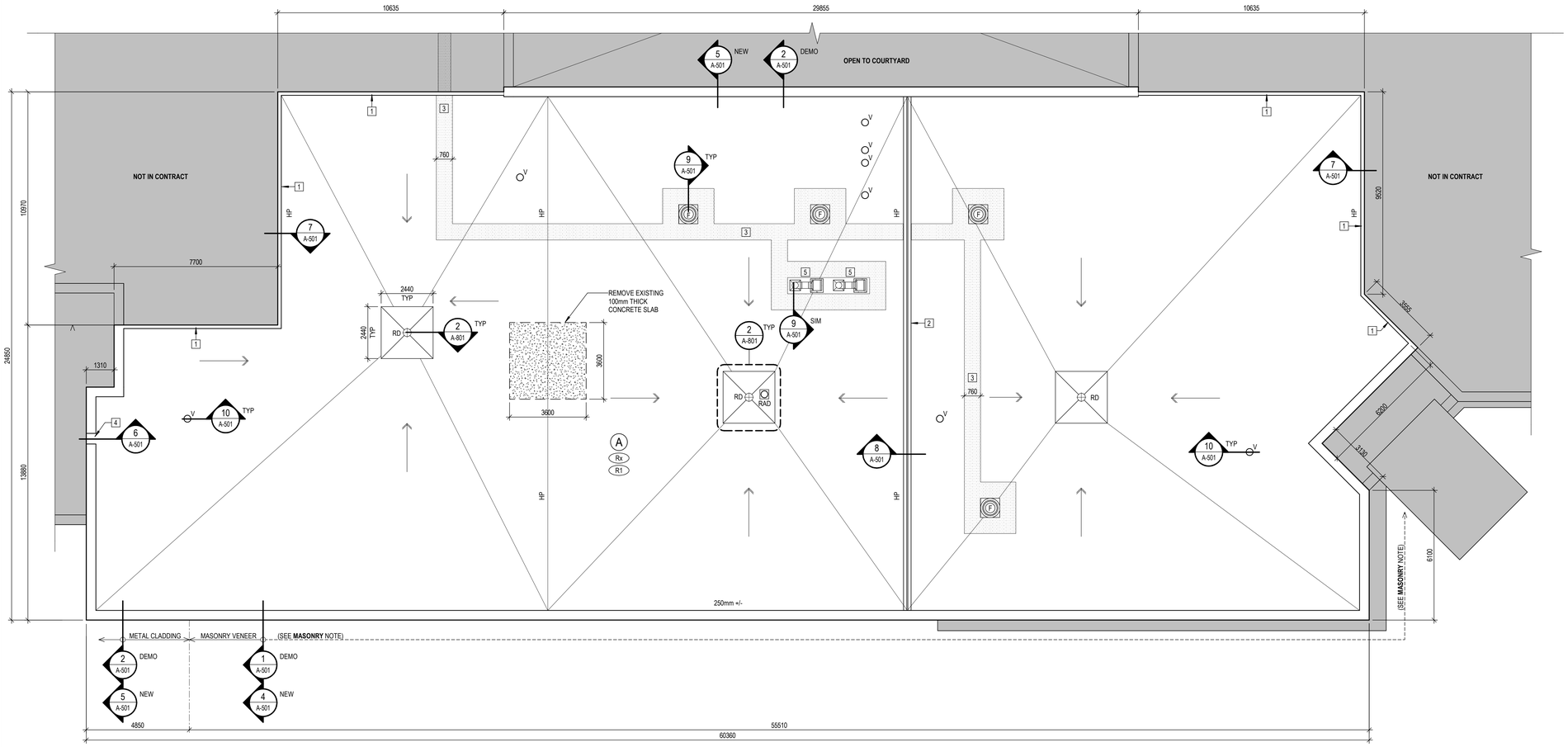

2 / A-101 ROOF PLAN
SCALE: 1 : 100

GENERAL NOTES

1. DIMENSIONS INDICATED ARE APPROXIMATE. CONFIRM ALL DIMENSIONS ON SITE PRIOR TO SUBMITTING BID.
2. REMOVE AND DISPOSE OF EXISTING ROOF ASSEMBLY COMPONENTS DOWN TO THE LEVEL OF THE EXISTING ROOF DECK.
3. REMOVE METAL CAP FLASHINGS AND MEMBRANE FLASHINGS AT PARAPETS.
4. COORDINATE WITH HRCE FOR ALL REMOVALS AND UTILITIES REQUIRING DISCONNECTS (SUCH AS MECHANICAL FANS, ETC).
5. INSTALL 2440mm x 2440mm TAPERED INSULATION SUMP AT DRAINS, 4% SLOPE.

ROOF PLAN LEGEND

	EXISTING - NOT IN CONTRACT
→	EXISTING DECK SLOPE TO DRAIN
HP	HIGH POINT/RIDGE OF SLOPE
V	EXISTING ROOF VENT
RAD	EXISTING RADON VENT
F	EXISTING EXHAUST FAN
	EXISTING ROOF DRAIN - REPLACE DRAIN, COMPLETE WITH 2440mm x 2440mm SUMP.

ROOF SECUREMENT LEGEND

- CORNER ZONE (ADHERED AND MECHANICALLY ATTACHED)
- EDGE ZONE (INNER) (ADHERED)
- EDGE ZONE (OUTER) (ADHERED AND MECHANICALLY ATTACHED)
- FIELD ZONE (ADHERED)

ROOF ASSEMBLIES

Rx **EXISTING ASSEMBLY**

- TPO ROOFING MEMBRANE, ADHERED
- 13mm OVERLAY BOARD, MECH. ATTACHED
- RIGID INSULATION
- AIR/VAPOUR BARRIER MEMBRANE, ADHERED
- 13mm GWB DECK SHEATHING, MECH. ATTACHED
- STRUCTURAL STEEL DECK, SLOPED
- STEEL STRUCTURE

R1 **NEW ASSEMBLY**

- TPO ROOFING MEMBRANE, ADHERED & MECH. ATTACHED
- 13mm HD POLYISOCYANURATE COVER BOARD
- 200mm POLYISOCYANURATE INSULATION (TWO 100mm LAYERS)
- AIR/VAPOUR BARRIER MEMBRANE, ADHERED
- 13mm GYPSUM SHEATHING, MECH. ATTACHED
- STRUCTURAL STEEL DECK (EXISTING)

ROOF PLAN KEYNOTE LEGEND

1. NEW ROOF DIVIDER CURB; INSULATED WOOD FRAMED CONSTRUCTION.
2. NEW ROOF EXPANSION JOINT CURB; INSULATED WOOD FRAMED CONSTRUCTION.
3. NEW WALKWAY AT EXISTING FANS AND EQUIPMENT 760mm WIDE. ALIGN NEW WALKWAY WITH EXISTING WALKWAY AT ROOF NOT IN SCOPE
4. EXISTING OVERFLOW SCUPPER LOCATION.
5. EXISTING MECHANICAL UNIT w/ METAL STAND MOUNTED ON PAVERS AND DUCT ROOF PENETRATION. MODIFY THE MECHANICAL EQUIPMENT SUPPORT STAND TO ACCOMMODATE NEW ROOF ASSEMBLY THICKNESS.

CONCRETE PAVERS

THE ROOF AREA IS CURRENTLY COVERED IN CONCRETE PAVERS (200 TOTAL, APPROX.). THE PAVERS SERVE AS TEMPORARY BALLAST TO SECURE THE DELAMINATED TPO MEMBRANE. ALL PAVERS ARE TO BE TURNED OVER TO HRCE.

REMOVE PAVERS FROM ROOF AS WORK PROGRESSES. ONLY REMOVE AS MANY PAVERS AS NEEDED TO FACILITATE DAILY WORK ACTIVITIES. STORE ALL REMOVED PAVERS NEATLY ON PALLETS ON GROUND AT AREA DESIGNATED BY HRCE. WRAP/SECURE PAVERS ON PALLETS FOR SAFE TRANSPORT, FOR FUTURE PICK-UP BY HRCE.

MASONRY

THE EXISTING TOP COURSE OF CONCRETE BLOCK MASONRY VENEER AT THE PARAPET HAS MISSING, DISLODGED, AND DAMAGED UNITS.

REMOVE ENTIRE COURSE OF MASONRY. CLEAN/PREPARE EXISTING UNITS TO RECEIVE NEW MASONRY COURSE. INSTALL NEW MASONRY IN ACCORDANCE WITH CSA A371. NEW MASONRY TO MATCH EXISTING.

PRICING

1. TWO PRICES ARE TO BE SUBMITTED WITH BID, AS FOLLOWS:

   PRICE **1**: TPO ROOFING SYSTEM, AS DETAILED AND SPECIFIED.
   PRICE **2**: EPDM ROOFING SYSTEM, AS SPECIFIED (07 53 23).

2. BOTH PRICES ARE TO INCLUDE THE SAME SCOPE OF WORK, AS DEFINED BY THE CONTRACT DOCUMENTS.
3. EPDM ROOFING INSTALLATION DETAILS ARE NOT PROVIDED ON THE DRAWINGS (OTHER THAN DETAIL 4 / A-801), BUT ARE CONSIDERED SIMILAR TO THE TPO DETAILS.

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CHECKED	SED
DATE	08 MAY 2026

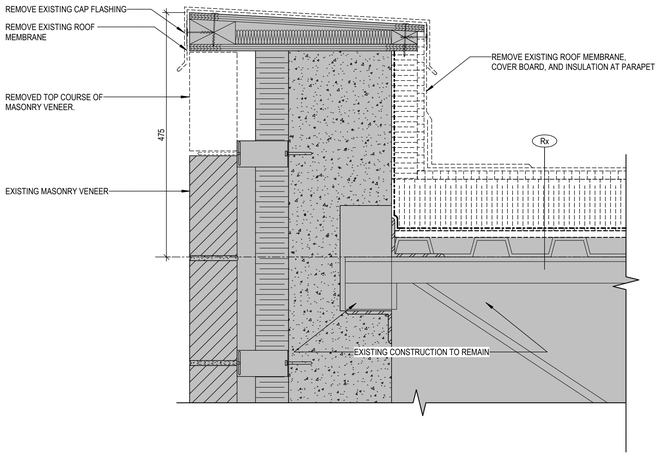
PROJECT
HALIFAX WEST ROOF REPLACEMENT
283 THOMAS RADDALL DRIVE, HALIFAX, NS

CLIENT
Halifax Regional Centre for Education

PROJECT No. 2026-055

SHEET TITLE
ROOF PLAN

A-101



1 A-501 PARAPET AT VENEER - DEMO

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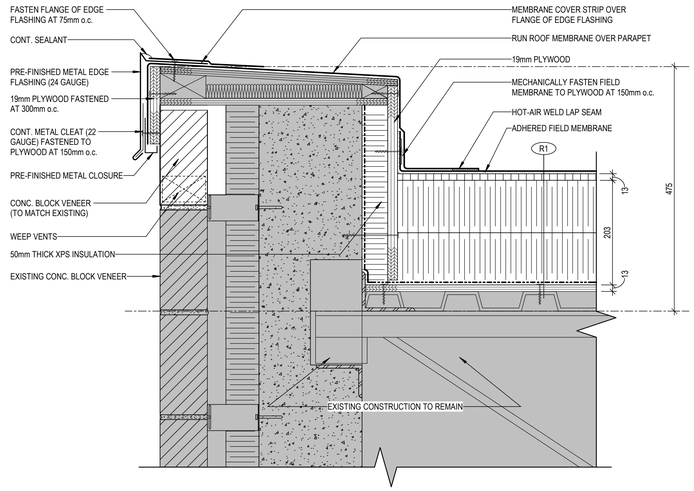

4 A-501 PARAPET AT VENEER - NEW

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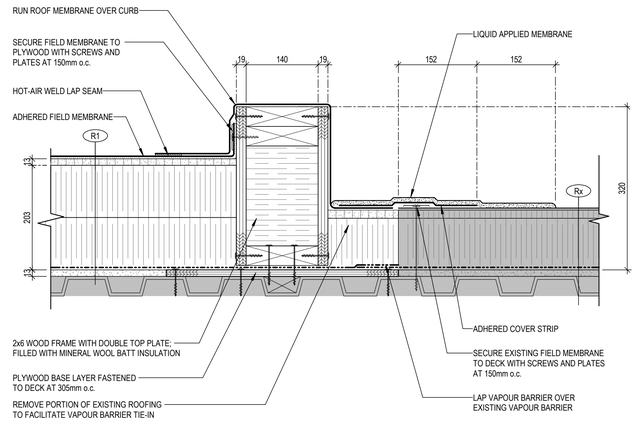


7 A-501 ROOF DIVIDER CURB

SCALE: 1 : 5

2 A-501 PARAPET AT METAL CLADDING - DEMO

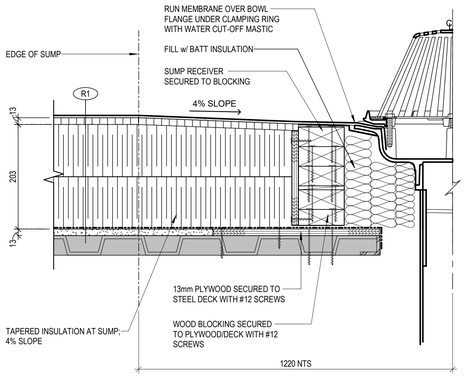
SCALE: 1 : 5

5 A-501 PARAPET AT METAL CLADDING - NEW

SCALE: 1 : 5

8 A-501 ROOF EXPANSION JOINT

SCALE: 1 : 5



3 A-501 ROOF DRAIN

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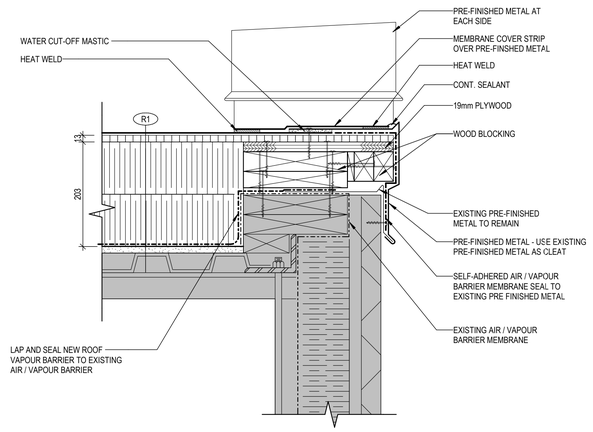

6 A-501 OVERFLOW SCUPPER

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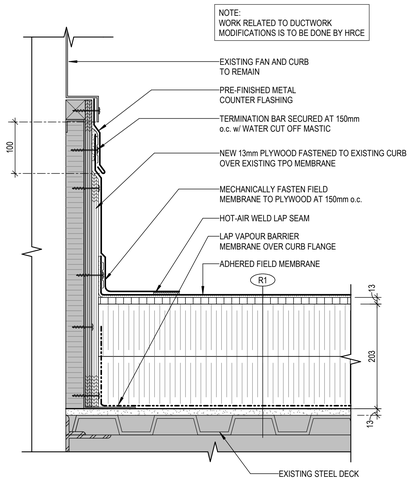

9 A-501 TYPICAL FAN CURB

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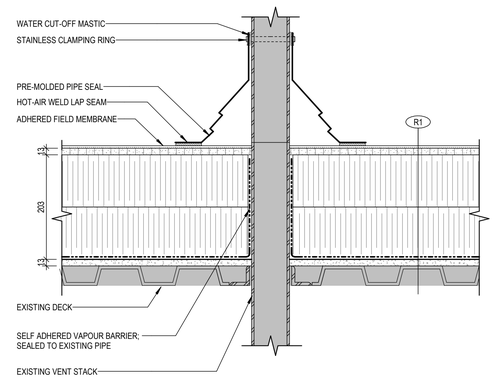

10 A-501 VENT STACK FLASHING

SCALE: 1 : 5

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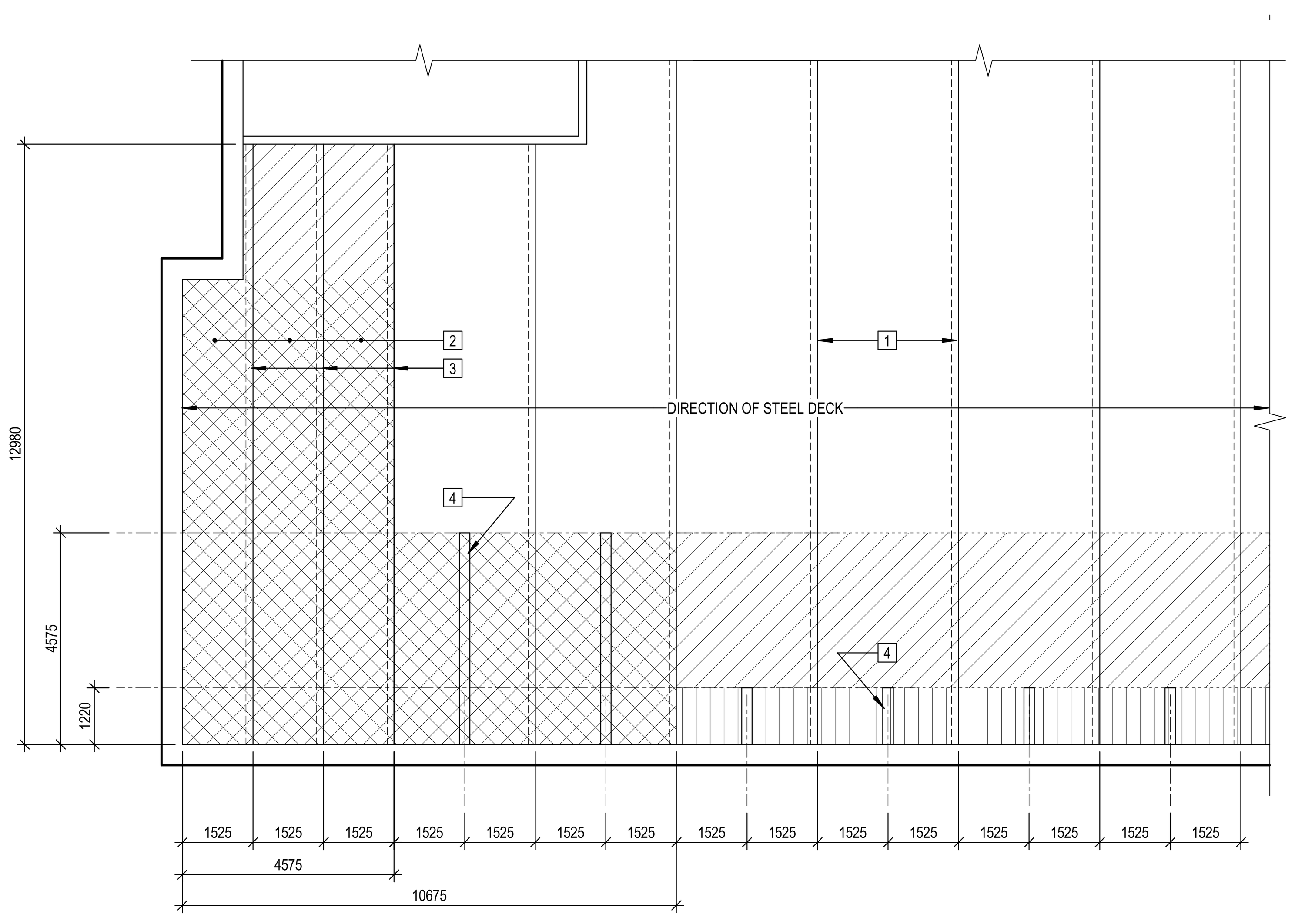
PROJECT
HALIFAX WEST ROOF REPLACEMENT
283 THOMAS RADDALL DRIVE, HALIFAX, NS

CLIENT
Halifax Regional Centre for Education

PROJECT No. 2026-055

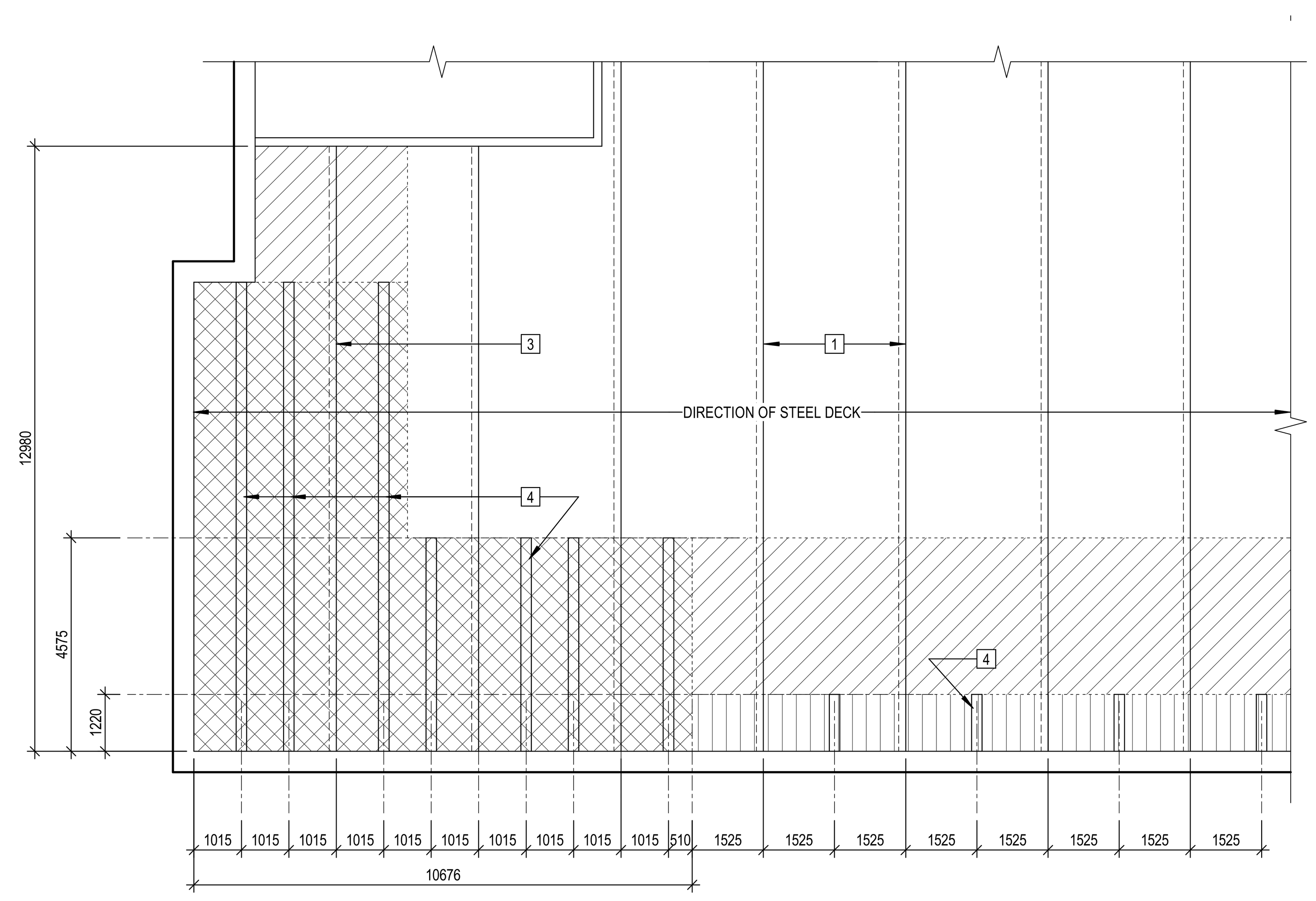
SHEET TITLE
SECTION DETAILS

A-501



1 A-801 CORNER & EDGE ZONE FASTENING (TPO)

SCALE: 1 : 100



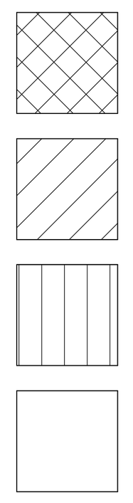
4 A-801 CORNER & EDGE ZONE FASTENING (EPDM)

SCALE: 1 : 100

ROOF FASTENING KEYNOTE LEGEND

1. 3050mm MEMBRANE SHEET WIDTH
2. 1525mm MEMBRANE SHEET WIDTH AT CORNER ZONES
3. IN-SEAM MECHANICAL FASTENING AT 305mm o.c. AT CORNER ZONES
4. MECHANICAL FASTENING AT 305mm o.c. IN FIELD/CENTER OF SHEET, c/w OVERLAYMENT STRIP.

ROOF SECUREMENT LEGEND



CORNER ZONE (ADHERED AND MECHANICALLY ATTACHED)

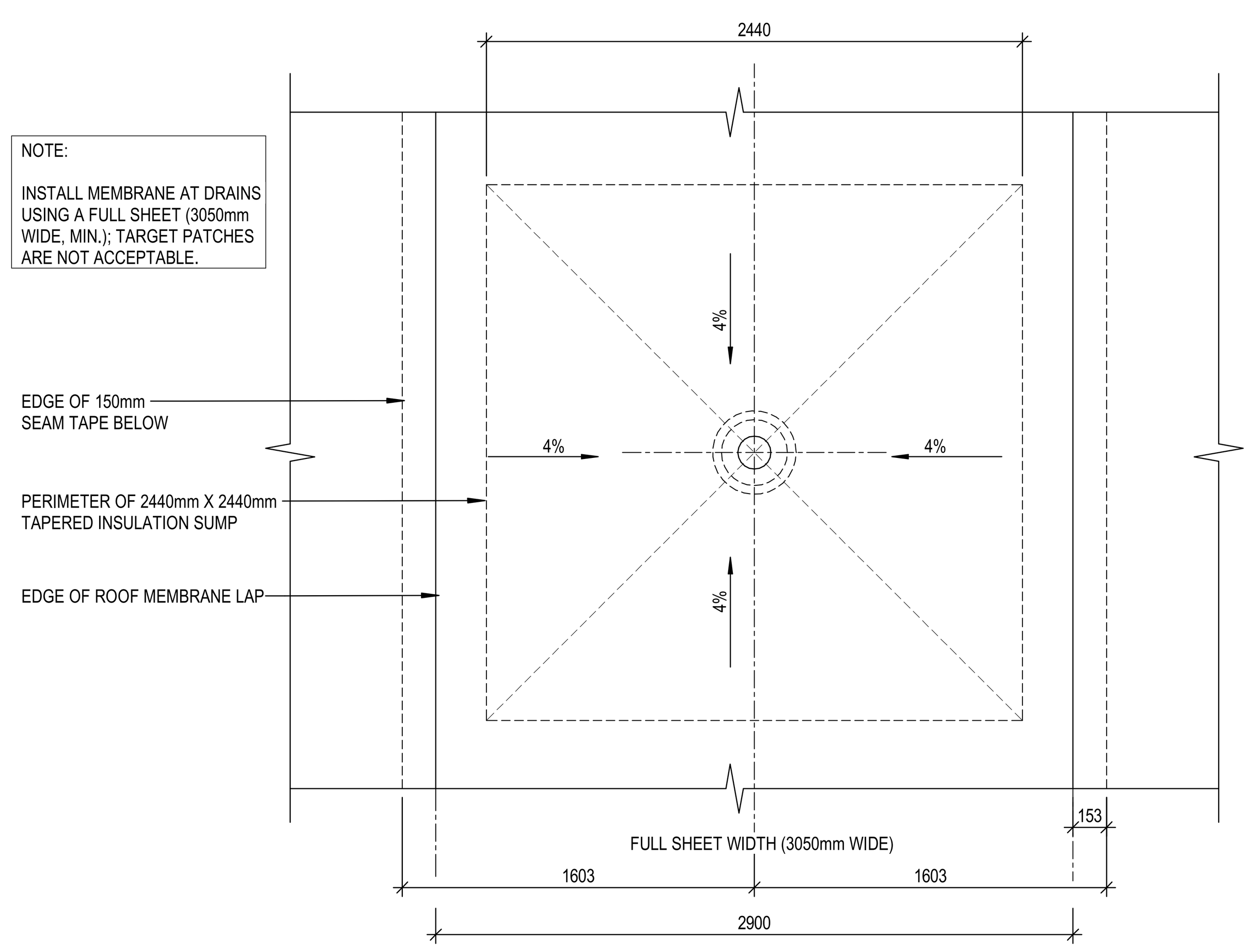
EDGE ZONE (INNER) (ADHERED)

EDGE ZONE (OUTER) (ADHERED AND MECHANICALLY ATTACHED)

FIELD ZONE (ADHERED)

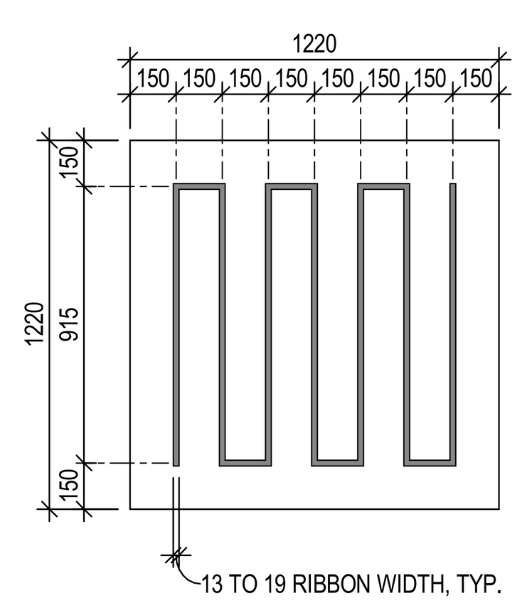
NOTE:

INSTALL MEMBRANE AT DRAINS USING A FULL SHEET (3050mm WIDE, MIN.); TARGET PATCHES ARE NOT ACCEPTABLE.



2 A-801 ROOF MEMBRANE AT DRAIN

SCALE: 1 : 25

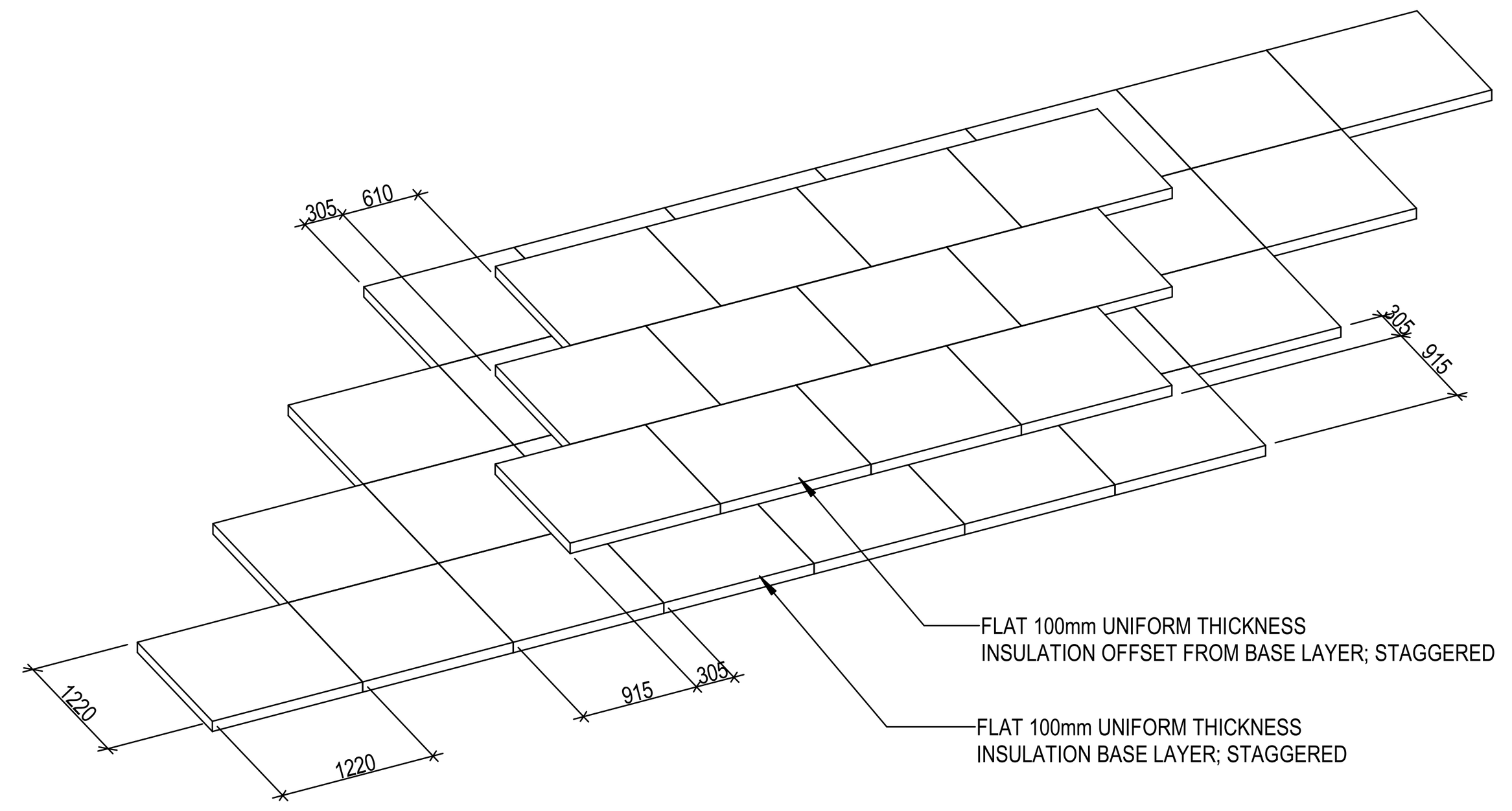


NOTE:

1. THIS DETAIL SHOWS TYPICAL LOW-RISE FOAM ADHESIVE PATTERN FOR THE LAYERS OF INSULATION. PATTERNS ARE SIMILAR FOR THE COVER BOARD LAYER.
2. THE INTENT IS TO ILLUSTRATE THE GENERAL PATTERN OF ADHESIVE APPLICATION. THE ACTUAL PATTERN AND SPACING OF ADHESIVE RIBBONS WILL BE AS REQUIRED BY THE MANUFACTURER'S TESTED SYSTEM TO CSA A123.21 FOR WIND UPLIFT RESISTANCE AT FIELD, EDGE, AND CORNER ZONES OF THE ROOF.
3. INSTALL ADHESIVE WITH SQUARED CORNERS AT FIELD AND EDGE ZONES (AS SHOWN); ROUNDED CORNERS ARE NOT ACCEPTABLE.
4. ENSURE ADHESIVE RIBBON WIDTH IS 13mm TO 19mm WIDE WHEN IT EXITS THE NOZZLE. THE INTENT IS TO ACHIEVE RIBBON WIDTHS OF 65mm TO 75mm WHEN THE ADHESIVE IS FULLY CURED AND COMPRESSED.
5. WEIGH DOWN ALL INSULATION BOARDS IMMEDIATELY AFTER THEY ARE SET INTO THE ADHESIVE. "WALKING THE BOARDS IN" IS NOT ACCEPTABLE.

5 A-801 ADHERED INSULATION PATTERN

SCALE: 1 : 25



3 A-801 FLAT INSULATION STAGGERING AND OFFSET PATTERN

SCALE:

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SHEET TITLE
MISCELLANEOUS DETAILS

A-801

PINCHIN

Halifax
Regional Centre for Education

FINAL

Asbestos Management Program

HRCE Facilities

Prepared for:

Halifax Regional Centre for Education
33 Spectacle Lake Drive
Dartmouth, Nova Scotia B3B 1W8

August 28, 2023

Pinchin File: 322126.000

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After hours emergency reporting	After hours manager on call	902.493.5110	

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Contact Name	Phone	Email
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Approved Abatement Contractors

Company	Contact Name	Phone	Email
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TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

Halifax Regional Centre for Education (HRCE) is committed to protect the health and safety of workers and occupants. This Asbestos Management Program (AMP) has been developed to meet responsibilities as an employer, and as a building owner to manage operational issues respecting asbestos and to maintain compliance with applicable regulations for disturbance of asbestos-containing materials (ACM) during demolition, renovation, alteration, maintenance, repair or other activities.

2.0 SCOPE

The AMP provides information and procedures for Asbestos Management of all HRCE owned or occupied facilities in Nova Scotia.

The AMP applies to all HRCE staff as well as all service providers and contractors performing work in HRCE facilities.

The AMP outlines requirements for HRCE personnel involved in acquisition of property which may contain ACM. It applies to all categories of property with the exception of vacant lands. If HRCE decides to lease property in the future ACM should be considered when developing their lease agreement and this AMP should be amended to address leased properties occupied by the HRCE.

The AMP is a management system to control the disturbance of ACM during demolition, renovation, alteration, maintenance, repair or other activities.

The AMP incorporates the following elements:

- Asbestos Assessments and Reassessments.
- Regulatory Requirements and HRCE Policies.
- Roles and Responsibilities.
- Notifications.
- Training Requirements.
- Emergency Reaction and Procedures.
- Record Keeping.
- Contractor Requirements.

3.0 OBJECTIVE

The AMP is a management system primarily intended to identify ACM and control disturbance of ACM by using proper procedures during demolition, renovation, alteration, maintenance, repair or other activities. The objective in preparing and instituting this AMP is to ensure that known or suspected ACM is managed

so that maintenance staff, construction workers and occupants are safeguarded in accordance with applicable regulations.

4.0 BACKGROUND INFORMATION AND HEALTH EFFECTS

The following is a very brief summary of the hazards and health effects from asbestos exposure:

- Occupational exposure to asbestos can cause fatal lung disease.
- Asbestos must become airborne and be inhaled to be hazardous. A physical disturbance or direct contact with ACM is required to cause it to become airborne. The mere presence of asbestos is not hazardous.
- Asbestos may remain in buildings so long as it is in good condition and undisturbed. No Provincial or Federal Regulations require the removal of ACM as long as it is enclosed, encapsulated or managed appropriately and removed prior to building demolition.

5.0 REGULATORY REQUIREMENTS AND HRCE POLICIES

5.1 Regulatory Requirements

This AMP was implemented in response to the following legislation in effect as of August 28, 2023.

All building operations, whether performed by HRCE, or service providers, shall adhere to the requirements outlined in this document and all applicable regulations, guidance documents and acceptable professional standards.

The following regulations and guidelines were in place at the time this AMP was prepared:

1. Occupational Health and Safety Act, N.S. Reg. 52/2013.
2. A Guide to Removal of Friable Asbestos-Containing Material.
3. A Guide to Assessment and Management of Asbestos in the Workplace.
4. Asbestos Waste Management Regulations, N.S. Reg. 53/95

6.0 HRCE POLICIES RELATED TO ASBESTOS

HRCE has established the following policies related to asbestos independent of applicable regulations:

- HRCE may opt for removal of ACM with minor damage as opposed to repair or encapsulation when cost-effective unless removal is not practicable. ACM with major damage must be removed.
- At existing leased properties where HRCE is a tenant, when ACM is discovered during any improvement, addition, renovation, demolition, maintenance, repair of any kind, or at

any other time, the Owner (Landlord) shall promptly remove the ACM from the leased premises, if possible within the existing lease agreement.

- HRCE may perform Low Risk asbestos operations, where appropriately trained to perform the work.
- All Moderate and High asbestos operations must be undertaken by an Asbestos Abatement Contractor. Asbestos Abatement Contractors may also perform Low Risk asbestos operations.

7.0 ASBESTOS-CONTAINING MATERIALS AT HRCE FACILITIES

Refer to the individual Asbestos Assessment or subsequent Asbestos Reassessment Reports prepared for the Facility, provided in Appendix G. In some cases, Hazardous Materials Assessment or Designated Substance Survey Reports have been prepared and these reports include information regarding asbestos and other hazardous materials (e.g. lead, mercury, silica, and PCBs).

All assessment reports or subsequent Asbestos Reassessment Reports have been, or will be, prepared to comply with applicable asbestos regulations and this AMP.

Asbestos Assessment Reports are key components of this AMP, as the reports define the locations of ACM and Presumed ACM (PACM) present in the facility, the condition of ACM, the friability, the type of asbestos and the approximate quantity.

7.1 Asbestos Assessments

Refer to the Asbestos Assessment or Hazardous Building Materials Assessment Report in Appendix G for further information on the methodology of the assessment(s) completed for the Facility.

HRCE will engage a Consultant to perform asbestos assessments for all facilities. The report is to be completed following a methodology compliant with applicable regulations and acceptable professional standards. The report must comment on the condition of the ACM, include recommendations for remedial action, and is to include the risk classification for any abatement required.

In facilities which are leased, copies of the initial asbestos assessment, and any subsequent reassessments, shall be provided by the Owner to HRCE, and maintained on Site, or HRCE will have an asbestos assessment report prepared and complete subsequent reassessments, limited to the leased space.

7.2 Reassessment of ACM

All ACM and PACM identified in the Facilities will be inspected at reasonable intervals, and at minimum annually, a reassessment of all ACM and PACM will be completed with written documentation.

The reassessment of ACM and PACM will be completed by a Consultant (Qualified Person) or HRCE staff, using the form provided in Appendix E.

7.2.1 Reassessment in Unassessed Areas

Where assessments have been completed in only a portion of schools, all non-sampled materials (including but not limited to ceiling tiles, vinyl floor tiles, vinyl sheet floor, etc.) are to be presumed to contain asbestos, and reassessed during their yearly inspection of the suites.

When feasible, arrangements should be made to access previously unassessed areas during the annual reassessments. If during any annual or other inspections, materials not previously sampled are found to be damaged (spalling finishes, debris, etc.), samples are to be collected and the material is to be identified as asbestos or non-asbestos. Remedial action and removal procedures are to be decided accordingly if the materials are found to contain asbestos.

7.3 Distribution of Assessment and Reassessment Reports

HRCE will ensure that each assessment and reassessment report is distributed or accessible to the following:

- HRCE JOHSC and/or Occupational Health and Safety Representative (OHS Representative).
- A hard copy will be sent to each facility. Electronic copies will be made available.
- Building Operators, Maintenance Personnel, Janitorial Staff.
- Project Managers or Construction Managers planning or performing work in a HRCE Building.
- Outside contractors that could potentially disturb ACM through their work.

8.0 PRE-CONSTRUCTION HAZARDOUS BUILDING MATERIALS ASSESSMENT

Prior to the commencement of any work that requires renovation, construction or demolition, the Facility or specific areas of the Facility to be impacted by the work shall be assessed for ACM, as well as other hazardous building materials (e.g. lead, mercury, silica, and PCBs), (the "**Pre-Construction Hazardous Building Materials Assessment**").

The Pre-Construction Hazardous Building Materials Assessment must be performed by a Consultant and include destructive or intrusive testing of enclosed areas.

Sampling may include the following:

- Prior to disturbance of materials presumed to contain asbestos listed in the assessment reports, collect samples of materials that were not previously sampled/identified (refer to Asbestos Assessment Report or Hazardous Materials Report).
- Unidentified suspect materials that were not sampled during the initial survey, but which may be present located within enclosed areas such as pipe/duct insulations in ceiling spaces, chases or shafts. If such areas will be affected by the work, entry to these areas and sampling of suspect materials shall be performed.
- Assessment of existing visible floor, wall and ceiling finishes to assess and sample concealed finishes (e.g., vinyl flooring under carpet or other vinyl flooring, drywall over plaster, etc.)
- Other hazardous building materials shall be sampled and analyzed or identified prior to disturbance as required by provincial regulatory requirements. Other hazardous building materials may include lead, mercury, silica, polychlorinated biphenyls, mould, etc.

Upon receiving the Pre-Construction Hazardous Building Materials Assessment report, if asbestos and/or other hazardous building materials are present in the area, specifications (large scale projects) or a scope of work (small scale projects) for removal shall be prepared, provided, and reviewed by the Constructor or contractor prior to any renovation, construction, or demolition work.

HRCE will employ an Abatement Contractor to perform abatement of other hazardous materials and/or ACM that may be disturbed by construction, renovation, or demolition work using appropriate regulated procedures.

9.0 REMEDIAL WORK – DAMAGED MATERIALS

Where damage is observed, HRCE will refer to the existing Asbestos or Hazardous Building Materials Assessment or subsequent Asbestos Reassessment Reports (as required) to determine if the damaged materials are ACM or PACM.

Where damaged suspected asbestos-containing materials are not included in the existing Asbestos or Hazardous Building Materials Assessment Report(s), an assessment and/or sampling of these damaged materials must be conducted prior to repair of damage, unless materials are treated as ACM, and appropriate asbestos operations are followed.

If damaged materials contain asbestos and the regulated abatement procedure to be used is not detailed in the recommendations section of the existing Asbestos or Hazardous Building Assessment Materials report, HRCE will contact a Consultant to determine applicable asbestos abatement procedures and to develop a scope of work and performance specifications, as required.

HRCE will employ an Abatement Contractor to perform the remedial work required (removal of damaged ACM) and a Consultant to perform inspection and air monitoring as soon as practicable upon receiving the report/notice of damage.

10.0 NOTIFICATION

10.1 Notification to Occupants

HRCE will inform the JOSHC of any planned sampling, assessment or abatement work that is to be conducted within the applicable HRCE building(s) to ensure that all aspects of committee involvement are complied with.

Tenants must be notified of ACM in their leased space and in common areas of the building that they have access to and may disturb the ACM.

HRCE will notify all new tenants of the presence of ACM in the space they are occupying. Notification is to be completed prior to occupancy via the tenant lease agreement.

Upon institution of this AMP, and upon completion of asbestos assessments in a recently assessed or recently purchased property, where tenants have not been notified via their lease agreement, HRCE will notify occupants of the presence of asbestos in the space they are occupying.

10.2 Notification of Contractors

Contractors that perform work which may disturb ACM within the Facility must be notified of the presence of asbestos (by providing the Asbestos or Hazardous Building Materials Assessment Report). Notification will be sent to these parties prior to project or maintenance work (e.g. janitorial, telephone, cable, etc.).

Contractors are to inform all sub-trades of the presence of all ACM or PACM identified in the work area and include this information in their respective contract agreement.

If suspect ACM not identified in the contract agreement is discovered during the course of the work, the Contractors are to stop all work which might disturb the suspect ACM and notify the appropriate HRCE personnel (i.e. Property Manager and/or Project Manager as applicable) or Constructor, as the case may be.

Prior to performing work, contractors must complete and return the Contractors Notification Package (Appendix B) and HRCE will maintain acknowledgement forms from these packages.

10.3 Notification of Maintenance Personnel

HRCE will inform their own staff that will perform janitorial work, maintenance work or project work of the presence of asbestos in the Facility in which they are working. This will be completed by providing access

to the AMP and the most recent Asbestos Assessment or Hazardous Building Materials Assessment Report and training.

10.4 Notification of Project Managers, Architects and Engineers

HRCE will inform their project managers, architects and engineers of the presence of asbestos in the facility in which they are arranging for or planning work. This will be completed by providing access to the AMP, and the most recent Asbestos Assessment or Hazardous Building Materials Assessment Report.

10.5 Notification of Authorities Having Jurisdiction

Regulations in place at the time of this AMP development do not require notifications regarding asbestos-containing materials, except for:

- A major release of a hazardous substance (per Section 63 of the Occupational Health and Safety Act).

11.0 TRAINING REQUIREMENTS

HRCE will employ a Consultant to ensure staff have received appropriate training.

HRCE employees which will not undertake asbestos abatement work or will not disturb asbestos may be provided training including the following:

- Health effects of asbestos exposure.
- Overview of the existence of applicable regulations and risk classification.
- Identification of common types of ACM (so as to not disturb them).
- Understanding a typical asbestos survey report.
- Their responsibilities under the policies in this AMP and Regulations.

HRCE employees will undertake asbestos abatement work shall receive training including the following:

- Health effects of asbestos exposure.
- Applicable regulations and risk classification.
- Identification of common types of ACM.
- Asbestos Work Procedures limited to Low Risk Operations.
- Understanding a typical asbestos survey report.
- Their responsibilities under the policies in this AMP and Regulations.

HRCE will maintain a record of training of their employees.

HRCE requires all service providers, contractors, etc. to provide appropriate training to all workers who perform work in HRCE Facilities which will, or potentially may, disturb ACM.

12.0 RESPONSE TO DISTURBANCE OF ASBESTOS, PROCEDURES AND CONTACTS

HRCE staff and contractors may encounter fallen material that is suspected confirmed to contain asbestos or uncover a material that was previously unidentified and is suspected to contain asbestos. HRCE staff and contractors shall follow the protocol "Response to Disturbance of Asbestos" in Appendix C.

13.0 CLASSIFICATION OF ABATEMENT WORK

Refer to Appendix F for the classification of asbestos work.

14.0 INSPECTION AND AIR MONITORING OF ASBESTOS WORK

14.1 Visual Inspection

The primary method of ensuring compliance when conducting asbestos removal or abatement work is visual inspection of the site and work practices by a Competent Worker or Asbestos Consultant.

14.2 Air Monitoring During Asbestos Work

Per the "Asbestos in the Workplace: A Guide to the Removal of Friable Asbestos Containing Material" dated November 21, 2013:

- During the removal of friable asbestos-containing materials, where a Glove Bag is not used, and the air from the enclosure is exhausted inside the building, daily air sampling is required outside the enclosure.
- At the completion of removal of friable asbestos-containing materials, clearance air sampling must be performed prior to dismantling of the site isolation and engineering controls.

Air sampling above the regulatory requirements may be performed, as identified in the following sections.

Air monitoring and analysis during asbestos removal or abatement will be performed using Phase Contrast Microscopy (PCM) following the NIOSH 7400 method. PCM air samples must be submitted for analysis to a laboratory participating in a recognized quality control program such as the AIHA Asbestos Analysts Testing (AAT) Program or the Quality Control Program of the IRSST (the Institut de recherche Robert-Sauvé en santé et en sécurité du travail).

The PCM method does not characterize the types of fibres present. In cases where elevated fibre concentrations are identified, or the actual asbestos concentration is required, Transmission Electron Microscopy following the NIOSH 7402 method may be used.

The acceptable limit for PCM samples is as follows:

- as low as reasonably achievable (ALARA) outside the work area, and/or 0.01 fibres/cubic centimetre (f/cc).
- 0.01 f/cc for clearance air sampling.

Where TEM analysis is performed, the acceptable limits would be 0.01 asbestos fibres/cubic centimeter.

14.3 Low Risk – Inspection and Air Monitoring

14.3.1 Inspection

The Project Manager, an assigned Competent Worker, or an Abatement Consultant, will inspect the work upon completion of work to ensure all ACM has been removed and the area adequately cleaned of dust and debris.

14.3.2 Air Monitoring

Air monitoring is not required; however, projects may be evaluated on a case by case basis, and air sampling performed where desired.

14.4 Moderate Risk and Glove Bag – Inspection and Air Monitoring

14.4.1 Inspection

An Abatement Consultant will perform daily inspections throughout the abatement, and inspect the work upon completion of work to ensure all ACM has been removed and the area adequate cleaned of visible dust and debris. Upon completion of inspection and air monitoring (if required) by the Abatement Consultant, the site isolation may be dismantled.

The Project Manager or an assigned Competent Worker may inspect for final cleanliness after the site isolation has been dismantled.

14.4.2 Air Monitoring

PCM air monitoring will be conducted daily and at completion of abatement. Air monitoring will be conducted in occupied areas adjacent to the Asbestos Work Area or Glove Bag Work Area during contaminated work.

PCM air monitoring will be used for air clearance within the Asbestos Work Areas prior to re-occupancy. Where enclosures have been constructed to define the Asbestos Work Area, aggressive clearance air sampling will be performed.

14.5 High Risk – Inspection and Air Monitoring

14.5.1 Inspection

An Abatement Consultant will perform daily inspections throughout the abatement, and inspect the work upon completion of work to ensure all ACM has been removed and the area adequate cleaned of visible dust and debris. Upon completion of inspection and air monitoring by the Consultant, the site isolation may be dismantled.

The Project Manager or an assigned Competent Worker may inspect for final cleanliness after the site isolation has been dismantled.

14.5.2 Air Monitoring

PCM air monitoring will be conducted on a daily basis.

Air monitoring will be conducted at the perimeter of the Asbestos Work Area (in occupied areas adjacent to the Work Area) to ensure no leakage from the enclosure.

Aggressive clearance air monitoring must be performed within the Asbestos Work Areas. Where PCM samples fail to meet the 0.01 f/cc criteria:

- Contractors may be requested to reclean the Asbestos Work Areas, or;
- Transmission Electron Microscopy (TEM) may be used.

Once the clearance air testing is satisfactory:

a. The site isolation and engineered controls may be removed.

b. A copy of the air sample report is to be:

    a. provided and maintained on site by the Contractor, when abatement work is part of a project;

    b. provided to the Owner, and a copy is kept on file;

    c. provided to the JOHSC or the OHS representative, if any, for the workplace and for the building

15.0 RECORD KEEPING AND DOCUMENTATION RETENTION

HRCE will keep the following records:

- Asbestos and / or Hazardous Building Materials Assessment Reports.
- Reassessment Reports.
- Tenant Notification Letters and dates posted or transmitted.
- Contractor Notification Packages and Acknowledgement Forms.
- Asbestos Project Work Records.
- Consultant Asbestos Abatement Completion Reports (including Daily Inspection and Air Monitoring Reports).
- Bulk sample analytical results from any sampling.
- Emergency response project records.

16.0 CONSULTANT QUALIFICATIONS

Consultants employed by HRCE for asbestos work are to meet the following minimum requirements:

- Display competency in asbestos and hazardous materials consulting
- Maintain a health and safety management system that meets provincial standards.
- Maintain a Comprehensive General Liability Policy, with a minimum of $5,000,000 in coverage.
- Maintain an Errors and Omissions Policy, with a minimum of $5,000,000.
- Maintain an Automobile or Fleet Policy, and Non-Owned Automobile Policy with a minimum of $2,000,000 in coverage.
- Maintain valid provincial worker's compensation coverage
- Accredited to analyze PCM air samples or use an accredited laboratory.

17.0 ASBESTOS ABATEMENT CONTRACTOR QUALIFICATIONS

Contractors employed by HRCE are to meet the following minimum requirements:

- Maintain a Comprehensive General Liability Policy, provided on an "occurrence" basis, for a minimum of $5,000,000 in coverage.
- Maintain an Asbestos Liability or Contractors Pollution Liability Policy, provided on an "occurrence" basis, with a minimum of $5,000,000 in coverage.

- Maintain an Automobile or Fleet Policy, and Non-owned Automobile Policy with a minimum of $2,000,000 in coverage.
- Maintain valid provincial worker's compensation coverage.
- All supervisors and workers performing abatement work are to be trained in the procedures being used, health effects or asbestos, applicable personal hygiene procedures, personal protection equipment used and respirator care.
- All workers are to be fit tested for respirators.
- Maintain a health and safety management system that meets provincial standards.

18.0 MAINTENANCE AND JANITORIAL WORK

HRCE personnel and contracted janitorial staff will not:

- Sweep/vacuum in areas of damaged ACM.
- Sweep/vacuum/remove ACM debris.
- Disturb ACM.
- Remove ACM.

HRCE will employ an Abatement Contractor to perform these tasks, where required.

Alternately, HRCE will employ the appropriately trained trade contractor if there is other work to be completed that will disturb ACM (e.g. installing electrical equipment through an asbestos-containing plaster wall).

19.0 MAINTENANCE OF THE AMP

This AMP is to be re-evaluated, and possibly revised, each time there is a substantial change to the any provincial regulation, or policy change. This AMP must be reviewed at least annually and updated as necessary.

20.0 ROLES AND RESPONSIBILITIES

This section defines the roles and responsibilities of HRCE personnel instituting this AMP and provide effective management of ACM at their facilities.

The AMP Facilitator has the primary responsibility to administer the AMP and ensure it is instituted and effective.

The following table summarizes the responsibilities of HRCE personnel:

Reference No.	Responsibility/Task	AMP Section Reference	AMP Facilitator	Facility Manager	Project Team	Client Staff	Consultant
1	Maintenance of the AMP	19.0	X				
2	Employ a Consultant to prepare Asbestos Assessment Reports for any facility where one is not available/prepared	7.1	X	X			
3	Employ a Consultant to prepare Asbestos Assessment Reports in newly purchased facilities	7.1	X	X			
4	Employ a Consultant to reassess facilities where ACM has been confirmed	7.2	X	X			
5	Distribute Asbestos Assessment and Reassessment Reports	7.3	X				
6	Upon receiving assessment and reassessment reports, employ a contractor to perform remedial abatement work to remove damaged ACM. Use applicable provincial procedures	9.0	X	X			
7	As required, prior to performing asbestos work, engage a Consultant to perform inspection and air monitoring	14.0	X	X	X		
8	Ensure that an intrusive pre-construction assessment for ACM is performed prior to any renovation, alteration or demolition	8.0		X	X		X
9	Conduct bulk sampling of suspect materials that have not been sampled or presume the materials to be an ACM	8.0		X	X		X
10	Employ a Consultant (as applicable) to prepare a scope of work prior to large scale abatement as part of construction, renovation or demolition.	9.0		X	X		
11	Provide existing occupants at the outset of this AMP, or occupants in newly purchased facilities, a letter notifying the lessee of ACM within their space, and instruction not to disturb the ACM.	10.1	X	X			

Reference No.	Responsibility/Task	AMP Section Reference	AMP Facilitator	Facility Manager	Project Team	Client Staff	Consultant
12	Ensure all Project Managers, Architects, Engineers and others arranging for, or planning, work in the Facility are provided with the most current asbestos (re)assessment report.	10.4	X	X	X	X	
13	Provide contractors working in HRCE facilities the most current asbestos information and notification via the Contractor Information Package	10.2		X	X	X	
14	Employ a Consultant to train HRCE personnel	11.0	X				
15	Response to an uncontrolled spill or disturbance of asbestos following emergency procedures in Appendix C	12.0	X	X	X	X	
16	Keep all records as required by this program (excepting contractor package acknowledgement)	15.0	X				
17	Keep records of contractor package acknowledgement for each project (contractors to submit via email and keep record)	15.0	X	X	X		
18	Ensure Consultants meet the required qualifications	16.0	X	X	X		
19	Ensure contractors meet the required qualifications	17.0		X	X		X
20	Ensure maintenance and janitorial work is performed so that it does not disturb ACM and unnecessary disturbance of ACM is avoided	18.0				X	
21	Report any unplanned disturbance to ACM or damage to ACM	12.0	X	X	X	X	

GLOSSARY

Amended Water	Water with wetting agent added for purpose of reducing surface tension to allow thorough wetting of ACM.
Asbestos-Containing Material(s) (ACM)	Material identified by an appropriate laboratory analytical method (e.g. EPA 600/R-93/116, NIOSH 9000, or NIOSH 9002) to contain at least 0.5% of any type of asbestos, and vermiculite that is identified to contain any amount of asbestos using EPA method 600/R-04/004 if other analytical methods do not identify the presence of asbestos.
Asbestos	Any and all types of asbestos (generally considered as Actinolite; Amosite; Anthophyllite; Chrysotile; Crocidolite; Tremolite, and Libby Amphibole).
Asbestos Work Area	Area where work is being performed which will or may disturb ACM including overspray and fallen material or settled dust that may contain asbestos.
Competent Worker	In relation to specific work, means a worker who, • qualified because of that person's knowledge, training and experience to do the assigned work in a manner that will ensure the health and safety of every person in the workplace; and • knowledgeable about the provisions of the Occupational Health and Safety Act and regulations that apply to the assigned work, and the potential or actual danger to health or safety associated with the assigned work.
Encapsulation	The application of a liquid sealant to asbestos-containing materials; the sealant may penetrate and harden the material (penetrants) or cover the surface with a protective coating (bridging sealants). Also called encasement. This is generally not advisable.
Enclosure	Enclosure of ACM means the construction of solid enclosure (walls, ceiling, bulkhead etc.) around ACM, or An Enclosure means the site isolation including hoarding walls, polyethylene sheeting and seals that isolates an Asbestos Work Area.
Friable Material	Material that: when dry, can be crumbled, pulverized or powdered by hand pressure, or is crumbled, pulverized or powdered. Includes previously non-friable asbestos-containing material that has become damaged to the extent that it may be crumbled, pulverized, or reduced to powder by hand pressure.
Glove Bag Removal	A method of removing friable insulation from a piping system using a prefabricated bag which isolates the section of insulation being removed.
HEPA Filter	High Efficiency Particulate Aerosol filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.
HEPA Filtered Negative Pressure Unit:	Portable air handling unit which extracts air directly from the Asbestos Work Area and discharges the air to the exterior of the building after passing through a HEPA filter.

JOHSC	Joint Occupational Health and Safety Committee.
Phase Contrast Microscopy (PCM)	A method which uses an optical microscope to determine airborne fibres, normally in an occupational setting. Results are presented as a number of fibres per cubic centimetre (f/cc). The method of analysis is based on the US National Institute for Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Method 7400, issue 2, Asbestos and Other Fibres by PCM (August 15, 1994).
Transmission Electron Microscopy (TEM)	A method which uses an electron microscope to determine airborne asbestos fibres. Results are presented in fibres per cubic centimetre of air (f/cc). The method of analysis is The U.S. National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Method 7402, Issue 2: Asbestos by TEM (Aug 15, 1994).
Low, Moderate and High Procedures	Work classifications and procedures defined under provincial health and safety regulations.
US EPA	United States Environmental Protection Agency.

APPENDIX A

Letter of Notification to Tenants Regarding Asbestos in Premises

LETTER OF NOTIFICATION TO TENANTS REGARDING ASBESTOS IN PREMISES

The following wording should be utilized in communicating the presence of asbestos to a tenant or lessee.

To Occupant

This letter is being provided as notification of the presence of asbestos within the building at [building name and/or address]. HRCE has recently had an asbestos assessment performed of the entire building and has established a program to manage all asbestos in a safe and prudent fashion.

Our Consultant inspected all areas of the building and made recommendations, where necessary, for removal or repair of asbestos. All such work [has been completed/will be completed shortly] with appropriate inspection and supervision. All asbestos remaining is subject to the Asbestos Management Program (AMP) as required by Provincial Regulations and our own due diligence. A copy of the assessment report and the AMP are available for review at the [Office].

The continuing presence of the remaining asbestos does not pose a risk of exposure to occupants as long as it remains under this management program. Staff have been given appropriate training and are aware of its presence.

If you have any concerns, please contact the AMP Facilitator at [phone number].

APPENDIX B

Contractor Notification and Acknowledgement Form

CONTRACTOR NOTIFICATION AND ACKNOWLEDGEMENT FORM

HRCE has identified the presence of various asbestos-containing materials (ACM) within [HRCE Facility name] located at [address]. An asbestos inventory report showing the locations and amounts of these materials is available for viewing from the AMP Facilitator.

The disturbance of ACM is to be undertaken by Asbestos Abatement Contractors that maintain the appropriate insurance coverage and meet the requirements set out in the Asbestos Management Program (AMP).

The following activities may disturb asbestos materials. The AMP Facilitator must be notified of the following:

- Any removal, repair or disturbance of any ACM.
- Ceiling entry which may disturb sprayed-fireproofing or pipe insulation, or debris on the ceiling.
- Any other operation which may generate airborne asbestos from friable asbestos.
- The disturbance of any material excluded from the Facility's asbestos assessment report.
- Discovery of any material excluded from the survey.

Declaration by Contractor

The Contractor and their sub-contractors shall follow the work procedures as specified by HRCE's AMP and shall not disturb ACM without using proper procedures in accordance the provincial regulations and guidelines, and this AMP, including prior notification to the AMP Facilitator. All asbestos waste will be packaged, transported and disposed of in accordance with applicable regulations.

Notification of Asbestos Abatement

All Contractors who perform work at facilities where ACM is present must be notified of the presence of the ACM if their work may bring them into contact, or close proximity to, the ACM. This notification may include janitorial, security, telephone, computer cabling suppliers, mechanical maintenance contractors, etc.

All contractors who perform work, including telephone, computer cabling suppliers, electrical and mechanical contractors, etc., at HRCE facilities, where asbestos-containing spray-applied insulation is present above ceilings are to be notified that Moderate Risk Procedures may be required for any entry to, or work within the ceiling space, determined by condition of material, scope of work, and potential for disturbance of the material.

Contractors are to:

- Notify municipal Landfill site as per provincial regulations.
- Inform all sub trades of the presence of ACM identified in the contract documents.
- If suspect ACM not identified in the contract documents are discovered during the course of the work, the Contractors are to stop all work which might disturb the suspect ACM. The contractor is to notify the Constructor (if applicable), HRCE and the JOHSC or OHS Representative for the workplace.

By signing below, the Contractor acknowledges they have received, read and understand the requirements of HRCE's AMP.

Building (Address): _____

Project: _____

Contractor: _____

Name and Title: _____

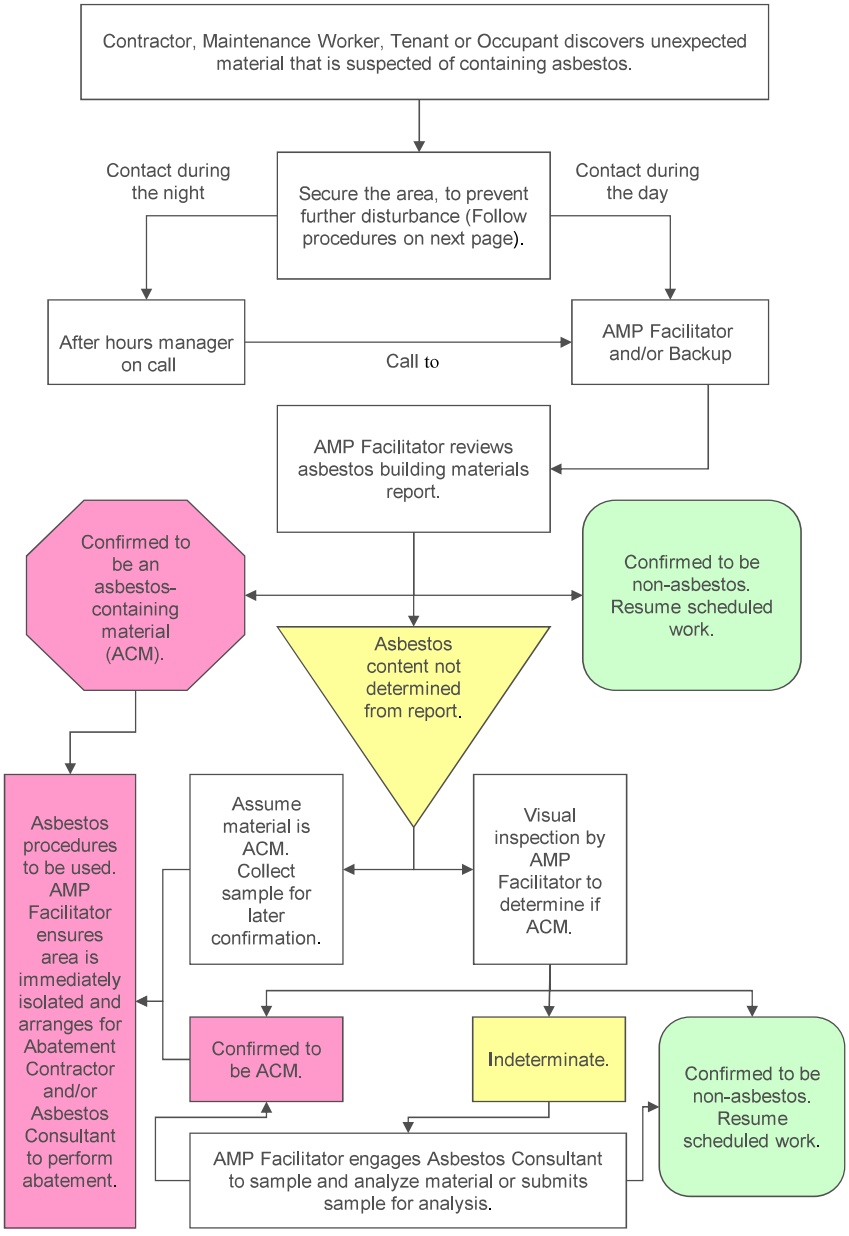
Signature: _____

Date: _____

APPENDIX C

Response to Disturbance of Asbestos

EMERGENCY RESPONSES AND NOTIFICATION IN THE EVENT OF ASBESTOS-SUSPECT MATERIAL DISCOVERED DURING MAINTENANCE OR CONTRACTED WORK OR REPORTED BY OCCUPANT/TENANT



EMERGENCY REACTION IN THE EVENT OF SUSPECTED ASBESTOS SPILL

If asbestos-containing materials or suspect materials have been disturbed improperly, follow these directions:

- Do not clean up, cover, move or contact asbestos-containing or suspect material. Cease work in the area and do not resume work that risks disturbing the suspect material. Workers are to leave the area and the HRCE AMP Facilitator is to be notified immediately.
- Isolate the area by locking doors if this can be done without blocking emergency or fire routes.
- If it is not possible to safely isolate the area, the AMP Facilitator will notify appropriate persons not to enter the area. If possible, post security to prevent unnecessary access.
- The AMP Facilitator will arrange to shut down ventilation systems to the affected area including supply, return and exhaust.
- The AMP Facilitator will determine if asbestos is contained in the debris. If material cannot be confirmed asbestos-free by records or appearance, follow procedures below.
- The AMP Facilitator will contact an Asbestos Consultant to sample the material or identify the material visually.
- If the material is confirmed or assumed to contain asbestos, the AMP Facilitator is to contract an Asbestos Abatement Contractor to clean-up contaminated area.
- At their option, the AMP Facilitator may decide to employ an Asbestos Consultant to perform air monitoring and consulting, prior to, during, and/or after clean-up to determine airborne fibre concentrations prior to, and during, the work and to ensure airborne fibre levels are within acceptable limits to re-occupy the space. The AMP Facilitator must notify the Joint Occupational Health and Safety Committee of the results of air monitoring or testing.
- Enable ventilation systems after air monitoring or clean up of ACM.

APPENDIX D

Asbestos Project Work Record

ASBESTOS PROJECT WORK RECORD

Building: _____
(Building Address or Name)

Date: _____
(Today's Date)

Project Number: _____
(HRCE Project Number or Purchase Order Number)

Project Type:

☐ Emergency ☐ Planned Project

☐ Low Risk ☐ Moderate Risk ☐ Glove Bag ☐ High Risk

Area of Work: _____
(Room Name, Number, Floor etc.)

_____

Description: _____
(Brief description of abatement, material, system, etc.)

_____

Project Start Date: _____
(Mobilization date)

Project End Date: _____
(After dismantling/clean-up)

Contractor: _____
(Contracting firm or employee)

Telephone: _____
(Contractor or employee telephone)

Consultant: _____
(Name of consulting firm/contact if any)

Telephone: _____
(Consultant telephone)

Pre-Construction Assessment for asbestos-containing material (ACM) and other hazardous building materials (e.g. lead, mercury, silica, and PCBs) performed and report provided to Contractor?

☐ Yes ☐ No (Explain) _____

Air Sampling during abatement?

☐ Yes ☐ No

Clearance Air Monitoring performed after abatement?

☐ Yes ☐ No

Air Monitoring results to Joint Occupational Health and Safety Committee (if applicable)?

☐ Yes ☐ No

Asbestos Survey Updated to Reflect Changes in ACM Inventory?

☐ Yes ☐ No, no changes to ACM inventory resulted

☐ No, to forward copies to Consultant prior to next re-assessment

Asbestos waste removed from site and disposed of?

☐ Yes, ACM waste documentation attached ☐ No, ACM waste not generated

☐ No, ACM waste remains on site for later disposal

Append the following information relating to asbestos abatement to this work record, if applicable, and file Asbestos Work Record and attachments with Asbestos Management Program. Check where attached.

Submittals including Insurance	☐ Yes	☐ No
Waste Documentation	☐ Yes	☐ No
Specifications, Change Orders, Drawings	☐ Yes	☐ No
Consultant Inspection Reports	☐ Yes	☐ No
Air Monitoring Results	☐ Yes	☐ No
Analytical Certificates	☐ Yes	☐ No
Provincial Regulatory reports	☐ Yes	☐ No
Additional Correspondence	☐ Yes	☐ No

APPENDIX E

Reassessment of ACM

REASSESSMENT OF ACM

Upon completion of Reassessment, fill out the following form in its entirety and file with this facility's Asbestos Management Program and Assessment Report.

Use of this form is not necessary if an Asbestos Consultant has produced a detailed Reassessment Report which identified the damaged ACM identified in the building during the Reassessment (along with the associated locations, quantities, accessibility, and any required abatement recommendations).

Building: _____

Dates of Reassessment: _____

Name of person completing reassessment: _____

Signature of surveyor: _____

Others present: _____

_____

_____

Summary of Findings:

(If no deterioration was noted, indicate here): _____.

(Specifically indicate only areas requiring action in the table below).

(Attached photographs to this form as required).

Room or Location	Material	Comments Regarding Condition: Disturbed/Undisturbed (if other, explain)	Action Required

Room or Location	Material	Comments Regarding Condition: Disturbed/Undisturbed (if other, explain)	Action Required

Page _____ of _____

APPENDIX F

Classifications of Abatement Work

CLASSIFICATIONS OF ABATEMENT WORK

Nova Scotia regulations/guidelines do not specifically classify asbestos work procedures, and only prescribe removal of friable materials including the use of Glove Bags.

In the absence of defined work classifications, the following are the generally accepting work classifications:

Low Risk

- installation or removal of ACM ceiling tiles (less than 7.5 m²) without damage*.
- installation or removal of non-friable ACM, other than ceiling tiles, without damage*.
- damaging* non-friable ACM that is wetted and where the work is done using non-powered hand-held tools.

Moderate Risk

- removal of less than one square metre of drywall where ACM joint-filling compounds were used.
- enclosure of friable ACM.
- application of tape, a sealant or other covering to pipe or boiler insulation that is ACM.
- installing or removing ACM ceiling tiles that cover an area of 7.5 m^2 or more if the work is done without damaging the tiles.
- damaging non-friable ACM using non-powered hand-held tools if the material is not wetted.
- cleaning or removing filters used in air handling equipment in a building that has sprayed ACM insulation.
- glove bag removals of ACM insulation.
- Work that may expose a worker to asbestos and that is not classified as a Low Risk or High Risk operation, is also to be classified as a Moderate Risk operation.

High Risk

- removal or disturbance of friable ACM.
- the removal of all or part of a false ceiling to access a work area, if ACM is likely to be lying on the surface of the false ceiling.
- spray application of a sealant to friable ACM.

- cleaning or removal of air-handling equipment, including rigid ducting but not including filters, in a building that has sprayed ACM insulation.
- repair, alteration or demolition of a kiln or furnace made, in part, of refractory materials that are ACM.
- Use of power tools not attached to dust-collecting devices with HEPA filters on non-friable ACM.

* ***damage*** *includes breakage, cutting, abrading, grounding, sanding, and vibration.*

APPENDIX G

Site Specific Report(s)

Facility Specific Contacts

Contact Name	Title	Address	Phone Number	Email Address

March 28, 2024

Halifax Regional Centre for Education
33 Spectacle Lake Drive
Dartmouth, Nova Scotia B3B 1X7

Re: Hazardous Building Materials Assessment (Management)
Halifax West High School, 283 Thomas Raddall Drive, Halifax, NS
Pinchin File: 336128.011

HRCE - Halifax Regional Centre for Education (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment of Halifax West High School located at 283 Thomas Raddall Drive, Halifax, NS.

Pinchin performed the assessment on February 26, 2024. The assessor was unaccompanied during the assessment. The assessment was completed outside of regular school hours when teachers and students were not present. The assessed area was only occupied by maintenance staff at the time of the assessment.

The objective of the assessment was to document the locations of specified hazardous building materials, evaluate their condition and develop corrective action plans as required. This assessment is only to be used for the purposes of long-term management and routine maintenance. The results of this assessment are not to be used for construction, renovation, demolition or project tendering purposes.

The **assessed area** consisted of all interior and exterior areas of the building accessible with a 6-foot ladder, excluding the roof.

The assessment was performed to establish the type of specified hazardous building materials, locations and approximate quantities incorporated in the structure and its finishes.

For the purpose of the assessment and this report, hazardous building materials are defined as follows:

- Asbestos
- Lead
- Silica
- Mercury
- Mould and Water Damage

1.0 RECOMMENDATIONS

1.1 Further Assessment

Assessment of the Inaccessible Locations identified in Section 2.3 should be performed for full compliance.

1.2 On-going Management and Maintenance

The following recommendations regard on-going management and maintenance work involving the ACM identified.

1.2.1 Asbestos

Inspect all accessible confirmed and presumed ACM at reasonable intervals and update the written documentation annually, as required by provincial guidelines.

Update the asbestos inventory report for all new information obtained (i.e., new materials, change of condition, abatement performed).

Remove ACM before alteration or maintenance work if ACM may be disturbed. Follow appropriate asbestos precautions for the classification of work as per applicable regulations and guidelines.

Asbestos-containing materials must be disposed of at a landfill approved to accept asbestos waste.

1.2.2 Lead

Exposure from construction disturbance of paints containing lead less than 0.009% (90 mg/kg) is assumed to be insignificant.

Lead-containing items should be recycled when taken out of service.

1.2.3 Silica

Disturbance of silica-containing products during maintenance activities may result in excessive exposures to airborne silica, especially if performed indoors and dry. Cutting, grinding, drilling or demolition of materials containing silica should be completed only with proper respiratory protection and other worker safety precautions that comply with per applicable regulations and guidelines.

1.2.4 Mercury

Do not break lamps. Recycle and reclaim mercury from fluorescent lamps when taken out of service. Mercury is classified as a hazardous waste and must be disposed of in accordance with applicable regulations.

1.3 Construction and Demolition

This assessment report does not provide sufficient detail to support renovation and demolition work. Therefore, perform a detailed intrusive assessment before building renovation or demolition operations. The assessment should include destructive testing (e.g., coring, removal of building finishes and components), and sampling of any other materials not tested (e.g., roofing materials, caulking, mastics).

2.0 BACKGROUND INFORMATION

2.1 Assessed Area Description Summary

Description Item	Details
Building Use	School
Floors Above Grade	2
Floors Below Grade	1
Total Area (square feet)	184,100
Year of Construction	2003
Structure	Structural steel, Concrete block
Exterior Cladding	Brick
HVAC	Mechanical Room Air Handling Units
Roof	Unknown (Not assessed)
Flooring	Vinyl floor tile, Vinyl sheet flooring, Ceramic tile
Wall and Ceiling Finishes	Drywall, Concrete block, Lay-in ceiling tiles

2.2 Existing Reports

2.2.1 Review of Previous Reports

No existing reports were provided for reference.

2.3 Inaccessible Locations

The following locations were not accessible during the assessment:

Location Number	Location Name, (Location No.)	Reason
5	C132 Reservoir	Padlock placed on entrance
11	C151 Server Room	Maintenance staff did not have key to this location

3.0 FINDINGS

Any quantities listed in this report or data tables are estimated based on visual approximations only and are subject to variation.

3.1 Asbestos

The following table summarizes the materials evaluated for asbestos in the assessed area. For details on approximate quantities, condition, friability, accessibility, and locations of hazardous building materials; refer to the Hazardous Material Summary / Sample Log and Confirmed and Presumed Report in Appendices V and VI.

Any quantities listed in this report or data tables are estimated based on visual approximations only and are subject to variation.

Sample Number	Material Description	Type of Asbestos	Confirmed Hazard	Total Quantity Present	Material Specific Notes
S0001 ABC	Duct | Mastic, Grey	None Detected	No	358 LF	
S0002 ABC	Ceiling, Wall | Firestopping (mastic) | Red	None Detected	No	99 LF 16 EA	
S0003 ABC	Duct, Piping, Wall | Firestopping (mastic) | Black	None Detected	No	36,431 LF 636 EA	
S0004 ABC	Other | Caulking | Butyl seal	None Detected	No	11,730 LF 220 SF	
S0005 ABC	Other | Caulking, Grey | Exterior	None Detected	No	234 EA	
V9500	Floor | Mortar | Ceramic tile thinset	Presumed Asbestos	Yes	13,372 SF	
V9500	Other | Adhesive/mastic | Mirror adhesive	Presumed Asbestos	Yes	45 EA	
V9500	Other | Bakelite | Countertops	Presumed Asbestos	Yes	58 EA	1
V9500	Wall | Mortar | Ceramic tile thinset	Presumed Asbestos	Yes	8,019 SF	
V0000	Ceiling | Adhesive/mastic | Silicone caulking on pipe penetrations	Non Asbestos	No	8 EA	
V0000	Ceiling | Ceiling Tiles (lay-in)	Non Asbestos	No	137,003 SF	
V0000	Ceiling | Drywall and joint compound	Non Asbestos	No	7,160 SF	

Sample Number	Material Description	Type of Asbestos	Confirmed Hazard	Total Quantity Present	Material Specific Notes
V0000	Floor | Vinyl Floor Tile	Non Asbestos	No	114,873 SF	
V0000	Floor | Vinyl Sheet Flooring | Blue	Non Asbestos	No	2,920 SF	
V0000	Other | Caulking | Silicone	Non Asbestos	No	6,604 LF	
V0000	Piping | Caulking | Grey silicone	Non Asbestos	No	9 EA	
V0000	Piping | Fibreglass	Non Asbestos	No	5 EA	
V0000	Piping | Styrofoam | Spray foam	Non Asbestos	No	2 EA	
V0000	Wall | Concrete (precast)	Non Asbestos	No	78,578 SF	
V0000	Wall | Drywall and joint compound	Non Asbestos	No	14,483 SF	

Material Specific Notes:

1. Black countertops may be asbestos-containing resin (known as Bakelite); however, sampling was not performed due to the destructive nature required to collect the sample.

General Notes:

Materials identified as Sample Number V9500 were either observed to be present or based on the construction of the building/equipment are likely present in concealed locations. These materials have not been sampled and are presumed to contain asbestos based on historical known use of asbestos. Sampling of these materials may be completed prior to disturbance.

Materials identified as Sample Number V0000 were determined to be non-asbestos based on the manufacture date and known end of use of asbestos in these products.

3.1.1 Excluded Asbestos Materials

The following is a list of materials which may contain asbestos and were excluded from the assessment. These materials are presumed to contain asbestos until otherwise proven to be non-asbestos by sampling and analysis:

- Roofing felts and tar, mastics
- Elevator and lift brakes
- Vermiculite
- Adhesives
- Soffit and fascia boards

- Fire resistant doors
- Sealants on pipe threads

3.2 Lead

Refer to the Hazardous Material Summary / Sample Log and Confirmed and Presumed Report in Appendices V and VI for details on locations, condition and approximate quantities on paints sampled and their locations.

Sample Number	Material Description	Concentration	Confirmed Hazard	Total Quantity Present	Notes
L0001	Wall | Drywall and joint compound | Cream	<0.0080%	No	138,758 SF	
L0002	Wall | Drywall and joint compound | Light blue	<0.0082%	No	7,177 SF	
L0003	Wall | Concrete (precast) | Dark blue	<0.0081%	No	5,821 SF	
L0004	Wall | Drywall and joint compound | Yellow	<0.0080%	No	1,530 SF	
L0005	Wall | Drywall and joint compound | Green	<0.0081%	No	2,780 SF	
L0006	Wall | Concrete (precast) | Brown	<0.0082%	No	5,730 SF	
L0007	Wall | Concrete (precast) | Orange	<0.0082%	No	3,370 SF	

General Notes:

Paints containing lead less than 0.009% (90 mg/kg) is assumed to be insignificant.

3.2.1 Lead Products and Applications

Refer to the Hazardous Material Summary / Sample Log and Confirmed and Presumed Report for details on lead-products including their locations and quantities.

Sample Number	Material Description	Confirmed Hazard	Total Quantity Present	Notes
V9500	Batteries In Emer. Lights	Yes	54 EA	

General Notes:

Items identified as Sample Number V9500 were observed to be present but could not be definitively determined to contain lead (e.g., inaccessible batteries).

3.2.2 Excluded Lead Materials

Lead may be present in a number of materials which were not assessed and/or sampled. The following materials, where found, should be considered to contain lead.

- Electrical components, including wiring connectors, grounding conductors, and solder
- Solder on pipe connections
- Glazing on ceramic tiles

3.3 Silica

Crystalline silica is a presumed component of the following materials:

- Concrete
- Masonry and mortar
- Ceramic tiles and grout

3.4 Mercury

Refer to the Hazardous Material Summary / Sample Log and Confirmed and Presumed Report in Appendices V and VI for details on mercury-containing products including their locations and quantities.

Sample Number	Material Description	Confirmed Hazard	Total Quantity Present	Notes
V9000	Light Fixture	Yes	2,078 EA	

General Notes:

Items identified as Sample Number V9000 were observed to be present and were determined to contain mercury based on visual observation (e.g., labelled lamps and ampules in thermostats).

3.5 Mould and Water Damage

Visible mould growth and water damage was not found during the assessment.

4.0 METHODOLOGY

Pinchin conducted a room-by-room assessment (rooms, corridors, service areas, exterior, etc.) to identify the hazardous building materials as defined in the scope.

The assessment was limited to non-intrusive testing. Concealed spaces such as those above solid ceilings and within shafts and pipe chases were accessed via existing access panels only. Destructive testing of flooring was not conducted (under carpets or multiple layers of flooring). Demolition of walls,

solid ceilings, structural items, interior finishes or exterior building finishes, to determine the presence of concealed materials was not conducted. Sampling of roofing materials was not conducted.

For further details on the methodology including test methods and evaluation criteria, refer to Appendix III.

5.0 REFERENCES

The following legislation and documents were referenced in completing the assessment and this report:

1. Nova Scotia Occupational Safety General Regulation (N.S. Reg. 53/2013).
2. A Guide to Removal of Friable Asbestos-Containing Material.
3. A Guide to Assessment and Management of Asbestos in the Workplace.
4. Asbestos Waste Management Regulations, N.S. Reg. 53/95.
5. Lead in the Workplace: A Guide to Working with Lead, revised January 18, 2019.
6. The Environmental Abatement Council of Canada (EACC) Lead Guideline for Construction, Renovation, Maintenance or Repair.
7. Guidelines for Disposal of Contaminated Solids in Landfills.
8. Nova Scotia Environment Act, 1994-95.
9. Mercury Diversion Standard, N.S. Reg. 161/2018.
10. Surface Coating Materials Regulations, SOR/2016-193, Canada Consumer Product Safety Act.
11. Consolidated Transportation of Dangerous Goods Regulations, including Amendment SOR/2019-101, Transportation of Dangerous Goods Act.
12. Mould Guidelines for the Canadian Construction Industry, Standard Construction Document CCA 82 – 2004 (Revised 2018), Canadian Construction Association.

6.0 LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

7.0 CLOSURE

Contact the undersigned should you have any questions.

Sincerely,

Pinchin Ltd.

Prepared by:

Rebecca Tizzard

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Reviewed by:

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Senior Project Technologist
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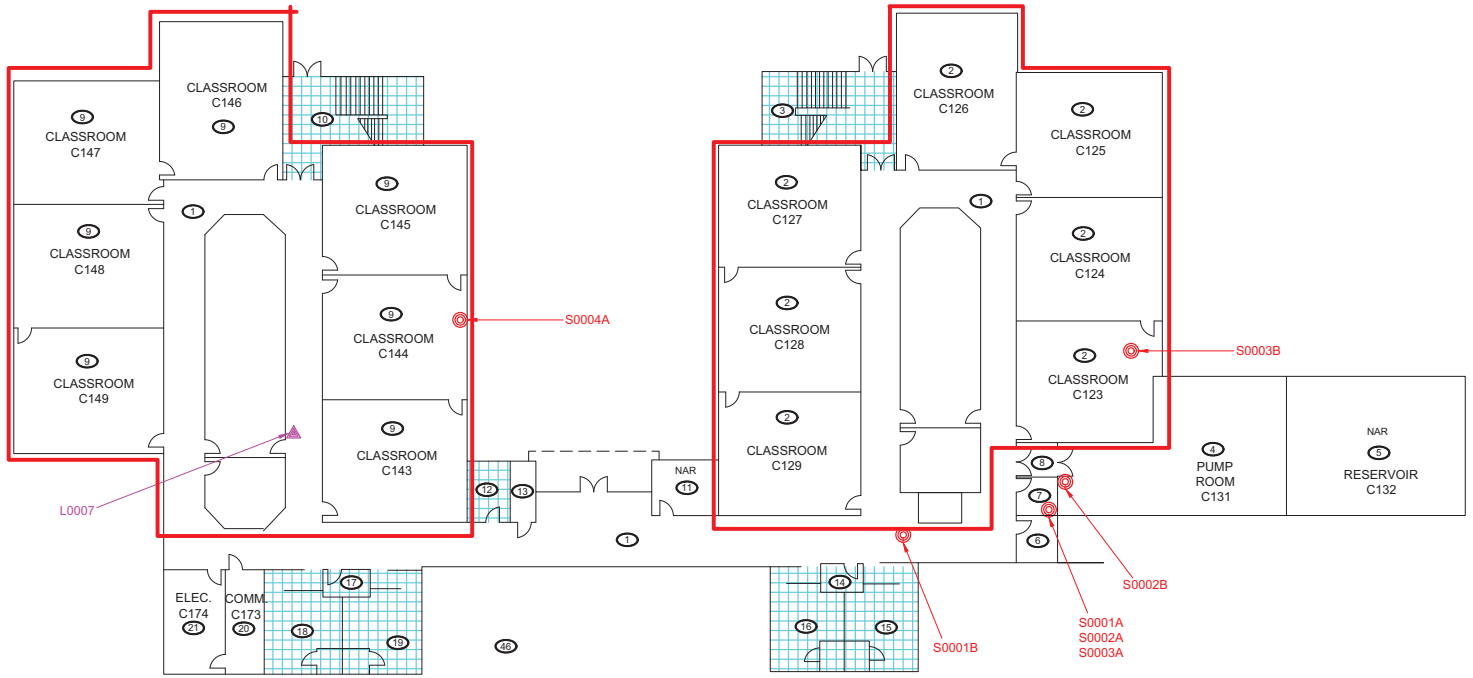
Reviewed by:

Jason Lewis, P.Tech.
Operations Manager,
Newfoundland and Labrador
709.687.9730
jlewis@pinchin.com

Encl:	APPENDIX I	Drawings
	APPENDIX II-A	Asbestos Analytical Certificates
	APPENDIX II-B	Lead Analytical Certificates
	APPENDIX III	Methodology
	APPENDIX IV	Location Summary Report
	APPENDIX V	Hazardous Materials Summary Report / Sample Log
	APPENDIX VI	Confirmed and Presumed Report
	APPENDIX VII	Photographs

APPENDIX I
Drawings



N

LEGEND

- LOCATION BOUNDARY
- (X) PINCHIN LOCATION NUMBER
- ASBESTOS BULK SAMPLE
- LEAD BULK SAMPLE
- NAR NO ACCESS TO ROOM/AREA

PRESUMED ASBESTOS-CONTAINING MATERIALS:

- CERAMIC TILES THINSET

NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

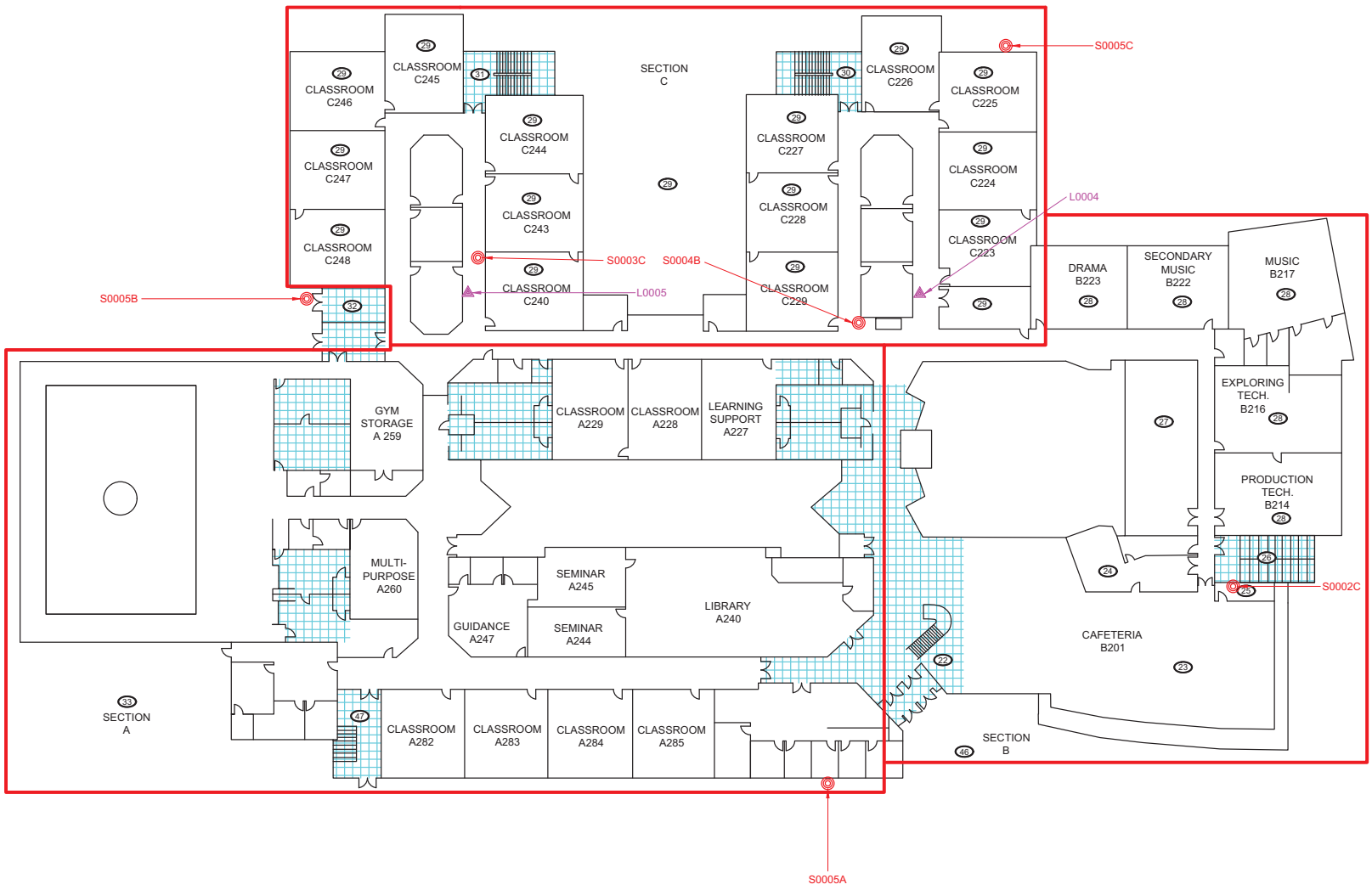
PROJECT NAME:
HAZARDOUS BUILDING MATERIALS ASSESSMENT

CLIENT NAME:
HALIFAX REGIONAL CENTRE FOR EDUCATION

PROJECT LOCATION:
HALIFAX WEST HIGH, 283 THOMAS RADDALL DRIVE, HALIFAX, NOVA SCOTIA

FIGURE NAME:
BOTTOM FLOOR PLAN

PROJECT NUMBER:	SCALE:
336128.011	NOT TO SCALE
DRAWN BY:	REVIEWED BY:
NJ	AP
DATE:	FIGURE NUMBER:
MARCH 2024	1 OF 3



N

LEGEND

- LOCATION BOUNDARY
- X PINCHIN LOCATION NUMBER
- ASBESTOS BULK SAMPLE
- LEAD BULK SAMPLE
- NAR NO ACCESS TO ROOM/AREA

PRESUMED ASBESTOS-CONTAINING MATERIALS:

- CERAMIC TILES THINSET

NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

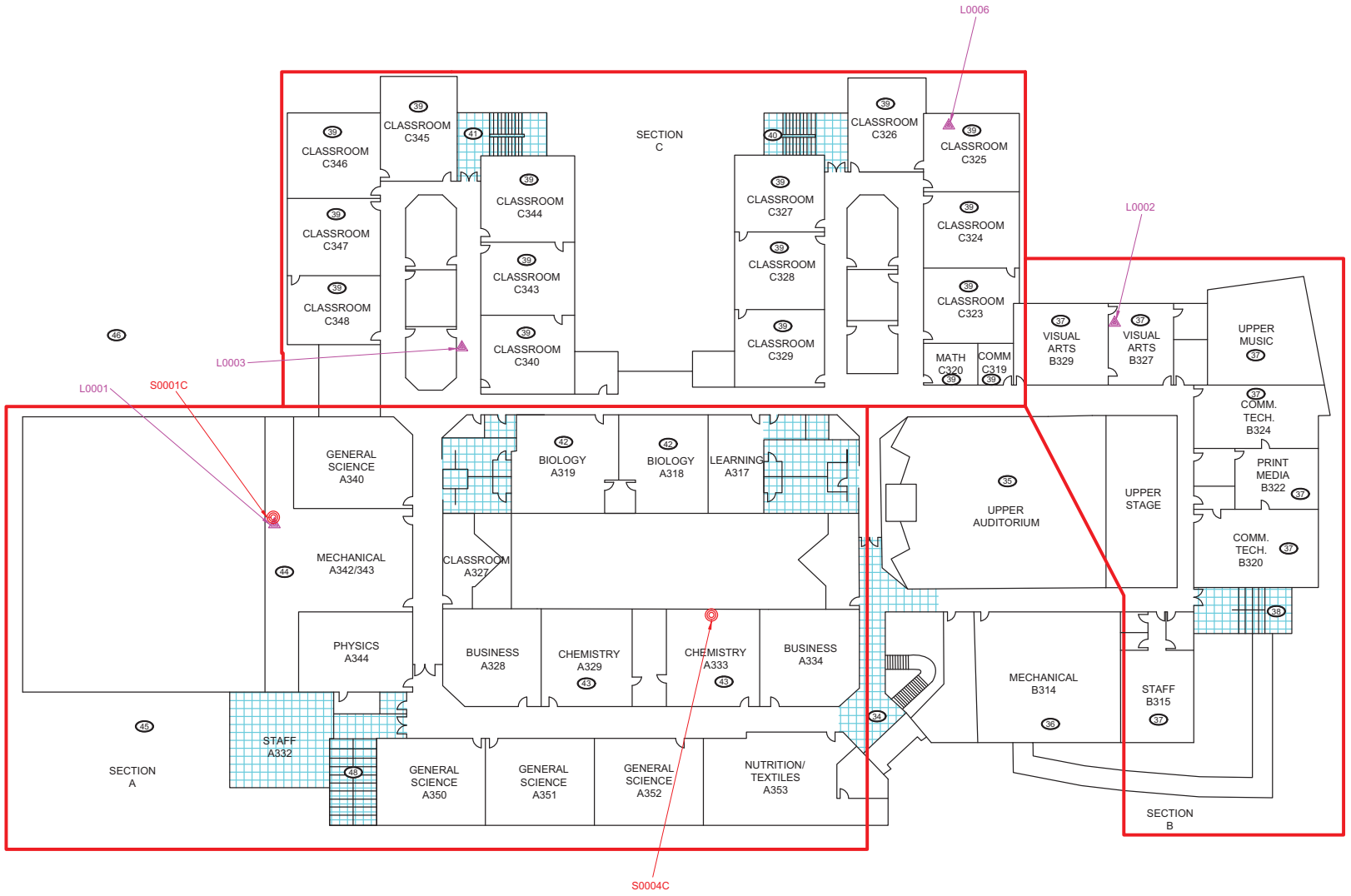
PROJECT NAME:
HAZARDOUS BUILDING MATERIALS ASSESSMENT

CLIENT NAME:
HALIFAX REGIONAL CENTRE FOR EDUCATION

PROJECT LOCATION:
HALIFAX WEST HIGH, 283 THOMAS RADDALL DRIVE, HALIFAX, NOVA SCOTIA

FIGURE NAME:
GROUND FLOOR PLAN

PROJECT NUMBER:	SCALE:
336128.011	NOT TO SCALE
DRAWN BY:	REVIEWED BY:
NJ	AP
DATE:	FIGURE NUMBER:
MARCH 2024	2 OF 3



N

LEGEND

- LOCATION BOUNDARY
- PINCHIN LOCATION NUMBER
- ASBESTOS BULK SAMPLE
- LEAD BULK SAMPLE

NAR NO ACCESS TO ROOM/AREA

PRESUMED ASBESTOS-CONTAINING MATERIALS:

- CERAMIC TILES THINSET

NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

PROJECT NAME:
HAZARDOUS BUILDING MATERIALS ASSESSMENT

CLIENT NAME:
HALIFAX REGIONAL CENTRE FOR EDUCATION

PROJECT LOCATION:
HALIFAX WEST HIGH, 283 THOMAS RADDALL DRIVE, HALIFAX, NOVA SCOTIA

FIGURE NAME:
SECOND FLOOR PLAN

PROJECT NUMBER:	SCALE:
336128.011	NOT TO SCALE
DRAWN BY:	REVIEWED BY:
NJ	AP
DATE:	FIGURE NUMBER:
MARCH 2024	3 OF 3

APPENDIX II-A
Asbestos Analytical Certificates

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name:	**HRCE, 283 Thomas Raddall Drive**		
Project No.:	**0336128.011**		
Prepared For:	**R. Tizzard / A. Thebeau**		
Lab Reference No.:	**b309553**		
Analyst(s):	**J. Stapleton**		
Date Received:	**March 5, 2024**	**Samples Submitted:**	**15**
Date Analyzed:	**March 7, 2024**	**Phases Analyzed:**	**17**

The Pinchin Ltd. Dartmouth asbestos laboratory is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 201032-0) for the 'EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples,' and the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials'; and meets all requirements of ISO/IEC 17025:2017. The Pinchin asbestos laboratory uses the aforementioned methods of analysis.

Bulk samples are checked visually and scanned under a stereomicroscope. Slides are prepared and observed under a Polarized Light Microscope (PLM) at magnifications of 40X, 100X or 400X as appropriate. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence and dispersion staining colours. A visual estimate is made of the percentage of asbestos present. A reported concentration of less than (<) the regulatory threshold indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with provincial regulatory requirements where applicable. Multiple phases within a sample are analyzed and reported separately.

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

This report relates only to the items tested.

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: HRCE, 283 Thomas Raddall Drive
Project No.: 0336128.011
Prepared For: R. Tizzard / A. Thebeau

Lab Reference No.: b309553
Date Analyzed: March 7, 2024

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0001A GREY DUCT MASTIC / LOC 7	Homogeneous, grey, mastic material.	None Detected	Non-Fibrous Material > 75%
S0001B GREY DUCT MASTIC / LOC 01	Homogeneous, grey, mastic material.	None Detected	Non-Fibrous Material > 75%
S0001C GREY DUCT MASTIC / LOC 44	Homogeneous, grey, mastic material.	None Detected	Non-Fibrous Material > 75%
S0002A RED FIRESTOPPING MASTIC / LOC 7	Homogeneous, red, caulking material.	None Detected	Man-Made Vitreous Fibres 0.5-5% Mica 5-10% Other Non-Fibrous > 75%
S0002B RED FIRESTOPPING MASTIC / LOC 4	Homogeneous, red, caulking material.	None Detected	Non-Fibrous Material > 75%
S0002C RED FIRESTOPPING MASTIC / LOC 25	Homogeneous, red, caulking material.	None Detected	Non-Fibrous Material > 75%
S0003A BLACK FIRESTOPPING MASTIC / LOC 7	Homogeneous, dark grey, sticky, mastic material.	None Detected	Non-Fibrous Material > 75%
S0003B BLACK FIRESTOPPING MASTIC / LOC 2	Homogeneous, black, sticky, mastic material.	None Detected	Non-Fibrous Material > 75%
S0003C BLACK FIRESTOPPING MASTIC / LOC 29	Homogeneous, black, sticky, mastic material.	None Detected	Non-Fibrous Material > 75%
S0004A BUTYL TAPE - WINDOWS / LOC 9	Homogeneous, black, caulking material.	None Detected	Non-Fibrous Material > 75%

Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: HRCE, 283 Thomas Raddall Drive
Project No.: 0336128.011
Prepared For: R. Tizzard / A. Thebeau

Lab Reference No.: b309553
Date Analyzed: March 7, 2024

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0004B BUTYL TAPE - WINDOWS / LOC 29	Homogeneous, black, sticky, caulking material.	None Detected	Non-Fibrous Material > 75%
S0004C BUTYL TAPE - WINDOWS / LOC 43	Homogeneous, black, caulking material.	None Detected	Non-Fibrous Material > 75%
S0005A GREY EXTERIOR CAULKING - EXPANSION JOINT / LOC 46	3 Phases: a) Homogeneous, grey, caulking material.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, light grey, caulking material.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, black, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
S0005B GREY EXTERIOR CAULKING - DOOR / LOC 46	Homogeneous, grey, caulking material.	None Detected	Non-Fibrous Material > 75%
S0005C GREY EXTERIOR CAULKING - WINDOW / LOC 46	Homogeneous, grey, caulking material.	None Detected	Non-Fibrous Material > 75%

Reviewed by:

Pinchin Ltd.
2024.03.07 13:36:53-04'00'

Reporting Analyst:

Jason Stapleton
2024.03.07 13:36:05-04'00'

PINCHIN

Analyzed By: JS

Reviewed By: NG

Report Sent By: _____

MEMBER OF PG THE PINCHIN GROUP

Pinchin Ltd. - Asbestos Laboratory
Internal Asbestos Bulk Sample Chain of Custody

Client Name:	HRCE			**Project Address:**	283 Thomas Raddall Drive		
Portfolio/Building No:				**Pinchin File:**	336128.011		
Submitted by:	Rebecca Tizzard			**Email:**	rtizzard@pinchin.com		
CC Results to:	Allain Thebeau			**CC Email:**	athebeau@pinchin.com		
Invoice to:				**Invoice Email:**			
Date Submitted:	March	4	2024	**Required by:**	Month	Day	Year
# of Samples:	15			**Priority:**	5 Day Turnaround		
Year of Building Construction (*Mandatory Field*):				2003			
Do NOT Stop on Positive (Sample Numbers):							
Pinchin Group Company (*Mandatory Field*):				Pinchin			

To be Completed by Lab Personnel Only:						
Lab Reference #:	b309553		**Time:**	24 hour clock		
Received by:	R. Janssen		**Date:** Mar 5/24	Month	Day	2021
Name(s) of Analyst(s):	J. Stapleton					

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0001	A	GREY DUCT MASTIC / LOC 7 ND
S	0001	B	GREY DUCT MASTIC / LOC 01 ND
S	0001	C	GREY DUCT MASTIC / LOC 44 ND
S	0002	A	RED FIRESTOPPING MASTIC / LOC 7 ND
S	0002	B	RED FIRESTOPPING MASTIC / LOC 4 ND
S	0002	C	RED FIRESTOPPING MASTIC / LOC 25 ND
S	0003	A	BLACK FIRESTOPPING MASTIC / LOC 7 ND

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0003	B	BLACK FIRESTOPPING MASTIC / LOC 2 ND
S	0003	C	BLACK FIRESTOPPING MASTIC / LOC 29 ND
S	0004	A	BUTYL TAPE - WINDOWS / LOC 9 ND
S	0004	B	BUTYL TAPE - WINDOWS / LOC 29 ND
S	0004	C	BUTYL TAPE - WINDOWS / LOC 43 ND
S	0005	A	GREY EXTERIOR CAULKING - EXPANSION JOINT / LOC 46 a) ND b) ND c) ND
S	0005	B	GREY EXTERIOR CAULKING - DOOR / LOC 46 ND
S	0005	C	GREY EXTERIOR CAULKING - WINDOW / LOC 46 ND

APPENDIX II-B
Lead Analytical Certificates

EMSL Canada Inc.
2756 Slough Street, Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com torontolab@emsl.com

EMSL Canada Or	552403360
CustomerID:	55PINC50
CustomerPO:	336128.011
ProjectID:	

Attn: **Rebecca Tizzard**
Pinchin Environmental
42 Dorey Avenue
Dartmouth, Nova Scotia, NS B3B 0B1

Phone:	(902) 461-9999
Fax:	(902) 461-9932
Received:	3/6/2024 09:42 AM
Collected:	2/28/2024

Project: **336128.011**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
L0001	2/28/2024	3/6/2024	0.2488 g	0.0080 % wt	<0.0080 % wt
552403360-0001	Site: CREAM / LOC 44				
L0002	2/28/2024	3/6/2024	0.2451 g	0.0082 % wt	<0.0082 % wt
552403360-0002	Site: LIGHT BLUE / LOC 37				
L0003	2/28/2024	3/6/2024	0.2483 g	0.0081 % wt	<0.0081 % wt
552403360-0003	Site: DARK BLUE / LOC 39				
L0004	2/28/2024	3/6/2024	0.2502 g	0.0080 % wt	<0.0080 % wt
552403360-0004	Site: YELLOW / LOC 29				
L0005	2/28/2024	3/6/2024	0.2475 g	0.0081 % wt	<0.0081 % wt
552403360-0005	Site: GREEN / LOC 29				
L0006	2/28/2024	3/6/2024	0.2448 g	0.0082 % wt	<0.0082 % wt
552403360-0006	Site: BROWN / LOC 39				
L0007	2/28/2024	3/6/2024	0.2448 g	0.0082 % wt	<0.0082 % wt
552403360-0007	Site: ORANGE / LOC 1				

Rowena Fanto, Lead Supervisor
or other approved signatory

* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Canada Inc. Mississauga, ON AIHA LAP, LLC-ELLAP Accredited #196142

Initial report from 03/12/2024 16:46:19

APPENDIX III
Methodology

1.0 GENERAL

An investigation was conducted to identify the type of Hazardous Building Materials incorporated in the structure and its finishes.

Information regarding the location and condition of hazardous building materials encountered and visually estimated quantities were recorded. The locations of any samples collected were recorded on small-scale plans. As-built drawings and previous reports were referenced where provided.

Sample collection was conducted in accordance with our Standard Operating Procedures.

1.1 Asbestos

The investigation for asbestos included friable and non-friable asbestos-containing materials (ACM). A friable material is a material that when dry can be crumbled, pulverized or powdered by hand pressure, or a material that has already become crushed, pulverized, or powdered.

A separate set of samples was collected of each type of homogenous material suspected to contain asbestos. A homogenous material is defined by the US EPA as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material. The homogeneous materials were determined by visual examination and available information on the phases of construction and prior renovations.

Samples were collected at a rate that is in compliance with the requirements of local regulations and guidelines. The sampling strategy was also based on known ban dates and phase out dates of the use of asbestos; sampling of certain building materials is not conducted after specific construction dates. In addition, to be conservative, several years past these dates are added to account for some uncertainty in the exact start / finish date of construction and associated usage of ACM. In some cases, manufactured products such as asbestos cement pipe were visually identified without sample confirmation.

The asbestos analysis of select materials was completed using a stop-positive approach. Only one result meeting the regulated criteria was required to determine that a material is asbestos-containing, but all samples must be analyzed to conclusively determine that a material is non-asbestos. The laboratory stopped analyzing samples from a homogeneous material once a result equal to or greater than the regulated criteria is detected in any of the samples of that material. All samples of a homogeneous material were analyzed if no asbestos is detected. In some cases, all samples were analyzed in the sample set regardless of result.

The analysis was performed in accordance with Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993.

Analytical results were compared to the following criteria:

Jurisdiction	Friable	Non-Friable
Nova Scotia	0.5%[1]	0.5%

Where building materials are described in the report as “non-asbestos” or “does not contain asbestos”, this means that either no asbestos was detected by the analytical method utilized in any of the multiple samples or, if detected, it is below the lower limit of an asbestos-containing material in the applicable regulation. Additionally, these terms are used for materials which historically are known to not include asbestos in their manufacturing.

Asbestos materials were evaluated in order to make recommendations regarding any remedial work. The priority for remedial action was based on several factors:

- Friability (friable or non-friable)
- Condition (good, fair, poor, debris)
- Accessibility (ranking from accessible to all building users to inaccessible)
- Visibility (whether the material is obscured by other building components)
- Efficiency of the work (for example, if damaged ACM is being removed in an area, it may be most practical to remove all ACM in the area even if it is in good condition)

For a complete description of the Evaluation Criteria and Basis of Recommendations, refer to Annex A.

1.2 Lead

Samples of distinctive paint finishes, and surface coatings present in more than a limited application, where removal of the paint is possible were collected. The samples were collected by scraping the painted finish to include base and covering applications.

Analysis for lead in paints or surface coatings was performed in accordance with EPA Method No. 3050B/Method No. 7420; flame atomic absorption.

Analytical results were compared to the following criteria.

Jurisdiction	Units (%)	Units (ppm) / (mg/kg)
Nova Scotia	0.009	90

Other lead building products (e.g. batteries) were identified by visual observation only.

[1] Or any amount if vermiculite

1.3 Silica

Building materials known to contain crystalline silica (e.g. concrete, tile, brick, masonry, mortar) were identified by visual inspection only. Pinchin did not perform sampling of these materials for laboratory analysis of crystalline silica content.

1.4 Mercury

Building materials, products or equipment (e.g. thermostats, lamp tubes), suspected to contain mercury were identified by visual inspection only. Dismantling of equipment suspected of containing mercury was not performed. Sampling of these materials for laboratory analysis of mercury content was not performed.

1.5 Visible Mould

The presence of mould or water damage was determined by visual inspection of exposed building surfaces. If any mould growth or water damage was concealed within building cavities it was not addressed in this assessment.

Template: Methodology for Hazardous Building Materials Assessment, HAZ, January 16, 2024

METHODOLOGY ANNEX A EVALUATION CRITERIA

1.0 EVALUATION CRITERIA AND BASIS OF RECOMMENDATIONS

The detailed asbestos assessment provides information regarding the location, condition, accessibility and friability of the asbestos-containing materials (ACM). In order to make recommendations for compliance with current regulations, Pinchin developed the following criteria.

2.0 EVALUATION OF CONDITION

2.1 Friable Sprayed or Trowelled Fireproofing, Thermal Insulation and Texture Finishes (Surfacing Materials)

To evaluate the condition of ACM sprayed or trowelled on fireproofing, sprayed or trowelled thermal insulation (non-mechanical), or texture, decorative or acoustic finishes, the following criteria are applied:

Good	Surface of material shows no significant signs of damage, deterioration or delamination. Good condition includes unencapsulated or unpainted fireproofing or texture finishes, where no or limited delamination or damage is observed, or encapsulated fireproofing or texture finishes where the encapsulant or paint has been applied after the damage or fallout occurred.
Poor	A sprayed material that shows signs of significant damage or is significantly delaminating or deteriorating. This may be limited to surface delamination or some portion of the substrate may be exposed.

In Locations where damage exists in isolated areas, both good and poor condition may be applicable. The extent of each condition will be recorded. Fair condition is not utilized in the evaluation of ACM sprayed or trowelled fireproofing, sprayed or trowelled thermal insulation (non-mechanical), or texture, decorative or acoustic finishes.

The evaluation of the above products above ceilings may be limited by the number of observations and by building components such as ducts or full height walls that obstruct the above ceiling observations.

2.2 Friable Mechanical or Thermal System Insulation (TSI)

To evaluate the condition of mechanical insulation on vessels, boilers, breeching, ducts, pipes, fan units, equipment etc. the following criteria are applied:

Good	Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor damage (i.e. scuffs or stains), but the jacketing is not penetrated.
Fair	Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges from minor to none. Damage can be repaired.

Poor	Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired. Includes components where insulation may have been removed incompletely.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. It is often not possible to observe each foot of mechanical insulation from all angles.

2.3 Potentially Friable Materials and Miscellaneous Friable Materials

Potentially friable ACM are products that are basically non-friable while in place but have the potential to generate friable dust upon removal or if significantly disturbed without appropriate procedures. These products may become friable if damaged. Potentially friable materials include materials such as acoustic ceiling tiles and plaster. To evaluate the condition of potentially friable materials, the following criteria are applied:

Good	No significant damage or deterioration. Still serving its intended use as a building material or finish.
Fair	Showing signs of some cracking or breakage, but is not deteriorating (e.g. cracked plaster, broken but in place ceiling tile, missing tile or section of plaster etc.). The condition is such that it is still serving its intended use as a building material or finish but may require repair for mainly cosmetic purposes.
Poor	Significant deterioration or breaking apart of the material. Material has deteriorated to the point it is not serving its intended use as building material or finish. Material has deteriorated to a point it has become friable. Normally potentially friable ACM in Poor condition is not repairable and requires at least localized removal and replacement.

2.4 Non-Friable Materials

Non-friable ACM cover a wide range of products with a wide variation in their tendency to release dust or asbestos fibres to the air. Many of these materials, (particularly where the matrix is an unweathered bitumen, asphalt or tar material) do not release fibres except in very unusual circumstances or during significant disturbance (e.g. use of abrasive power tools). Others with a cementitious matrix (asbestos-cement products) can more readily release dust due to abrasion, demolition, weathering, etc. The potential for asbestos release from non-friable ACM is always lower than from friable ACM. To evaluate the condition of non-friable Materials, the following criteria are applied:

Good	No significant damage or deterioration. Still serving its intended use as a building material or finish.

Fair	Showing signs of some cracking or breakage but is not deteriorating (e.g. cracked vinyl floor tile, missing piece of tile or transite, etc.). The condition is such that it is still serving its intended use as a building material or finish but may require repair for mainly cosmetic purposes.
Poor	Significant deterioration or breaking apart of the material to the point at which it cannot be repaired, and it will require at least local removal. Material has deteriorated to the point it is not serving its intended use as building material or finish. Material may have deteriorated to a point where traffic or disturbance may cause it to become friable.

2.5 Evaluation of ACM Debris

The identification of the exact location or presence of debris on the top of ceiling tiles is limited by the number of observations made and the presence of building components such as ducts or full height walls that obstruct observations.

The presence of fallen or dislodged ACM is noted separately from the ACM source and is referred to as Debris. Debris may be friable if from a friable ACM source or a badly deteriorated non-friable ACM source. Debris may also be non-friable (such as fallen pieces of transite sheet or mastic fittings, or broken, dislodged floor tiles).

Debris	Debris may be friable or non-friable but is always identified as debris.

2.6 Evaluation of Presumed Asbestos-Containing Material (PACM)

Presumed asbestos-containing materials (PACM), are building materials that may contain asbestos but were not sampled or analyzed due to inaccessibility or the need to perform destructive testing to obtain a reasonable sample set. Evaluation of these materials is based on the assumption that these PACM are asbestos-containing.

A list of PACM is provided in the report and they are generally not included in the detailed room by room reports. Typically, they are excluded because they are inaccessible or present in very small quantities. If PACM are evaluated, Pinchin uses the criteria that correspond with the type (and friability) of the material listed above.

3.0 EVALUATION OF ACCESSIBILITY

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

Access (A)	Common areas of the building within reach of all building users (approximately 8 ’-9’ from floor or standard ceiling height). Includes other areas where occupant activities may result in disturbance of material that is not normally within reach from floor level, but may be disturbed by common activities (e.g. gymnasiums, workshops, warehouses.)
Access (B)	Areas of the building accessed primarily by Maintenance/Caretaking/Janitorial Staff and within reach without use of a ladder. Includes areas within reach in Boiler Rooms, Electrical Rooms, Janitors Closets, Elevator Rooms, Mechanical Rooms, etc. Includes materials within reach from fixed ladders or catwalks, mezzanines, and accessible pipe chases.
Access (C) and Visible	Areas of the building above 8' - 9’ where use of a ladder or scaffold is required to reach the ACM. Only includes ACM that are visible to view without the removal or opening of other building components such as ceiling tiles or service access panels. Visible column on HMIS sheets will say YES.
Access (C) and not Visible	Areas of the building above 8' - 9’ where use of a ladder or scaffold is required to reach the ACM. Includes ACM that are not visible to view and require the removal of a building component to see, such as ceilings tiles or access panels to view and access. Includes rarely entered crawl spaces, attic spaces, etc. Observations will be limited to the extent visible from the access points. Visible column on HMIS sheets will say NO.
Access (D)	Areas of the building behind inaccessible solid ceiling systems, walls or equipment etc. where demolition of the ceiling, wall or equipment etc. is required to reach the ACM. Material inaccessible due to height or location or is only accessed under unusual situations. Evaluation of condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine materials in Access D.

4.0 ACTION MATRIX AND DEFINITIONS

Pinchin’s evaluation of the viability of a specific asbestos control option is based on the consideration of the friability, condition, accessibility and visibility of a material. The logic used is that damaged ACM located in an area frequently accessed by all building occupants is of a higher priority than damaged ACM located in an infrequently accessed service area. The action matrix considers the potential for fibre release (primarily from friable ACM) and the possible concerns from regulatory bodies and many building occupants to all damaged ACM (including non-friable).

In any building with asbestos, many current regulations require an Asbestos Management Program be implemented. Depending on the condition and the accessibility, more active measures such as repair or removal may be recommended. The following matrix provides guidance for recommended Actions in the absence of renovation or demolition. In the event of construction or maintenance activity which will disturb ACM more aggressive control or removal will be required.

4.1 Action Matrix

The following tables outline the action decisions based on the relationship of assessed factors. Table I applies to friable ACM. Table II applies to non-friable ACM.

Table I Decision Matrix for Friable ACM

	Condition			
Access	**Good**	**Fair**	**Poor**	**Debris**
(A)	Action 5[1]	Action 5[2]	Action 3	Action 1
(B)	Action 7	Action 6[3]	Action 3	Action 1
(C) Visible	Action 7	Action 6	Action 3	Action 2
(C) Not Visible	Action 7	Action 7	Action 4	Action 2
(D)	Action 7	Action 7	Action 7	Action 7

Table II Decision Matrix for Potentially Friable and Non-Friable ACM

	Condition			
Access	**Good**	**Fair**	**Poor**	**Debris**
(A)	Action 7	Action 7[4]	Action 3	Action 1
(B)	Action 7	Action 7	Action 3	Action 1
(C) Visible	Action 7	Action 7	Action 4	Action 2
(C) Not Visible	Action 7	Action 7	Action 4	Action 2
(D)	Action 7	Action 7	Action 7	Action 7

4.2 Action Definitions

The following are the definitions in the Action Matrix Table presented above:

Action Definitions	
Action 1	Clean-Up of ACM Debris Restrict access that is likely to cause a disturbance of the ACM Debris and clean up ACM Debris. Utilize appropriate asbestos precautions.

[1] If friable ACM in access (A)/Good condition is not proactively removed Action 7 (Manage) is recommended.
[2] If friable ACM in access (A)/Fair condition is not proactively removed repair is recommended.
[3] If friable ACM in access (B)/Fair condition is likely to be disturbed after repair proactive removal is recommended.
[4] Action 7 is recommended for all non-friable ACM in Fair condition however some clients may wish to repair or take some action primarily for cosmetic reasons

Action Definitions	
Action 2	Precautions for Access Which may Disturb ACM Debris Use appropriate means to isolate the debris or to limit entry to the area which may disturb the material. At locations where ACM Debris can remain in place in lieu of removal or clean-up (e.g. Debris on top of ceiling tiles or behind lockable door), Utilize appropriate asbestos precautions to enter the area if this will disturb debris. The precautions will be required until the ACM Debris has been cleaned up.
Action 3	ACM Removal Remove ACM. Utilize asbestos procedures appropriate to the scope of the removal work. Until it is removed, restrict access to the material so it is not disturbed.
Action 4	Precautions for Work Which may Disturb ACM in Poor Condition. Utilize appropriate asbestos precautions if ACM may be disturbed by work on or near ACM. This does not require restricting access to the area, only control of work which may contact or disturb the ACM. Removal is the only viable option if work will disturb ACM.
Action 5	Proactive ACM Removal Remove friable ACM where the presence of friable asbestos in Good condition is not desirable. If friable ACM in Fair condition is not removed, then Repair friable ACM.
Action 6	ACM Repair Repair friable ACM in Fair condition which is not likely to be damaged again or disturbed by normal use of the area or room. Pinchin recommends proactive removal if friable ACM is likely to be damaged or disturbed during normal use of the area or room.
Action 7	Asbestos Management Program with Routine Surveillance Implement an Asbestos Management Program, including routine surveillance of ACM. Reassess materials regularly (typically once per year).

Master Template: Methodology Annex A to Appendix I Evaluation Criteria, HAZ, August 17, 2023

APPENDIX IV
Location Summary Report

Client:Halifax Regional Centre for Education
Site: 283 Thomas Raddall Drive, Halifax, NS
Building Name: Halifax West High School
Survey Date: 2024-02-26
Last Re-Assessment:
Building Phases: A: 2003

Location No.	Name or Description	Area ft²	Floor No.	Bldg. Phase	Notes
1	Floor 1 Corridor	4440	1	A	
2	1F North Wing, room no. C121-129	7232	1	A	
3	1F Northern Stairwell	660	1	A	
4	C131 Pump Room, room no. C131	1560	1	A	
5	C132 Reservoir, room no. C132	0	1	A	NO ACCESS
6	C133 Elevator Machine Room, room no. C133	80	1	A	
7	C134 Storage, room no. C134	64	1	A	
8	C135 Mechanical Room, room no. C135	64	1	A	
9	1F West Wing, room no. C141-149	7232	1	A	
10	1F Western Stairwell	660	1	A	
11	C151 Server Room, room no. C151	144	1	A	NO ACCESS
12	C152 Assistive Care Washroom, room no. C152	84	1	A	
13	C153 Janitor, room no. C153	60	1	A	
14	C160 Staff Washroom, room no. C160	48	1	A	
15	C161 Female Washroom, room no. C161	368	1	A	
16	C162 Male Washroom, room no. C162	368	1	A	
17	C170 Staff Washroom, room no. C170	48	1	A	
18	C171 Male Washroom, room no. C171	368	1	A	
19	C172 Female Washroom, room no. C172	368	1	A	
20	C173 Communication Room, room no. C173	184	1	A	
21	C174 Electrical Room, room no. C174	276	1	A	
22	Main Entrance Corridor	3495	2	A	
23	B201 Cafeteria, room no. B201	5777	2	A	
24	Kitchen Area, room no. B202, 203, 205, 206	940	2	A	
25	2nd Floor Mech Room, room no. B204	114	2	A	
26	2F Eastern Stairwell (Section B)	660	2	A	
27	Auditorium, room no. B210-211	6200	2	A	
28	2F Section B, room no. B214-223	6700	2	A	
29	2F Section C, room no. C220-252	20870	2	A	
30	2F Northern Stairwell (Section C)	660	2	A	
31	2F Western Stairwell (Section C)	660	2	A	
32	2F Western Vestibule	560	2	A	
33	2F Section A	29892	2	A	
34	3F Main Corridor	800	3	A	
35	Upper Auditorium	930	3	A	
36	Mechanical Room (Section B), room no. B314	2250	3	A	
37	3F Section B, room no. B303-329	9305	2	A	
38	3F Eastern Stairwell (Section B)	660	3	A	
39	3F Section C, room no. C319-352	20870	3	A	

Location No.	Name or Description	Area ft^2	Floor No.	Bldg. Phase	Notes
40	3F Northern Stairwell (Section C)	660	3	A	
41	3F Western Stairwell (Section C)	660	3	A	
42	Biology Labs (Section A), room no. A318	2700	3	A	
43	Chemistry Labs (Section A), room no. A329-333	2700	3	A	
44	Mechanical Room (Section A), room no. A342-343	2388	3	A	
45	3F Section A, room no. A311-353	18286	3	A	Mechanical Room (A342-343), Chemistry Labs (A329-333) and Biology Labs (A318) not included
46	Exterior	0		A	
47	2F Southern Stairwell (Section A)	660	2	A	
48	3F Southern Stairwell (Section A)	660	3	A	

APPENDIX V
Hazardous Materials Summary Report / Sample Log

HMIS
HAZARDOUS MATERIALS INVENTORY SYSTEM

HAZARDOUS MATERIALS SUMMARY / SAMPLE LOG

PINCHIN
1.855.PINCHIN www.pinchin.com

Client:Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School** **Survey Date: 2024-02-26**

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	S0001 ABC	Duct | Supply Air, Exhaust | Mastic, Grey | Grey Duct Mastic	1,4,7,36,44	A	358	0	0	0	None Detected	No	
Asbestos	S0002 ABC	Ceiling, Wall | | Firestopping (mastic) | Red	1,4,7,8,20,21,25	A	99	0	16	0	None Detected	No	
Asbestos	S0003 ABC	Piping, Wall, Duct, Piping, Wall | Sprinkler, Fire Stop, Fireproofing | Firestopping (mastic) | Black	2,7,9,12,14,15,16,17,18,19,25,28,29,33,36,37 39,42,43,44,45	A	36431	0	636	0	None Detected	No	
Asbestos	S0004 ABC	Other | Window Liner, Door, Window | Caulking | Butyl Seal	1,2,3,9,10,23,26,28,29,30,31,32,33,37,38,39 40,41,42,43,45,47,48	A	11730	0	0	0	None Detected	No	
Asbestos	S0005 ABC	Other | Expansion Joint, Door, Window | Caulking, Grey | Grey Exterior Caulking	46	A	0	0	234	0	None Detected	No	
Asbestos	V9500	Floor | | Mortar | Beige 4x4" Ceramic Tile, Green Ceramic Tile, Thinset Under Green Ceramic Tiles	3,10,12,14,15,16,17,18,19,22,26,30,31,32,33 34,38,40,41,45,47,48	A	0	13372	0	0	Presumed Asbestos	Yes	NF
Asbestos	V9500	Other | | Adhesive/mastic | Mirror Adhesive	12,14,15,16,17,18,19,33,45	A	0	0	45	0	Presumed Asbestos	Yes	NF
Asbestos	V9500	Other | | Bakelite | Countertops, Fumehood Prep Surfaces	42,43	A	0	0	58	0	Presumed Asbestos	Yes	NF
Asbestos	V9500	Wall | | Mortar | Ceramic Wall Tiles, White, Blue, Yellow Wall Tiles	12,14,15,16,17,18,19,24,33,45	A	0	8019	0	0	Presumed Asbestos	Yes	NF
Asbestos	V0000	Ceiling | | Adhesive/mastic | Silicone Caulking On Pipe Penetrations	24	A	0	0	8	0	Non Asbestos	No	
Asbestos	V0000	Ceiling | | Ceiling Tiles (lay-in) |	1,2,9,12,13,14,15,16,17,18,19,22,23,24,25,27 28,29,33,34,35,37,39,42,43,45	A	0	137003	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling | | Drywall And Joint Compound |	3,10,26,30,31,32,38,40,41,47,48	A	0	7160	0	0	Non Asbestos	No	
Asbestos	V0000	Floor | | Vinyl Floor Tile |	1,2,7,9,13,23,24,28,29,33,37,39,42,43,45	A	0	114873	0	0	Non Asbestos	No	
Asbestos	V0000	Floor | | Vinyl Sheet Flooring | Blue Sheet Flooring In Aisles	27,35	A	0	2920	0	0	Non Asbestos	No	
Asbestos	V0000	Other | | Caulking | Silicone	42,43	A	0	0	4	0	Non Asbestos	No	
Asbestos	V0000	Other | Door, Window | Caulking | Silicone Caulking	2,3,9,10,23,26,28,29,30,31,32,33,37,38,39,40 41,42,43,45,47,48	A	6604	0	0	0	Non Asbestos	No	
Asbestos	V0000	Piping | Sprinkler | Caulking | Grey Silicone Caulking	7	A	0	0	3	0	Non Asbestos	No	
Asbestos	V0000	Piping | Sprinkler | Caulking | Grey Caulking	4,8	A	0	0	6	0	Non Asbestos	No	
Asbestos	V0000	Piping | Industrial Piping | Styrofoam | Spray Foam	6,7	A	0	0	2	0	Non Asbestos	No	
Asbestos	V0000	Wall | | Concrete (precast) |	2,9,28,29,33,37,39,42,43,45	A	0	78578	0	0	Non Asbestos	No	

HAZARDOUS MATERIALS SUMMARY / SAMPLE LOG

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	V0000	Wall | | Drywall And Joint Compound |	3,10,13,23,26,30,31,36,38,40,41,44,47,48	A	0	14483	0	0	Non Asbestos	No	
Paint	L0001	Wall | Drywall And Joint Compound | Cream	1,2,3,4,6,7,8,9,10,13,14,15,16 17,18,19,20,21,22,23,25,26,28,29,30,31 32,33,34,36,37,38,39,40,41,42,43,44,45 47,48	A	0	13875 8	0	0		No	-
Paint	L0002	Wall | Drywall And Joint Compound | Light Blue	1,2,9,37	A	0	7177	0	0		No	-
Paint	L0003	Wall | Concrete (precast) | Dark Blue	28,37,39	A	0	5821	0	0		No	-
Paint	L0004	Wall | Drywall And Joint Compound | Yellow	29	A	0	1530	0	0		No	-
Paint	L0005	Wall | Drywall And Joint Compound | Green	29,33	A	0	2780	0	0		No	-
Paint	L0006	Wall | Concrete (precast) | Brown	39,45	A	0	5730	0	0		No	-
Paint	L0007	Wall | Concrete (precast) | Orange	1,28	A	0	3370	0	0		No	-
Lead Product	V9500	Batteries In Emer. Lights	1,3,4,8,10,12,14,15,16,17,18,19,20 21,23,24,25,26,28,29,30,31,32,33,34,36 37,38,39,40,41,44,45,47,48	A	0	0	54	0	Presumed Lead Product	Yes	-
Hg	V9000	Light Fixture	1,2,3,4,6,7,8,9,10,12,13,14,15 16,17,18,19,20,21,22,23,24,25,26,28,29 30,31,32,33,34,36,37,38,39,40,41,42,43 44,45,47,48	A	0	0	2078	0	Hg	Yes	-

Legend:

Sample number	
S####	Asbestos sample collected
L####	Paint sample collected
P####	PCB sample collected
M####	Mould sample collected
V####	Material visually similar to numbered sample collected
V0000	Known non Hazardous Material
V9000	Material is visually identified as Hazardous Material
V9500	Material is presumed to be Hazardous Material
[Loc. No.]	Abated Material

Units	
SF	Square feet
LF	Linear feet
EA	Each
%	Percentage

NF	Non Friable material.
F	Friable material
PF	Potentially Friable material

APPENDIX VI
Confirmed and Presumed Report

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #1 : Floor 1 Corridor **Floor: 1** **Room #:** **Area (sqft): 4440**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Batteries In Emer. Lights	3	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #1 : Floor 1 Corridor **Floor: 1** **Room #:** **Area (sqft): 4440**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Light Fixture	60	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #2 : 1F North Wing **Floor: 1** **Room #: C121-129** **Area (sqft): 7232**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Light Fixture	128	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #3 : 1F Northern Stairwell **Floor: 1** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #3 : 1F Northern Stairwell **Floor: 1** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #3 : 1F Northern Stairwell **Floor: 1** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #4 : C131 Pump Room **Floor: 1** **Room #: C131** **Area (sqft): 1560**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #4 : C131 Pump Room **Floor: 1** **Room #: C131** **Area (sqft): 1560**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	14	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #5 : C132 Reservoir **Floor: 1** **Room #: C132** **Area (sqft): 0**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS - NO ACCESS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #5 : C132 Reservoir **Floor: 1** **Room #: C132** **Area (sqft): 0**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS - NO ACCESS				
Component	Quantity	Unit	Sample	Hazard

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #5 : C132 Reservoir **Floor: 1** **Room #: C132** **Area (sqft): 0**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY - NO ACCESS				
Component	Quantity	Unit	Sample	Hazard

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #5 : C132 Reservoir **Floor: 1** **Room #: C132** **Area (sqft): 0**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PCB - NO ACCESS						
Component	Quantity	Unit	Sample	Sample Description	Amount	PCB

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #5 : C132 Reservoir **Floor: 1** **Room #: C132** **Area (sqft): 0**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ODS - NO ACCESS					
Component	Type	Quantity	Unit	Sample	Hazard

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**

Location: #5 : C132 Reservoir **Floor: 1** **Room #: C132** **Area (sqft): 0**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MOULD - NO ACCESS								
System	Material	Visible	Quantity	Unit	Sample Type	Sample No	Sample Description	Mould

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #5 : C132 Reservoir **Floor: 1** **Room #: C132** **Area (sqft): 0**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

TANK - NO ACCESS

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #6 : C133 Elevator Machine Room **Floor: 1** **Room #: C133** **Area (sqft): 80**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	1	EA	V9000	Yes

1 - 2 bulbs

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #7 : C134 Storage **Floor: 1** **Room #: C134** **Area (sqft): 64**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	1	EA	V9000	Yes

1 - 2 bulbs

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #8 : C135 Mechanical Room **Floor: 1** **Room #: C135** **Area (sqft): 64**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #8 : C135 Mechanical Room **Floor: 1** **Room #: C135** **Area (sqft): 64**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Light Fixture[1]	1	EA	V9000	Yes

1 - 2 bulbs

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #9 : 1F West Wing **Floor: 1** **Room #: C141-149** **Area (sqft): 7232**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Light Fixture	128	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #10 : 1F Western Stairwell **Floor: 1** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #10 : 1F Western Stairwell **Floor: 1** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #10 : 1F Western Stairwell **Floor: 1** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #11 : C151 Server Room **Floor: 1** **Room #: C151** **Area (sqft): 144**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS - NO ACCESS

System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #11 : C151 Server Room **Floor: 1** **Room #: C151** **Area (sqft): 144**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS - NO ACCESS

Component	Quantity	Unit	Sample	Hazard

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #11 : C151 Server Room **Floor: 1** **Room #: C151** **Area (sqft): 144**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY - NO ACCESS

Component	Quantity	Unit	Sample	Hazard

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #11 : C151 Server Room **Floor: 1** **Room #: C151** **Area (sqft): 144**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PCB - NO ACCESS

Component	Quantity	Unit	Sample	Sample Description	Amount	PCB

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #11 : C151 Server Room **Floor: 1** **Room #: C151** **Area (sqft): 144**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ODS - NO ACCESS

Component	Type	Quantity	Unit	Sample	Hazard

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #11 : C151 Server Room **Floor: 1** **Room #: C151** **Area (sqft): 144**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MOULD - NO ACCESS

System	Material	Visible	Quantity	Unit	Sample Type	Sample No	Sample Description	Mould

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #11 : C151 Server Room **Floor: 1** **Room #: C151** **Area (sqft): 144**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

TANK - NO ACCESS

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #12 : C152 Assistive Care Washroom **Floor: 1** **Room #: C152** **Area (sqft): 84**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS															
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Beige 4x4" ceramic tile		Ceramic Tiles	A	Y		84(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other		Adhesive/mastic, Mirror adhesive			D	N		1(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall		Mortar, White, blue, yellow wall tiles		Ceramic Tiles	D	N		342(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #12 : C152 Assistive Care Washroom **Floor: 1** **Room #: C152** **Area (sqft): 84**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #12 : C152 Assistive Care Washroom **Floor: 1** **Room #: C152** **Area (sqft): 84**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	2	EA	V9000	Yes

1 - 2 bulb

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #13 : C153 Janitor **Floor: 1** **Room #: C153** **Area (sqft): 60**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	2	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #14 : C160 Staff Washroom **Floor: 1** **Room #: C160** **Area (sqft): 48**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		48(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other		Adhesive/mastic, Mirror adhesive			D	N		1(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall		Mortar, White, blue, yellow wall tiles		Ceramic Tiles	D	N		126(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #14 : C160 Staff Washroom **Floor: 1** **Room #: C160** **Area (sqft): 48**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #14 : C160 Staff Washroom **Floor: 1** **Room #: C160** **Area (sqft): 48**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	1	EA	V9000	Yes

1 - 2 bulb

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #15 : C161 Female Washroom **Floor: 1** **Room #: C161** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		368(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other		Adhesive/mastic, Mirror adhesive			D	N		3(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall		Mortar, White, blue, yellow wall tiles		Ceramic Tiles	D	N		351(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #15 : C161 Female Washroom **Floor: 1** **Room #: C161** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #15 : C161 Female Washroom **Floor: 1** **Room #: C161** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	8	EA	V9000	Yes

1 - 2 bulb

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #16 : C162 Male Washroom **Floor: 1** **Room #: C162** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		368(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other		Adhesive/mastic, Mirror adhesive			D	N		3(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall		Mortar, White, blue, yellow wall tiles		Ceramic Tiles	D	N		351(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #16 : C162 Male Washroom **Floor: 1** **Room #: C162** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #16 : C162 Male Washroom **Floor: 1** **Room #: C162** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	8	EA	V9000	Yes

1 - 2 bulb

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #17 : C170 Staff Washroom **Floor: 1** **Room #: C170** **Area (sqft): 48**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		48(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other		Adhesive/mastic, Mirror adhesive			D	N		1(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall		Mortar, White, blue, yellow wall tiles		Ceramic Tiles	D	N		126(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #17 : C170 Staff Washroom **Floor: 1** **Room #: C170** **Area (sqft): 48**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #17 : C170 Staff Washroom **Floor: 1** **Room #: C170** **Area (sqft): 48**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	1	EA	V9000	Yes

1 - 2 bulb

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #18 : C171 Male Washroom **Floor: 1** **Room #: C171** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		368(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other		Adhesive/mastic, Mirror adhesive			D	N		3(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall		Mortar, White, blue, yellow wall tiles		Ceramic Tiles	D	N		351(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #18 : C171 Male Washroom **Floor: 1** **Room #: C171** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #18 : C171 Male Washroom **Floor: 1** **Room #: C171** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	8	EA	V9000	Yes

1 - 2 bulb

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #19 : C172 Female Washroom **Floor: 1** **Room #: C172** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		368(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other		Adhesive/mastic, Mirror adhesive			D	N		3(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall		Mortar, White, blue, yellow wall tiles		Ceramic Tiles	D	N		351(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #19 : C172 Female Washroom **Floor: 1** **Room #: C172** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #19 : C172 Female Washroom **Floor: 1** **Room #: C172** **Area (sqft): 368**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	8	EA	V9000	Yes

1 - 2 bulb

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #20 : C173 Communication Room **Floor: 1** **Room #: C173** **Area (sqft): 184**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #20 : C173 Communication Room **Floor: 1** **Room #: C173** **Area (sqft): 184**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Light Fixture[1]	6	EA	V9000	Yes

1 - 2 bulbs

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #21 : C174 Electrical Room **Floor: 1** **Room #: C174** **Area (sqft): 276**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #21 : C174 Electrical Room **Floor: 1** **Room #: C174** **Area (sqft): 276**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Light Fixture[1]	6	EA	V9000	Yes

1 - 2 bulbs

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #22 : Main Entrance Corridor **Floor: 2** **Room #:** **Area (sqft): 3495**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Thinset under green ceramic tiles		Ceramic Tiles	D	N		3495(7)				V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #22 : Main Entrance Corridor **Floor: 2** **Room #:** **Area (sqft): 3495**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #22 : Main Entrance Corridor **Floor: 2** **Room #:** **Area (sqft): 3495**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	12	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #23 : B201 Cafeteria **Floor: 2** **Room #: B201** **Area (sqft): 5777**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	3	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #23 : B201 Cafeteria **Floor: 2** **Room #: B201** **Area (sqft): 5777**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	100	EA	V9000	Yes

1 - 2 bulb

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #24 : Kitchen Area **Floor: 2** **Room #: B202, 203, 205, 206** **Area (sqft): 940**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Wall		Mortar, Ceramic wall tiles		Ceramic Tiles	D	N		1809(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #24 : Kitchen Area **Floor: 2** **Room #: B202, 203, 205, 206** **Area (sqft): 940**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	3	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #24 : Kitchen Area **Floor: 2** **Room #: B202, 203, 205, 206** **Area (sqft): 940**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	14	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #25 : 2nd Floor Mech Room **Floor: 2** **Room #: B204** **Area (sqft): 114**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights[1]		EA	V9500	Presumed

1 - 2

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #25 : 2nd Floor Mech Room **Floor: 2** **Room #: B204** **Area (sqft): 114**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	3	EA	V9000	Yes

1 - 2 bulb

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #26 : 2F Eastern Stairwell (Section B) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #26 : 2F Eastern Stairwell (Section B) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #26 : 2F Eastern Stairwell (Section B) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #28 : 2F Section B **Floor: 2** **Room #: B214-223** **Area (sqft): 6700**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	3	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #28 : 2F Section B **Floor: 2** **Room #: B214-223** **Area (sqft): 6700**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	90	EA	V9000	Yes
Light Fixture[2]	24	EA	V9000	Yes

1 - Classrooms
2 - Corridor

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #29 : 2F Section C **Floor: 2** **Room #: C220-252** **Area (sqft): 20870**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	3	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #29 : 2F Section C **Floor: 2** **Room #: C220-252** **Area (sqft): 20870**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	320	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #30 : 2F Northern Stairwell (Section C) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #30 : 2F Northern Stairwell (Section C) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #30 : 2F Northern Stairwell (Section C) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #31 : 2F Western Stairwell (Section C) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #31 : 2F Western Stairwell (Section C) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #31 : 2F Western Stairwell (Section C) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #32 : 2F Western Vestibule **Floor: 2** **Room #:** **Area (sqft): 560**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		560(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #32 : 2F Western Vestibule **Floor: 2** **Room #:** **Area (sqft): 560**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #32 : 2F Western Vestibule **Floor: 2** **Room #:** **Area (sqft): 560**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture[1]	3	EA	V9000	Yes

1 - 2 bulbs

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #33 : 2F Section A **Floor: 2** **Room #:** **Area (sqft): 29892**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor[1]		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		2272(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other[2]		Adhesive/mastic, Mirror adhesive			D	N		18(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall[3]		Mortar, White, blue, yellow wall tiles		Ceramic Tiles	D	N		2808(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

1 - washrooms, changerooms
2 - Washrooms, changerooms
3 - Washrooms, changerooms

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #33 : 2F Section A **Floor: 2** **Room #:** **Area (sqft): 29892**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	3	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #33 : 2F Section A **Floor: 2** **Room #:** **Area (sqft): 29892**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	240	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #34 : 3F Main Corridor **Floor: 3** **Room #:** **Area (sqft): 800**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Thinset under green ceramic tiles		Ceramic Tiles	D	N		800(7)				V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #34 : 3F Main Corridor **Floor: 3** **Room #:** **Area (sqft): 800**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #34 : 3F Main Corridor **Floor: 3** **Room #:** **Area (sqft): 800**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	14	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #36 : Mechanical Room (Section B) **Floor: 3** **Room #: B314** **Area (sqft): 2250**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Batteries In Emer. Lights	3	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #36 : Mechanical Room (Section B) **Floor: 3** **Room #: B314** **Area (sqft): 2250**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Light Fixture	15	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #37 : 3F Section B **Floor: 2** **Room #: B303-329** **Area (sqft): 9305**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Batteries In Emer. Lights	2	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #37 : 3F Section B **Floor: 2** **Room #: B303-329** **Area (sqft): 9305**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	**Quantity**	**Unit**	**Sample**	**Hazard**
Light Fixture[1]	110	EA	V9000	Yes
Light Fixture[2]	24	EA	V9000	Yes

1 - Classrooms
2 - Corridor

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #38 : 3F Eastern Stairwell (Section B) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #38 : 3F Eastern Stairwell (Section B) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #38 : 3F Eastern Stairwell (Section B) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #39 : 3F Section C **Floor: 3** **Room #: C319-352** **Area (sqft): 20870**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	3	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #39 : 3F Section C **Floor: 3** **Room #: C319-352** **Area (sqft): 20870**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	320	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #40 : 3F Northern Stairwell (Section C) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #40 : 3F Northern Stairwell (Section C) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #40 : 3F Northern Stairwell (Section C) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #41 : 3F Western Stairwell (Section C) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #41 : 3F Western Stairwell (Section C) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #41 : 3F Western Stairwell (Section C) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #42 : Biology Labs (Section A) **Floor: 3** **Room #: A318** **Area (sqft): 2700**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Other[1]		Bakelite, Countertops			A	Y		26(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF

1 - Laboratory bench tops

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #42 : Biology Labs (Section A) **Floor: 3** **Room #: A318** **Area (sqft): 2700**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	55	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #43 : Chemistry Labs (Section A) **Floor: 3** **Room #: A329-333** **Area (sqft): 2700**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Other[1]		Bakelite, Countertops			A	Y		30(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other[2]		Bakelite, Fumehood prep surfaces			A	Y		2(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF

1 - Laboratory bench tops
2 - Fumehood prep surfaces

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #43 : Chemistry Labs (Section A) **Floor: 3** **Room #: A329-333** **Area (sqft): 2700**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	55	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #44 : Mechanical Room (Section A) **Floor: 3** **Room #: A342-343** **Area (sqft): 2388**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	2	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #44 : Mechanical Room (Section A) **Floor: 3** **Room #: A342-343** **Area (sqft): 2388**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	22	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #45 : 3F Section A **Floor: 3** **Room #: A311-353** **Area (sqft): 18286**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor[1]		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		2288(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other[2]		Adhesive/mastic, Mirror adhesive			D	N		12(7)			EA	V9500	Presumed Asbestos		Presumed Asbestos	NF
Wall[3]		Mortar, White, blue, yellow wall tiles		Ceramic Tiles	D	N		1404(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Mechanical Room (A342-343), Chemistry Labs (A329-333) and Biology Labs (A318) not included
1 - washrooms, staff washrooms
2 - Washrooms
3 - Washrooms

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #45 : 3F Section A **Floor: 3** **Room #: A311-353** **Area (sqft): 18286**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	3	EA	V9500	Presumed

Mechanical Room (A342-343), Chemistry Labs (A329-333) and Biology Labs (A318) not included

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #45 : 3F Section A **Floor: 3** **Room #: A311-353** **Area (sqft): 18286**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	224	EA	V9000	Yes

Mechanical Room (A342-343), Chemistry Labs (A329-333) and Biology Labs (A318) not included

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #47 : 2F Southern Stairwell (Section A) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #47 : 2F Southern Stairwell (Section A) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #47 : 2F Southern Stairwell (Section A) **Floor: 2** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #48 : 3F Southern Stairwell (Section A) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Mortar, Green ceramic tile		Ceramic Tiles	A	Y		660(7)			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #48 : 3F Southern Stairwell (Section A) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9500	Presumed

Client: Halifax Regional Centre for Education **Site: 283 Thomas Raddall Drive, Halifax, NS** **Building Name: Halifax West High School**
Location: #48 : 3F Southern Stairwell (Section A) **Floor: 3** **Room #:** **Area (sqft): 660**
Survey Date: 2024-02-26 **Last Re-Assessment: 0000-00-00**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	5	EA	V9000	Yes

Legend:

Sample number	
S####	Asbestos sample collected
L####	Paint sample collected
P####	PCB sample collected
M####	Mould sample collected
V####	Material is visually identified to be identical to S####
V0000	Known non hazardous material
V9000	Material visually identified as a Hazardous Material
V9500	Material is presumed to be a hazardous material

Units	
SF	Square feet
LF	Linear feet
EA	Each
%	Percentage
LF	Linear feet

Other	
A	Access
V	Visible
AP	Air Plenum
F	Friable material
NF	Non Friable material
PF	Potentially Friable material
Pb	Lead
Hg	Mercury
As	Arsenic
Cr	Chromium

Access	
A	Accessible to all building occupants
B	Accessible to maintenance and operations staff without a ladder
C	Accessible to maintenance and operations staff with a ladder. Also rarely entered, locked areas
D	Not normally accessible

Condition	
Good	No visible damage or deterioration
Fair	Minor, repairable damage, cracking, delamination or deterioration
Poor	Irreparable damage or deterioration with exposed and missing material

Visible	
Y	The material is visible when standing on the floor of the room, without the removal or opening of other building components (e.g. ceiling tiles or access panels).
N	The material is not visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceilings tiles or access panels) to view and access. Includes rarely entered crawlspaces, attic spaces, etc. Observations will be limited to the extent visible from the access points.

Air Plenum	
Yes or No	The material is in a return air plenum or in a direct airstream or there is evidence of air erosion (e.g. duct for heating or cooling blowing directly on or across an ACM). This field is only completed where Air Plenum consideration is required by regulation.

Colour Coding	
	The material is known to contain regulated concentrations of asbestos; either by analytical results or visible identification (use of the V9000 code).
	The material is presumed to contain asbestos; based on visual appearances; typically a material known to historically contain asbestos; however, not sampled due to limited access or the destructive nature of the sampling.

Action					
(1)	Clean up of ACM Debris	(2)	Precautions for Access Which may Disturb ACM Debris	(3)	ACM removal
(4)	Precautions for Work Which may Disturb ACM in Poor Condition	(5)	Proactive ACM removal (Minimum repair required for fair condition)	(6)	ACM repair
(7)	Management program and surveillance				

APPENDIX VII
Photographs

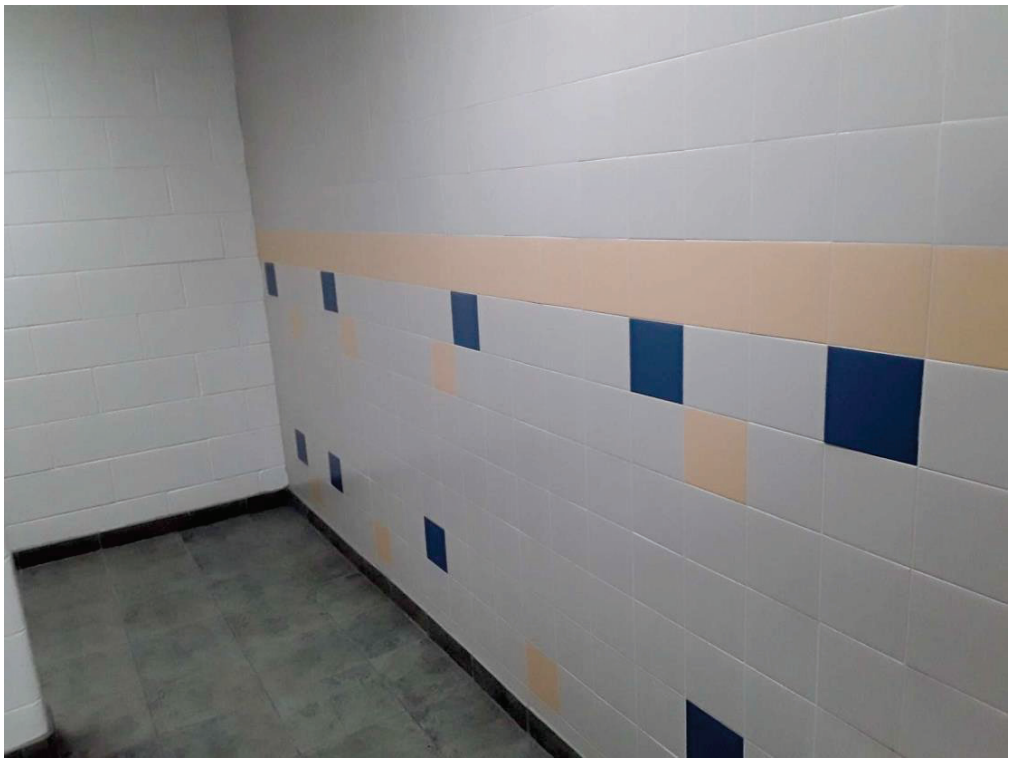
S0001A (None), Duct, Mastic, Grey, C134 Storage (Location #: 7)

V0002 (None), Red firestopping mastic, Floor 1 Corridor (Location #: 1)
Perimeter walls

S0003A (None), Firestopping (mastic), Black, C134 Storage (Location #: 7)
Wall penetrations

S0005A (None), Expansion Joint, Caulking, Grey, Exterior (Location #: 46)

V9500 (Presumed Asbestos), Ceramic tile thinset, Floor, Mortar, C152 Assistive Care Washroom (Location #: 12)



V9500 (Presumed Asbestos), Ceramic tile thinset, Wall, Mortar, C172 Female Washroom (Location #: 19)

V9500 (Presumed Asbestos), Other, Bakelite countertops, Chemistry Labs (Section A) (Location #: 43)
Laboratory bench tops

Halifax Regional Centre for Education

Hot Work Policy

Updated Feb 2023

Rev. 1

Hot Work Permit Follows This Document

Introduction

Hot work comes in a variety of applications each with its own heat source severity. All hot work is a fire hazard that left unmanaged will create high probability conditions for injury and/or property loss. Under the right conditions, hot work heat sources with the lowest temperature ratings can ignite products that seem most difficult to burn.

A hot work management system is required to reduce the risk of hot work causing personal injury and fire or other property damage. The following information is intended to establish the programs and processes designed to manage this risk.

Definition

Hot work is ***any temporary or permanent operation involving open flames or producing heat and/or sparks***. This includes but is not limited to: brazing, cutting, grinding, soldering, torch applied roofing and welding. The definition of hot work can be applied to activities within a facility such as periodic/planned maintenance activities, new construction work and emergency repairs.

Hot work may only be conducted on HRCE premises if authorized by designated Operations Services personnel and only after the following conditions are verified:

1. No other suitable non-hot work means can be found to produce the desired result;
2. No other safe location can be found to do the hot work; and
3. The designated/trained person(s) involved with authorizing and conducting the hot work have complied with all hot work permitting process requirements, including all precautions and required follow-up actions

All employees assigned to perform hot work on HRCE premises will receive the necessary education to be able to accept responsibility for safe, loss-free hot work operations.

Hot Work Management Process

Hot Work Management contains three components:

1. Avoid Hot Work where possible;
2. Prohibit Hot Work where it can not be conducted safely;
3. Conduct Hot Work in areas containing hazards by:
    - relocating the hot work
    - manage hot work by using the hot work permit system described below.

1) Avoid hot work when possible. Consider all alternative methods to hot work. Some alternative methods include:

- Mechanical removal and relocation of frozen piping to a heated area vs. thawing of piping in place with any form of hot work.
- Manual hydraulic shears vs. saw/torch cutting.
- Mechanical bolting vs. welding.
- Screwed or flanged pipe vs. sweat soldering.
- Reciprocating saw vs. radial saw.
- A roof covering system that does not require a hot work process.

2) Prohibit hot work in areas where hot work cannot be conducted safely under any conditions or where extensive preparation and planning are required to make the area and/or equipment involved fire safe. When these conditions exist, the area and/or equipment involved will be designated as a "No Hot Work Area". Examples of a "No Hot Work Area" include:

- Areas/equipment that contain/handle flammable liquids, flammable gases, combustible dusts, combustible metals and explosives
- Partitions, walls, ceilings or roofs with combustible plastic covering or cores (i.e., expanded plastic insulation, sandwich panels)
- Rubber lined equipment.
- Oxygen enriched atmosphere.
- Storage and handling of oxidizer materials.

Within HRCE schools and worksites, "No Hot Work Areas" include:

- Chemical storage rooms (unless and until all chemicals have been removed from the room);
- Cleaning products storage rooms (unless and until all chemicals have been removed from the room);
- Partitions, walls, ceilings or roofs with combustible plastic covering or cores;

3) When hot work must be conducted in areas or on equipment containing hazardous processes as described above, follow the specific precautions outlined below.

Hot work conducted outside of a designated, fixed hot work station will be managed using a **formal hot work permit system**. Within HRCE, hot work is defined as either **"minor hot work"** or **"major hot work"**, each of which requires a different level of permit and mitigation methods.

Minor Hot Work is defined as hot work which has a low risk of causing injury, fire or property damage because of the method of hot work, tools and equipment used and the materials in or near the hot work area. Designated workers can issue their own permit for conduct of minor hot work.

The hazard assessment on the hot work permit will be used to determine if the work is minor hot work. In most cases, the worker is his/her own "fire watch". The fire watch is maintained until the material being worked on is cool to the touch at which time an inspection of the work area and adjacent areas is conducted by the worker. While not normally required, the worker may re-inspect the work area or have another employee re-inspect the work area after a period of time if they feel a re-inspection is warranted.

Major Hot Work is defined as hot work where there is a moderate to high risk of injury, fire or property damage because of the method of hot work, tools and equipment used and the materials in or near the hot work area. Workers must be issued a hot work permit by their immediate Supervisor in order to complete major hot work.

The hazard assessment on the hot work permit will be used to determine if the work is major hot work. During major hot work, a fire watch will be posted to give continuous surveillance of the work area. Also, a continuous fire watch will be conducted for the length of time noted on the permit after the work is complete. A re-inspection will occur by the worker or another designated employee at the time indicated on the permit.

Hot Work Permit Process

The following is a step-by-step description of the Hot Work Permit process:

- The worker assigned the task of conducting hot work must complete the hazard assessment which forms the first part of the hot work permit.
- The worker determines if the work is "minor hot work" or "major hot work". If it is minor hot work, they issue a permit to complete the work. If it is "major hot work", they will request their immediate Supervisor issue the permit.
- The hot work permit is posted in a visible place within the work area. HRCE employees and supervisors in the area are informed about the hot work activity and the need to support the implemented precautions for this hazardous operation.
- While the hot work proceeds, the fire watch maintains a constant vigil (even during employees breaks and meal times) to maintain the hot work area in a fire-safe condition, keeps watch for any stray sparks, smoldering fires, or other fire hazards, and is ready to provide the initial fire response.
- **Once the work is completed, the fire watch remains in the area for the designated period, as noted: For minor hot work, until material is cool to the touch and area inspected; For major hot work the fire watch remains in place as indicated on the permit. The fire watch must then conduct an inspection, carefully inspecting the work and the adjacent**

areas for smoldering fires. This inspection extends to floors above and below the work and adjacent rooms.

- When work is completed the permit is removed and must be retained as a record of the work.

Fire Watch for "Major Hot Work"

The fire watch should be assigned and initiated when the hot work permit is issued, and this function should be maintained throughout the hot work operation including break/lunch and for the period noted on the permit, continuously following the completion of hot work. A fire watch should be posted and maintained in the immediate area of the hot work and in any adjacent areas that may be exposed by this operation.

The fire watch has responsibility to make sure the hot work area is maintained in a fire-safe condition throughout this work and has the authority to stop the hot work if unsafe conditions are observed. This person must understand the basic hazards of any combustible construction involved with the hot work area, the fire exposure hazard hot work creates to occupancies adjacent to and below the hot work operation, the hazards associated with the occupancy, and the need to maintain proper isolation of all hot work operations from combustible or flammable materials. The fire watch also must be properly trained in use of manual, portable fire extinguishers and emergency notification procedures within the school/worksite.

Second Fire Watches

For any hot work operations on a building roof or adjacent to building walls where a combustible occupancy exists within the structure or the building has any combustible construction, a second fire watch should be posted in the exposed adjacent areas.

For roof level hot work, a second fire watch should be posted on the floor immediately below for roof hot work. Where suspended ceilings are present between the building occupancy and the underside of the structural roof, this space should be inspected periodically during the hot work operation.

Hot work conducted on any building floors and walls or adjacent to building walls with unprotected openings where a combustible occupancy or construction exists on the opposite side, should include assignment of a second fire watch on the opposite side of the wall. This same approach should apply when hot work is conducted on pipe/building shafts, HVAC ductwork, etc.

Fire Prevention Measures

Based on the Hot Work Permit System, implement hot work fire prevention precautions as follows for **minor hot work**:

- Maintain automatic sprinkler protection and other fixed fire protection systems in service and fully operational.
- Provide manual firefighting equipment appropriate for the construction/occupancy hazards in the hot work area.
- Maintain hot work equipment in good repair.
- Separate hot work operations from combustibles using fire resistive blankets or screens to properly isolate the hot work from the adjacent combustible materials.
- The following fire safety precautions listed on the Hot Work Permit apply to the surface area within 35 ft (11 m) of the hot work. The major purpose is to isolate fuels from sparks. Within this area:
    a) Sweep floors clean, removing any spilled grease or oil
    b) Remove any flammable materials (wood, cardboard, etc) or liquids (paints, oils and lacquers) from the hot work area.
    c) Protect combustibles that cannot be moved with fire resistive tarpaulins or metal shields
- Hot work is prohibited on partitions, walls, ceilings or roofs with combustible plastic coverings or cores (i.e., expanded plastic insulation, sandwich panels).
- Schedule hot work during shutdown periods if possible.

Based on the Hot Work Permit System, implement hot work fire prevention precautions as follows for **major hot work**:

- Maintain automatic sprinkler protection and other fixed fire protection systems in service and fully operational.
- Provide manual firefighting equipment appropriate for the construction/occupancy hazards in the hot work area.
- Maintain hot work equipment in good repair.
- Separate hot work operations from combustibles by a minimum of 35 ft (11 m) of open space from grade level hot work areas. An alternative is to use proper fire resistive welding blankets and screens to properly isolate the hot work from the adjacent combustible occupancies.
- The following fire safety precautions listed on the Hot Work Permit apply to the surface area within 35 ft (11 m) of the hot work. The major purpose is to isolate fuels from sparks. Within this area:
    a) Sweep floors clean, removing any spilled grease or oil. Cover floors made of combustible material (i.e., boards on joist, plank on steel, wood block) with fire-resistant tarpaulins or other noncombustible material.
    b) Remove any flammable liquids (paints, oils and lacquers) from the hot work area.

c) Protect combustibles that cannot be moved with fire resistive tarpaulins or metal shields. This includes all storage or machinery with grease or lint deposits. Hot work blankets used to cover combustible materials or construction that cannot be relocated from the hot work area should always be “tented”.
d) Cover all wall and floor openings. Plug floor openings with an approved fire stop material. Seal ductwork and duct openings with metal covers or cover them with fire-resistive tarpaulins. Close all doors and fire doors to prevent sparks from escaping.

- Either eliminate explosive atmospheres (dust or vapor) or prohibit the hot work. Shut down any process that produces explosive atmospheres, and continuously monitor the area for accumulation of combustible gases before, during and after hot work. Prohibit hot work where accumulations of volatiles or combustibles are severe and cannot be eliminated.
- Prohibit hot work on partitions, walls, ceilings or roofs with combustible plastic coverings or cores (i.e., expanded plastic insulation, sandwich panels).
- Schedule hot work during shutdown periods if possible.
- Secure, isolate and vent pressurized vessels, piping and equipment as needed prior to initiating hot work. Clean combustible and/or flammable liquids, gases and solids whenever present within the equipment, prior to initiating hot work.
- For hot work on vessels or boilers, use only contractors who are qualified by a nationally or internationally recognized boiler and pressure vessel code.
- Assign a designated fire watch to the hot work operation before this work is started. Maintain a continuous fire watch during the hot work activity, throughout all break and lunch periods, and for at least one hour following the completion of the hot work. Beyond this, monitor the area for up to an additional 3 hours, depending on local conditions.
- Avoid hot work of any kind in areas handling, **processing or storing flammable liquids or gases**. Hot work provides an ignition source in an area where fuel is available in significant quantities and in a readily ignitable form. Ideally, relocated any hot work operation within a flammable liquid or gas occupancy to a non-hazardous location. When relocation is not possible, the following additional precautions should be implemented:
  a) Drain all equipment or piping in the area of flammable and combustible liquids.
  b) Steam clean equipment or pipe to be worked on or provide with an inert atmosphere, to prevent creation of a flammable atmosphere.
  c) Shut off pipe supplying the area with flammable and combustible liquids off at the source (valve should be locked shut to prevent unexpected opening). If the piping is to be worked on, blank if off.

d) Check equipment or piping with a portable oxygen analyzer before and during the hot work. This is to ensure that sufficient oxygen to support combustion is not present inside the equipment or piping.
e) Protect all permanent storage tanks or piping (that cannot be moved or drained) against physical contact and heat from hot work equipment. Preferably all equipment that is within reach of the hot work equipment (grinder, welding rod holder, cutting torch, etc.) will be drained, purged and made inert. If this is not possible due to the quantities of flammable liquids involved, provide physical protection for closed flammable liquid equipment by placing welding curtains and temporary barriers between the equipment and the hot work. Carefully review the area to ensure that no vents or other opening are near the hot work that could allow fumes to come into contact with any sparks or hot surfaces.
f) Keep mechanical exhaust ventilation in the room/building in operation.
g) Use a portable combustible gas analyzer before and during the work. If any detectable readings are obtained, then work cannot begin or continue until the source is found and suitably mitigated such that the concentration is maintained below 10% of the LFL.

Alternative to the 35 ft (11 m) Rule

An alternative to the 35 ft (11 m) rule is to physically isolate the hot work operation from adjacent combustible occupancies or construction using properly fire rated hot work shields and/or blankets. “Boxing” the hot work operation can be accomplished through vertically suspending hot work shields or blankets around the hot work extended at least 15 ft (4.6 m) above the highest elevation of the hot work or to the bottom of a solid/smooth ceiling/roof and extending to floor.

When “boxing” is used in buildings with structural members that create an open space between the top of the member and the floor or roof above, this space should be sealed to prevent liberation of sparks/spatter/slag through the open space. The lower elevation of the “boxing” materials should overlap onto the floor at least 6 in. (152 mm) and this layer should be constructed of a noncombustible, fire resistive hot work blanket material. The process of “boxing” the hot work hazard requires a proper understanding of the limitations of the hot work shields or blankets being used.

Hot work shields or screens should be used only as vertical barriers for hot work operations. Where these shields or screens are required to extend onto the floor in the hot work area, the bottom 2 ft (0.6 m) of the screen should be constructed of noncombustible hot work blanket material. ***Hot work shields or screens are typically constructed of translucent plastic materials that are combustible and will fail under extended exposure to severe hot work in positions other than a vertical position.***

Where severe hot work (torch cutting, arc stick welding) will be conducted and the area beneath this activity needs to be protected against the hot work, hot work pads should be provided.

Elevated Hot Work

For elevated hot work, combustible materials should be either relocated a minimum of 50 ft (15.2 m) from the hot work area; or properly protected with fire retardant welding blankets; or the hot work operation isolated with welding screens. Suspend fire-resistive welding blankets under hot work conducted near the ceiling. Place noncombustible screens around hot work at the floor to trap sparks. Every elevated hot work operation needs to be evaluated on a case-by-case basis to determine a reasonable safe distance from hot work to combustible occupancies or construction. The physical conditions involved may dictate relocation of combustibles beyond 50 ft (15.2 m).

Outside Contractors

Many hot work operations are performed by outside contractors; these include cutting, welding, joint soldering, paint removal, roofing, etc. When outside contractors are involved, the risk of fire may increase simply because contractors may not understand the hazards at the school/worksite.

Contractors working for HRCE, and conducting hot work, must have their own Hot Work Permit/Management System that provides equal or greater risk mitigation than those methods and procedures mention herein.

Contractors must inform HRCE when hot work will be conducted at any of our schools/worksites.

HOT WORK PERMIT

STOP!
Avoid hot work when possible! Consider using an alternative cold work method.

This Hot Work Permit is required for any temporary operation involving open flames or producing heat and/or sparks conducted outside a Hot Work Designated Area. This includes, but is not limited to: brazing, cutting, grinding, soldering, torch-applied roofing and welding.

Instructions for Permit Authorizer

1. Specify the precautions to take.
2. Fill out and keep **Part 1** during the hot work process.
3. Issue **Part 2** to the person doing the job.
4. Keep **Part 2** on file for future reference, including signed confirmation that the post-work fire watch and monitoring have been completed.
5. Sign off the final check on **Part 2**.

HOT WORK BY
☐ Employee
☐ Contractor _____

DATE	JOB NUMBER

LOCATION OF WORK (BUILDING/FLOOR/OBJECT)

WORK TO BE PERFORMED

NAME OF PERSON PERFORMING HOT WORK

NAME OF PERSON PERFORMING FIRE WATCH

I verify the above location has been examined, the Required Precautions have been taken, and permission is authorized for this work.

PERMIT AUTHORIZER (PRINT AND SIGN)

THIS PERMIT EXPIRES ON (LIMIT AUTHORIZATION TO ONE SHIFT):

DATE: TIME: AM/PM

Note: Emergency notification on back of form.

Additional FM Global Resources:
Property Loss Prevention Data Sheet 10-3, *Hot Work Management*
Hot Work Permit App via fmglobal.com/apps
Hot Work Permit form (F2630) via fmglobalcatalog.com
Online training at training.fmglobal.com
FM Approved equipment via fmapprovals.com

FM Global

Part 1

Required Precautions

Y	NA	
☐	☐	The fire pump is in operation and switched to automatic.
☐	☐	Control valves to water supply for sprinkler system are open.
☐		Extinguishers are in service/operable.
☐		**Hot work equipment is in good working condition.**

Requirements within 35 ft. (10 m) of hot work

☐	☐	Shield combustible construction using listed (e.g., FM Approved) welding pads, blankets and curtains.
☐	☐	Remove or shield nonremovable combustibles using listed (e.g., FM Approved) welding pads, blankets and curtains.
☐	☐	Isolate potential sources of flammable gas, ignitable liquid or combustible dust/lint (e.g., shut down equipment).
☐	☐	Remove ignitable liquid, combustible dust/lint and combustible residues.
☐	☐	Shut down ventilation and conveying systems.
☐	☐	Remove combustibles and consider a second fire watch on opposite side of floor, wall, ceiling or roof when openings exist or thermally conductive materials pass through.
☐	☐	Is work on a combustible building assembly (e.g., Torch-Applied Roofing)? If yes, provide **ADDITIONAL REQUIRED PRECAUTIONS** below.

Hot work on/in closed equipment, ductwork or piping

☐	☐	Isolate equipment from service.
☐	☐	Remove ignitable liquid and purge flammable gas/vapor.
☐	☐	Prior to work, and/or during work, monitor for flammable gas/vapor. LEL reading(s): _____
☐	☐	Remove combustible dust/lint or other combustible materials.
☐	☐	Is work on/in equipment with nonremovable combustible linings or parts? If yes, provide **ADDITIONAL REQUIRED PRECAUTIONS** below.

Fire watch/fire monitoring the hot work area
Times listed are sufficient for majority. Use Table at back of permit for guidance for combustible concealed cavities, roof work or favorable factors.

☐		Perform a continuous fire watch during hot work.
☐		Perform a continuous fire watch post-work for
	☐	1 hour or Other ___ hours.
☐	☐	Perform fire monitoring for
	☐	3 hours or Other ___ hours.

ADDITIONAL REQUIRED PRECAUTIONS:

Halifax

Regional Centre for Education

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