City of Saint John

Contract Specifications

TENDER NO. 2021-082701T
ROOF REHABILITATION FIRE STATION 5

City of Saint John

CONTRACT SPECIFICATIONS

FOR

TENDER NO. 2021-082701T
ROOF REHABILITATION FIRE STATION 5

MARCH 2021

City of Saint John

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DIVISION 1 – PROJECT DESCRIPTION

PROJECT DESCRIPTION

1.1 GENERAL DESCRIPTION

The work consists generally of supplying all labour, materials, and equipment for 2021-082701T – Roof Rehabilitation Fire Station 5 as per the Specifications and Drawings.

1.2 CONTRACT DOCUMENTS

a) General Specifications, City of Saint John, New Brunswick, with all applicable Divisions as listed in the Table of Contents of the Contract Specifications.

b) Contract Specifications,
Tender No.: 2021-082701T
Contract: ROOF REHABILITATION FIRE STATION 5
City of Saint John, New Brunswick

c) List of Drawings

Sheet No.	Title
R1	Roof plan
CMM383	Prefabricated Curb
CMM384	Built-Up Curb Detail
CMM385	New Doghouse Detail
DMM488	Retro Drain Detail
EMM500	New Sleeper Detail
PMM441	Parapet Detail
RMM372	Masonry Reglet Flashing Detail
SMM930	Plumbing Stack Detail
SMM931	B-Vent Flashing Detail
VMN187	Ballasted Guardrail Detail
VMN905	Walkway/Paver Detail
VMN906	Satellite Support Detail

1.3 AUTHORIZED ENQUIRIES CONTACT

During the procurement phase of this project, all inquiries shall be referred to:

Monic MacVicar, CCLP, CPPB
Procurement Specialist
Supply Chain Management
City of Saint John
175 Rothesay Avenue, Saint John, NB
Email: supplychainmanagement@saintjohn.ca

City of Saint John

CONTRACT SPECIFICATIONS

DIVISION 2

INSTRUCTIONS TO TENDERERS AND TENDERING PROCEDURES

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DIVISION 2 – INSTRUCTIONS TO TENDERERS AND TENDERING PROCEDURES

INSTRUCTIONS TO TENDERERS AND TENDERING PROCEDURES

2.1 TRADE TREATIES AND TENDERING POLICY

2.1.01 Internal Trade Agreements

Tenderers should note that the within procurement is subject to internal trade agreements including the Canadian Free Trade Agreement and the Atlantic Procurement Agreement and the Agreement on opening public procurement for Quebec and NB.

2.1.02 Tendering Policy

Tenderers should note that the within Procurement shall conform with The City of Saint John "Tendering Policy for Construction Contracts" which is attached hereto as Appendix "A".

2.2 MATERIAL DISCLOSURES

2.2.01 General

The City makes the following material disclosures with respect to this Request for Tender. While the City has used considerable efforts to ensure the accurate representation of all information in this Request for Tender, including these material disclosures, such information is supplied solely as a guideline for Tenderers. The City does not warrant or guarantee the accuracy of such information, nor is such information necessarily comprehensive or exhaustive. Nothing in this Request for Tender is intended to relieve Tenderers of the obligation to form their own opinions and reach their own conclusions with respect to the matters addressed in this Request for Tender.

2.2.02 Permits Required for Project

Except as stated otherwise in the Tender Document, any and all permits and approvals required by the Authorities having jurisdiction, and arrangements for all inspections of the Work by these Authorities shall be obtained and paid for by the Contractor. The cost of such approvals, permits and inspection shall be included in the Tender Price.

2.2.03 Deemed Examination and Acceptance

Tenderers should note that by submission of a Tender they will be deemed to have examined and accepted the Specifications and Drawings, visited the site, and informed themselves as to existing conditions and limitations.

2.2.04 Availability of Services

The Tenderer shall ascertain from the relevant Authorities the availability of services, including, but not limited to, electricity, sewer, water, telephone, natural gas and transportation to the project and shall ascertain what prior notice each Authority will require for the installation of the service to the project.

2.2 MATERIAL DISCLOSURES (Cont'd)

2.2.05 Tax

a) Tenderers are advised to make special note of all applicable tax procedures.

b) The City is required to pay the Harmonized Sales Tax (HST).

c) The total tendered amount shall include the appropriate taxes on all labour, material and equipment to be incorporated into the Work.

d) Tenderers shall submit their Tenders on the basis that the total amount of the Tender shall include all taxes for which the City is liable.

e) Any increase or decrease in costs to the Tenderer due to the changes in such taxes and duties, after the date of the Tender Closing, shall increase or decrease the value of the Contract accordingly.

2.2.06 Performance Guarantees Required Prior to Contract Execution

Within five (5) Working Days following the City's notice of selection, the selected Tenderer shall provide the City with the required Performance Guarantees, in the form of either:

a) A Performance Bond and a Labour and Material Payment Bond, each at fifty percent (50%) of the Tender Price covering the faithful performance of the full Contract. The bonds shall be in favour of *The City of Saint John* and show *The City of Saint John* as obligee; or

b) A certified cheque in the amount of twenty percent (20%) of the Tender Price covering the faithful performance of the full contract.

2.2.07 Insurance

Tenders should refer to Division 6 (section 6.8) for details regarding insurance requirements.

2.2 MATERIAL DISCLOSURES (Cont'd)

2.2.08 WorkSafeNB Certificate and Business Corporations Act Certificate

a) New Brunswick Tenderers shall provide to the City a WorkSafeNB certificate which confirms proper registration and good standing with WorkSafeNB and a *Business Corporations Act* Certificate which confirms proper registration with the Province of New Brunswick - Corporate Affairs (of which the Contractor must be in good standing) within five (5) Working Days following the City's notice of selection.

b) Out-of-province Tenderers shall provide to the City a WorkSafeNB certificate which confirms proper registration and good standing with WorkSafeNB or a letter or certificate issued under the equivalent applicable legislation in the province of origin of the Tenderer confirming extension of coverage from said legislation to the Province of New Brunswick for the term of the Contract. Subject to paragraph c), out-of-province Tenderers shall also provide a *Business Corporations Act* Certificate which confirms proper registration with the Province of New Brunswick - Corporate Affairs (of which the Contractor must be in good standing) within five (5) Working Days following the City's notice of selection.

c) Tenderers from Nova Scotia may submit the appropriate *Business Corporations Act* Certificate from the Province of Nova Scotia.

2.2.09 New Brunswick Construction Safety Association

If the total Tender Price for the work, inclusive of HST, is two hundred and fifty thousand dollars ($250,000.00) or more, Tenderers shall supply a Letter of Good Standing under the Certificate of Recognition Program from the New Brunswick Construction Safety Association. Out-of-Province Tenderers shall supply an equivalent from the Tenderer's Province of origin acceptable to the Engineer.

2.2.10 Timetable for Completion of the Work

The Substantial Completion date of the Work is July 31, 2021.

2.3 SCHEDULE FOR THE TENDER PROCESS

Issue Date of Request for Tender	**Monday, March 22nd, 2021**
Deadline for Enquiries	Wednesday, March 31st, 2021 at 1:00PM Atlantic Time
Deadline for Issuing Addenda	Tuesday, April 6th, 2021 at 4:00 PM Atlantic Time
Tender Closing	**Tuesday, April 13th, 2021 at 2:30 PM Atlantic time**

The Schedule for the Tender Process is tentative only and may be changed by the City in its sole discretion at any time prior to Tender Closing.

2.4 TENDER DOCUMENTS

2.4.01 Tender Documents to be Obtained in Prescribed Manner

Tender Documents shall be obtained by emailing a request to supplychainmanagement@saintjohn.ca.

Tenderers must register on the City's official list of bidders for this project, as follows:

(i) registration of the full legal name, contact person, telephone number and email address of the Tenderer obtaining the Tender Documents; or, if applicable,

(ii) the registration of the full legal name, contact person, telephone number and email address of the Tenderer on whose behalf the Tender Documents are being obtained.

The names of the Tenderers having complied with the above criteria will be consolidated onto the City's official bidders list. Only Tenderers listed on the City's official bidders list shall be entitled to submit a Tender. Any Tender received from a Tenderer who has not obtained the Tender Documents from the City of Saint John and is not registered on the City's official list of bidders for this project in the manner set out above will not be evaluated.

2.5 COMMUNICATIONS AFTER ISSUANCE OF TENDER

2.5.01 Tenderers to Review Tender Documents

Tenderers shall promptly examine all Tender Documents and:

a) shall report any errors, omissions or ambiguities; and

b) may direct enquiries or seek additional information

in writing by email before the Deadline for Enquiries to the Authorized Enquiries Contact or the Designated Alternate Contact (in the event of absence) as set out below. No such communications are to be directed to anyone other than the Authorized Enquiries Contact or the Designated Alternate Contact.

Authorized Enquiries Contact	**Designated Alternate Contact**
Monic MacVicar, CPPB Procurement Specialist Supply Chain Management City of Saint John Email: supplychainmanagement@saintjohn.ca	Chris Roberts, SCMP, CPPB Supervisor Supply Chain Management City of Saint John Email: supplychainmanagement@saintjohn.ca

It is the Tenderer's responsibility to seek clarification from the City on any matter it considers unclear. The City shall not be responsible for any misunderstanding on the part of the Tenderer concerning this Tender or its process.

The City intends to confirm receipt of a Tenderer's communication by way of an email in reply. If a Tenderer has not received a reply, the Tenderer may wish to resend its communication as the lack of reply may have resulted from a technical problem. The City is under no obligation to respond to enquiries or provide additional information but may do so at its sole discretion.

2.5 COMMUNICATIONS AFTER ISSUANCE OF TENDER (Cont'd)

2.5.02 Email Communication

The following provisions shall apply to any communications with the Authorized Enquiry Contact or the Designated Alternate Contact by email where such email communication or delivery is permitted by the terms of this Tender:

a) The City does not assume any risk or responsibility or liability whatsoever to any Tenderer:

(i) for ensuring that any email system being operated for the City is in good working order, able to receive transmissions, or is not engaged in receiving other transmissions such that a Tenderer's transmission cannot be received;

(ii) if a permitted email communication or delivery is not received by the City, or is received in less than its entirety, within any time limit specified by this Tender; and

(iii) for any error that may occur in the submission of communications or enquiries.

b) All permitted communications submitted by a Tenderer by email to the Authorized Enquiries Contact or the Designated Alternate Contact shall be deemed to have been received on the dates and times indicated on the Authorized Enquiry Contact's or the Designated Alternate Contact's email system

2.5.03 Addenda: Responses to Enquiries and Amendments or Clarifications to Tender Documents

The City may, in its sole and absolute discretion, through the Authorized Enquiry Contact or the Designated Alternate Contact, respond to enquiries and/or amend the Tender Documents before Tender Closing.

Written Addenda are the only means of responding to enquiries or amending the Tender Documents. Only the Authorized Enquiry Contact or the Designated Alternate Contact, and no other employee or agent of the City, is authorized to respond to enquiries and amend the Tender Documents by issuing an Addendum.

Responses to enquiries, changes, clarifications or corrections prepared and circulated by the City form part of the Tender Documents and will be issued as Addenda. Responses will be made in writing and distributed by email to all Tenderers who are registered on the City's official bidders list in accordance with the procedure outlined in section 2.4.01 b) above, as of the date the response is prepared by the City. Each Addendum will contain a signature page(s) which each Tenderer is required to sign and include with its Tender submission. While the City will make reasonable efforts to deliver each Addendum to all Tenderers, it makes no guarantee of timely delivery of any Addendum to any Tenderer.

2.5.03 Addenda: Responses to Enquiries and Amendments or Clarifications to Tender Documents (Cont'd)

The City will not identify the source of the question in the response. If a Tenderer requests that an enquiry be treated as confidential, the City, in its sole discretion, will either treat the enquiry or any reply as confidential or inform the Tenderer that it will not respond to the enquiry unless the Tenderer withdraws in writing its request that the enquiry be treated as confidential.

Orally communicated information shall not be binding upon the City. Information offered from sources other than the Authorized Enquiry Contact or the Designated Alternate Contact with regard to the content, intent or interpretation of this Tender is not official, may be inaccurate and should not be relied on in any way, by any Tenderer, for any purpose.

2.6 SUBMISSION OF TENDER

2.6.01 Location of Tender Box for the Submission of Tender

Supply Chain Management Department
175 Rothesay Avenue, 1st Floor
Saint John, New Brunswick
E2J 2B4

2.6.02 Tenders Must be Submitted Only in the Prescribed Manner

a) Tenders must be submitted in the prescribed *Form of Tender* together with the prescribed *Schedule of Quantities and Unit Prices*. The *Form of Tender* and the *Schedule of Quantities and Unit Prices* shall be filled out in ink or typewritten and bear the signature in longhand.

a) Tenderers must submit one completely filled out original *Form of Tender* signed by an authorized representative and should include the following information written on the outside of the sealed envelope:

(i) Tender No.: 2021-082701T
(ii) Title of Work: Roof Rehabilitation Fire Station 5
(iii) The full legal name and return address of the Tenderer; and
(iv) Tender Closing date and time.

c) Each Tender shall be accompanied by a Tender (Bid) Bond or certified cheque in the amount of ten percent (10%) of the Tender Price.

d) Each Tender must be sealed and be addressed to the attention of the Purchasing Agent, City of Saint John, Supply Chain Management Department, 1st Floor, 175 Rothesay Avenue, Saint John, New Brunswick, E2J 2B4.

e) All Tenders shall include a surety consent letter or agreement to bond as per the requirements in the Form of Tender.

2.6 SUBMISSION OF TENDER (Cont'd)

2.6.03 Contingency Allowance

The Tender Price shall include the contingency allowance as specified in the *Schedule of Quantities and Unit Prices*, to cover additional costs that may occur during the execution of the Contract attributed to approved additional work not originally contemplated. No part of this allowance shall be expended without the written direction of the Engineer, and any part not so expended shall be deducted from the contingency allowance.

2.6.04 Tenders Must be Submitted Before Tender Closing

It is the responsibility of each Tenderer to ensure that its Tender is submitted before Tender Closing.

Tenders submitted after Tender Closing will be deemed late and disqualified. For the purpose of calculating time, the time on the email shall govern.

The City assumes no responsibility for improperly submitted Tenders.

2.6.05 Amending or Withdrawing Tender Prior to Tender Closing

At any time prior to Tender Closing, a Tenderer may amend or withdraw a submitted Tender by submitting an amending letter via email before the Tender Closing.

The amending letter should clearly specify that the Tenderer intends to withdraw its Tender or, in the case of an amendment, clearly indicate the part of the Tender that the amending letter is intending to replace. In the case of a unit price contract, the amending letter shall show the revision to the Tender Price. In the case of a lump sum contract, the amending letter shall state the amount to be added or subtracted from the Tender Price.

The email should clearly indicate the Tender No., and Title of Work.

2.6.06 Tenderers Shall Bear the Costs of Preparing and Submitting a Tender

Under no circumstances will the City be responsible for a Tenderer's costs of preparing or submitting a Tender.

2.6 SUBMISSION OF TENDER (Cont'd)

2.6.07 Tenders in English

All Tenders are to be in English only. Any Tenders that are not entirely in the English language may be disqualified.

2.6.08 Tender Acceptance Period

Tenders submitted before Tender Closing shall remain open to acceptance in the form submitted by the Tenderer for a period of sixty (60) calendar days after Tender Closing. Failure of the Tenderer to keep the Tender open for sixty (60) calendar days will result in the enforcement of the Tender (Bid) Bond or the cashing of the certified cheque submitted in lieu of the Tender (Bid) Bond pursuant to section 2.6.02 c).

2.6.09 Tender Documents Incorporated into Tender

By submission of a Tender, a Tenderer is deemed to have accepted and incorporated all the instructions and terms and conditions contained in the Tender Documents into its Tender. Submission of a Tender shall also confirm that the Tenderer is satisfied as to the correctness and sufficiency of the Tender, the Tender Price and the prices entered in the *Schedule of Quantities and Unit Prices*.

2.7 AMENDMENT OR WITHDRAWAL OF TENDER POST TENDER CLOSING

2.7.01 No Amendment Post Tender Closing

No Tenderer is permitted to amend or withdraw its Tender after Tender Closing. A Tenderer who discovers an error in his Tender after Tender Closing may leave the Tender as is or request permission from Common Council to withdraw its Tender. A request to withdraw a Tender after Tender Closing must be delivered, along with the reasons for the request, to the Common Clerk for consideration by Common Council within twenty-four (24) hours of Tender Closing.

2.7.02 Withdrawal Requests

Common Council, in its sole discretion, will decide whether or not to grant the withdrawal request based on the information supplied by the Tenderer and a recommendation from City staff. Where Common Council, in its sole discretion, decides to not allow the withdrawal, Common Council may require the Tenderer to perform the Contract or forfeit the Tender (Bid) Bond or the certified cheque submitted in lieu thereof pursuant to section 2.6.02 c).

2.8 TENDER EVALUATION PROCESS

2.8.01 Delivery of Tender Box to Tender Opening Room

Immediately following Tender Closing, the Purchasing Agent shall deliver the Tender Box to the tender opening room where it will be opened by the Tender Opening Committee.

2.8.02 Tender Opening Process

All Tenders shall be removed from Tender Box, opened, evaluated pursuant to Section 2.8.03, then read and recorded by the Tender Opening Committee in the Tender Opening Location. The Tender Opening Committee shall open each Tender individually. The Tender Opening Committee will conduct the evaluation of the Tenders in two stages.

2.8.03 Stage 1: Evaluation of Mandatory Requirements

Stage 1 will consist of a review to determine which Tenders comply with all of the mandatory requirements. Tenders which do not comply with all of the mandatory requirements set out below, shall be Disqualified and not evaluated further.

Tenders shall be deemed as not complying with the mandatory requirements where:

a) Repealed

b) The Tender is illegible or its pricing terms or conditions cannot be understood by the Tendering Opening Committee.

c) Where it is a Tender for more than one item and where it is required that all items be bid, there is a failure to bid an item or it does not contain a unit price or extended total of all items to be bid.

d) The Tender contains a bid on an item not included in the *Schedule of Quantities and Unit Prices*.

e) The Tender does not contain the total tender price, the unit prices or the fixed price written in words or does not have the words “dollars” and, where applicable, “cents” set out in the written total tender price, unit prices or fixed price on the *Schedule of Quantities and Unit Prices*.

f) The Tender is not accompanied by the required Tender (Bid) Bond or certified cheque pursuant to section 2.6.02 c).

g) The Tender does not include a fully completed prescribed Form of Tender, signed by an authorized agent, which bears the Tenderer’s corporate seal, pursuant to section 2.6.02 a) and Division 4.

2.8.03 Stage 1: Evaluation of Mandatory Requirements (Cont'd)

h) The Tender does not include all required documents specified in the Form of Tender, does not comply with the provisions of the Tender Documents, or does not include the signature page(s) of all addenda issued to the Tenderers signed by the Tenderer.

i) The Form of Tender contains a change in price that is not initialed by the person signing the Form of Tender.

j) The Tender contains an unsolicited alternative or a qualification to the terms of the Tender Documents.

k) Where a Tenderer submits more than one Tender in response to the Request for Tender, all such Tenders shall be Disqualified.

In the case(s) where a Tender which are Disqualified by the Tender Opening Committee, the Tenderer(s) shall be notified accordingly. Tender Prices of Disqualified Tenders will not be made public.

2.8.04 Stage 2: Evaluation of Tender Price

Stage 2 will consist of a recording of the Tender Prices by the Tender Opening Committee.

2.8.05 Selection of the Successful Tenderer

At the conclusion of Stage 1 and Stage 2 of the evaluation process and, subject to the approval of selection by Common Council and the reserved rights of the City, the selected Tenderer will enter into the Contract, as set out in the Tender Documents.

2.9 NOTICE OF SELECTION AND EXECUTION OF CONTRACT

2.9.01 Selection of Tenderer

Notice of selection by the City to the selected Tenderer will be in writing. Within five (5) Working Days following the City's notice of selection, the Tenderer shall provide to the City:

a) those items listed at section 6.8.04 ("Insurance Policies and Certificates");

b) an executed Form of Agreement (Division 5); and

c) the required Performance Guarantees pursuant to section 2.2.06

This provision is solely to the benefit of the City and may be waived by the City at its sole discretion.

2.9 NOTICE OF SELECTION AND EXECUTION OF CONTRACT (Cont'd)

2.9.02 Over-Budget Bids

If the Tender Price of the lowest compliant Tender exceeds the City's project budget or the Engineer's estimate for the Project, the City may proceed with negotiations with the lowest compliant Tenderer. Said negotiations shall be conducted within a prescribed timeframe to identify changes in scope and/or quantities of work, in exchange for a corresponding bid price reduction. Where the City and lowest compliant Tenderer establish acceptable changes and a corresponding bid price reduction, those changes shall be documented as post-bid addendum.

Any such negotiations or resulting recommendations shall be conditional and subject to the approval of Common Council and, in accordance with the Limitation of Liability and Waiver set out in section 2.12 below, there shall be no liability resulting from any failure to award a contract.

Where acceptable changes and a corresponding bid price reduction cannot be successfully negotiated with the lowest compliant Tenderer, the City may proceed with a new tender call at a later date.

2.9.03 Failure to Enter into the Contract

In addition to all of the City's other remedies, such as the enforcement of the Tender (Bid) Bond, if a selected Tenderer fails to execute the Contract, or satisfy any of the applicable conditions set out above at section 2.9.01 within five (5) Working Days of the notice of selection, the City may, in its sole and absolute discretion and without incurring any liability rescind the selection of the Tenderer and proceed with the selection of the next lowest compliant Tenderer.

2.10 CONFIDENTIAL INFORMATION AND MEDIA COMMUNICATIONS

2.10.01 Tenderer's Confidential Commercial Information

The City is committed to an open and transparent Tendering Process while understanding the Tenderers' need for protection of confidential commercial information. To assist the City in meeting this commitment, Tenderers will cooperate and extend all reasonable accommodation to this endeavour.

2.10.02 Tenderer Not to Communicate With Media and Public

To ensure that all public information generated about the Work is fair and accurate, and will not inadvertently or otherwise influence the outcome of the Tendering Process, all public information generated in relation to the Work, including communications with the media and the public, must be coordinated with, and is subject to the prior approval of, the City.

2.10.02 Tenderer Not to Communicate With Media and Public (Cont'd)

Tenderers will notify the City of requests for information or interviews from the media.

Tenderers will ensure that all of the Tenderers' Subcontractors and others associated with the Tenderer comply with the foregoing requirements.

2.11 RESERVED RIGHTS

The City reserves the right to:

a) Reject an unbalanced Tender. For the purpose of this section, an unbalanced tender is a tender containing a unit price which deviates substantially from, or does not fairly represent reasonable and proper compensation for the unit of work bid or one that contains prices which appear to be so unbalanced as to adversely affect the interests of the City. The City reserves the right to use tenders submitted in response to this Request for Tender or for other like or similar work as a guideline in determining if a bid is unbalanced.

b) Amend or modify the scope of the Work, and/or cancel or suspend the Tender award, at any time for any reason;

c) Require Tenderers to provide additional information after the Tender Closing to support or clarify their Tender;

d) Not accept any or all Tenders;

e) Not accept a Tender from a Tenderer who is itself, or whose principals, owners or directors are also principals, owners or directors of another entity which is, involved in litigation, arbitration or any other similar proceeding against the City;

f) Reject any or all Tenders without any obligation, compensation or reimbursement to any Tenderer or any of its team members;

g) Withdraw this Request for Tender and cancel or suspend the Tendering Process;

h) Extend, from time to time, any date, any time period or deadline provided in this Tender (including, without limitation, the Tender Closing), upon written notice to all Tenderers;

i) Assess and reject a Tender on the basis of:

(i)information provided by references;

(ii)the Tenderer's past performance on previous contracts;

(iii)the information provided by a Tenderer pursuant to the City exercising its clarification rights under this Tendering Process;

(iv)the Tenderer's experience with performing the type and scope of work specified including the Tenderer's experience as a general contractor;

(v)other relevant information that arises during this Tendering Process;

2.11 RESERVED RIGHTS (Cont'd)

j) Waive formalities and accept Tenders which substantially comply with the requirements of this Request for Tender;

k) Verify with any Tenderer or with a third party any information set out in a Tender;

l) Disqualify any Tenderer whose Tender contains misrepresentations or any other inaccurate or misleading information;

m) Disqualify any Tenderer who has engaged in conduct prohibited by the Tender Documents;

n) Disqualify any Tenderer who is guilty of an offence listed in Schedule C of the New Brunswick Regulation 2014-93 under the Procurement Act;

o) Disqualify any Tenderer for documented significant or persistent deficiencies in fulfilling or performing a substantive requirement or obligation under a prior contract or contracts. The disqualification for past performance shall be conducted in accordance with sections 64 thru 81 of the New Brunswick Regulation 2014-93 under the Procurement Act;

p) Make changes, including substantial changes, to the Tender Documents provided that those changes are issued by way of addenda in the manner set out in these Instructions to Tenderers;

q) Select any Tenderer other than the Tenderer whose Tender reflects the lowest cost to the City;

r) Cancel this Tendering Process at any stage, for any reason;

s) Cancel this Tendering Process at any stage and issue a new Request for Tender for the same or similar deliverables;

t) Accept any Tender in whole or in part; or

u) Accept a Tender which contains the following errors:

(i) error in mathematics – whether this involves the extension of a unit price or an error in addition, the mistake will be corrected and the correct total will be used for evaluation purposes and will be binding on the Tenderer.

(ii) conflict between the written and numerical bid prices. In all cases, the total bid price will be corrected to reflect the written bid price, whether lump sum or unit price.

(iii) failure to include the contingency allowance in the total Tender Price. If the contingency allowance was not included in the addition, the Tender Price shall be corrected to reflect its inclusion.

and these reserved rights are in addition to any other express rights or any other rights which may be implied in the circumstances and the City shall not be liable for any expenses, costs, losses or any direct or indirect damages incurred or suffered by any Tenderer or any third party resulting from the City exercising any of its express or implied rights under this Request for Tender.

2.11 RESERVED RIGHTS (Cont'd)

By submitting a Tender, the Tenderer authorizes the collection by the City of the information set out at paragraph 2.11 i) in the manner contemplated in that subparagraph.

2.12 LIMITATION OF LIABILITY AND WAIVER

Each Tenderer, by submitting a Tender, agrees that:

a) Neither the City nor any of its employees, agents, advisors or representatives will be liable, under any circumstances, for any Claim arising out of this Tendering Process including but not limited to costs of preparation of the Tender, loss of profits, loss of opportunity or for any other Claim; and

b) The Tenderer waives any Claim for any compensation of any kind whatsoever, including Claims for cost of preparation of the Tender, loss of profit or loss of opportunity by reason of the City's decision to not accept the Tender submitted by the Tenderer, to award a Contract to any other Tenderer or to cancel this Tendering Process, and the Tenderer shall be deemed to have agreed to waive such right or Claim.

2.13 INVOICES

a) In light of the requirements of Section 169 of the *Excise Tax Act*, R.S.C. 1985,c. E-15, and amendments thereto, the selected Tenderer shall provide to the City properly documented invoices with all requests for payments. This includes a government issued business number and the amount of tax included on the invoice.

b) Failure to provide properly documented invoices may result in delays in processing payments or outright rejection of the payment request.

City of Saint John

APPENDIX 'A'

TENDERING POLICY FOR CONSTRUCTION CONTRACTS

City of Saint John

TENDERING POLICY FOR CONSTRUCTION CONTRACTS

PREAMBLE

Whereas the City of Saint John seeks to duly represent the public interest in the management of its public tendering process for construction contracts;

And whereas taxpayers/ratepayers have the right to expect the benefits of free and open competition, that is, the best goods and services at the lowest possible prices;

And whereas municipal tendering should duly respect the place of other stakeholders, including vendors and contractors, in the process;

And whereas the values of integrity, effectiveness, due process and efficiency must be inherent in the process;

Common Council establishes this tendering policy for construction contracts.

POLICY AND APPLICABLE STATUTES

Persons and/or companies that submit tenders for construction contracts are deemed to have understood and agreed to the requirements of this policy and all applicable tender documentation, as well as all applicable Municipal by-laws and Federal or Provincial statutes. Applicable federal and provincial statutes include, but are not limited to: the *Canada Competition Act*; the *New Brunswick Public Procurement Act*; the *New Brunswick Crown Construction Act*; and the *New Brunswick Municipalities Act*.

APPLICATION OF POLICY

The City of Saint John seeks to optimize fair, open and independent competition for municipal construction work and to afford interested and qualified contractors the opportunity to seek the business.

This policy has been established for construction contracts valued in excess of $100,000 (before HST). The procedures detailed herein shall apply to all publicly advertised tender calls issued on behalf of the City of Saint John for construction contracts, but do not apply to publicly advertised tenders for the supply of goods and/or services or to invited bids or calls for proposal.

The following divisions of tender specifications for construction contracts form part of this policy: *Instruction to Tenderers and Tendering Procedures* (Division 2); *Form of Tender* (Division 4); and *Form of Agreement* (Division 5).

PUBLIC NOTICE OF TENDER/TENDER ADVERTISEMENT

A public notice of tender shall be issued for all construction contracts valued in excess of one hundred thousand dollars ($100,000). The notice shall state the contract number, a brief description, the date and the time for the closing of tenders, the location of the locked box for receipt of tenders, and the date, time and location of the tender opening.

TENDER DOCUMENTATION

The following documentation shall be provided to those persons or companies who wish to submit a tender, at an appropriate cost as determined by the Chief City Engineer:

1. Division 1: *Project Description* – as determined by the Chief City Engineer or his designate;
2. Division 2: *Instruction to Tenderers and Tendering Procedures* – forming part of this policy;
3. Division 3: *Particular Specifications* - as determined by the Chief City Engineer or his designate;
4. Division 4: *Form of Tender* - forming part of this policy, and including a Certificate of Independent Tender Determination;
5. Division 5: *Form of Agreement* - forming part of this policy;
6. A notice that Division 6: *General Administration of Contract* and Division 7: *Construction of Municipal Services* of the General Specifications apply to all contracts, and that it is the responsibility of the tenderer to familiarize himself with the provisions in Divisions 6 and 7, as well as those of any other division in the General Specifications determined by the Chief City Engineer or his designate to be applicable to the contract; and
7. Applicable contract drawings, as determined by the Chief City Engineer or his designate.

TENDER PROCESSING

Tenders shall be received and processed in accordance with the provisions set out in Division 2: *Instruction to Tenderers and Tendering Procedures*.

TENDER OPENING COMMITTEE

A tender opening committee is hereby established, consisting of a chairman and two members, as follows:

Chairman: *Purchasing Agent or his designate*

Member: *Chief City Engineer or his designate*

Member: *A member of staff designated by the City Manager*

The committee shall proceed in accordance with the provisions set out in Division 2.

TENDER REJECTION AND AWARD OF CONTRACT

The City of Saint John reserves the right to reject any or all tenders, or to accept a tender other than the lowest tender and to accept the tender deemed to be in its best interests, based on evaluation of relevant criteria, including quality, service and price.

Common Council shall make the decision as to whether or not a contract shall be awarded and to whom it will be awarded.

GENERAL SPECIFICATIONS

The Chief City Engineer may, from time to time, revise the technical provisions of the General Specifications to reflect changes in technology, methods or construction industry practices.

APPROVAL AND EFFECTIVE DATE

This policy, adopted by Common Council on November 19, 2003, shall become effective on January 1st, 2004.

City of Saint John

CONTRACT SPECIFICATIONS

DIVISION 3

PARTICULAR SPECIFICATIONS

MARCH 2021

City of Saint John

TABLE OF CONTENTS

DIVISION 3 – PARTICULAR SPECIFICATIONS

PARTICULAR SPECIFICATIONS

This division shall be read in conjunction with and take precedence where they may prove at variance with the City of Saint John, General Specifications.

3.1 SPECIFICATIONS FOR THIS PROJECT

See Attached

PART 1 - GENERAL

1.1 DESCRIPTION

.1 Roofing Contractor to provide all labour, plant, equipment, and materials necessary to perform to completion Work as described in these Contract Documents for:

.1 2021 Roof Rehabilitation Program on designated roof areas at Fire Station #5 located at 35 Adelaide Street, Saint John, New Brunswick, E2K 1W3.

.2 Contract Documents to be reviewed in their entirety with all sections, including Division 1-General Requirements, to be considered interrelated and form part of this section.

1.2 PROJECT SCHEDULE

.1 Owner requires that work of this contract be completed as quickly as possible. Consideration will be given to time required for total performance of specified work during review of submitted Bids.

.1 Submit with Bid a detailed bar diagram schedule of Work, detailing start and completion dates for various items of work necessary to perform contract to Total Completion.

.2 Total Completion of Work to be completed by a specified date; to be announced later in consultation with Contractor.

.2 Start of Work: Mobilize forces and trades, setup on site, and begin staging required for performance of Work as soon as possible after Award of Contract, weather permitting.

1.3 EXAMINATION OF DRAWINGS, SPECIFICATIONS, AND WORKSITE

.1 Carefully examine and study all Bid Requirements together with existing site conditions and any other necessary data or conditions that may affect performance of Work in order to determine full extent of Work.

.1 Under no circumstances will any claims be allowed against Owner resulting from failure to ascertain full extent of Work herein described, specified, or implied.

.2 Contractor to verify to own satisfaction that existing site conditions, roof components, and measurements are accurately reported in Bid Requirements. Obtain or check all measurements and dimensions at worksite as may be necessary and required for performance of Work.

.3 Promptly report in writing any discrepancies, errors, conflicts, or omissions to Consultant when discovered and prior to Bid Closing.

.1 Drawings, specifications, and schedules are complementary to each other; what is called for by one to be binding as if called for by all.

.2 Should any discrepancy appear between documents leaving doubt as to intent or meaning, most stringent requirement to govern unless directed otherwise in writing by Consultant.

.4 Bid submission to be based on products, equipment, and/or suppliers named and identified as approved or accepted in technical specifications and drawings.

.1 Bid Documents constitute acceptable roofing installations.

.2 No deviation from specifications, drawings, or approved shop drawings allowed without prior written approval by Consultant, and if applicable by Manufacturer.

.5 Unless specifically identified in Bid Requirements, any hazardous materials encountered during Work that requires specialized handling and incurs additional cost to be added to Contract Price.

.6 Weather conditions are considered incidental to Work and will not be considered additional to Bid Price.

1.4 BID PRICING

.1 Provide a Stipulated Lump Sum Price on Schedule of Quantites to perform all Work described in this Summary of Work, its related technical specification sections, and as shown on drawings.

.2 Bid Pricing: Provide a breakdown of Stipulated Lump Sum Price as itemized.

.1 Low Slope Roof Replacement: Lump Sum Price to perform specified new roof replacement work over existing prepared vapour retarder on Roof Areas 1.1, 2.1, and 3.1 with a two (2) ply modified bitumen membrane system and a ten (10) year System Warranty, to Section 07 52 16.

.1 Allow for repair and localized replacement of damaged existing deck overlay board and vapour retarder in Bid Price on ten percent (10%) of roof area. Cut out wet, damaged, or deteriorated sections of existing deck overlay board and vapour retarder, and replace with new compatible materials as specified.

.3 Separate Pricing: Items to be awarded and performed, at Owner's discretion, in conjunction with specified Stipulated Price Work, and not by themselves. Do not include in Separate Price Items standard project setup and staging costs covered elsewhere.

.1 Roof Safety Railing: Lump Sum Price to supply and install an engineered fall arrest safety railing system, freestanding and ballasted on Roof Area 3.1 where indicated on roof plan. Configure railing system layout to suit location of existing roof hatch, mechanical equipment, antenna and to provide protection along roof perimeters by minimum 1.98m (6'-6") from side of access hatch, mechanical equipment and antenna.

.4 Unit Pricing: Items to be performed as required and reviewed by Consultant where exposed during performance of Work or where directed on site by Consultant, and added to Contract Price.

.1 Interior Protection: Price to add to Contract for supply and installation of new temporary, under-deck, interior dust protection per 464.5m^2 (5,000 ft^2) during performance of Work at sections related to corresponding roof work above.

.2 Existing Vapour Retarder & Gypsum Deck Board Repair: Price to add to or delete from Contract for repair and localized replacement of wet, damaged, deteriorated, or debonded existing vapour retarder and gypsum board using new compatible materials as specified where reviewed by Observer, per square foot.

.3 Existing Metal Deck Rust Painting: Price to add to Contract to clean and prepare exposed metal surfaces to be treated with rust inhibiting paint, including supply and installation of new rust inhibiting primer coat and two finish coats of paint, per square foot.

.4 Existing Metal Deck Replacement: Price to add to Contract to supply and install new galvanized metal decking as required to replace damaged or severely corroded sections of existing deck with new material of matching size and profile paint, per square foot. Replacement of metal deck sections to be reviewed by Observer.

.1 Include in Price to provide appropriate interior protection, hoarding, and warning systems during performance of deck replacement.

.5 New Guard Rail Installation: Price to add to Contract to supply and install 2.44m (8'-0") wide section of new freestanding, self ballasted guard railing at HVAC unit close to exterior roof edge. Fall protection railing system using modular pipe railings, upright post, weighted bases, and all required accessories for complete installation.

.1 Railing design to be engineered for specific project, in accordance with NBC 2012. Provide engineered shop drawings to Consultant for review prior to fabrication and installation.

.2 Include for installation of additional squares of granular modified bitumen cap sheet membrane as a protection pad underneath every counterbalance weight and main upright base plate.

.6 Existing Plywood Sheathing Replacement: Price to add to Contract to supply and install new matching plywood sheathing along vertical transitions at perimeters, walls, and curbs as required to replace damaged, wet, or deteriorated existing plywood sheathing, per square foot. Replacement of plywood sheathing to be reviewed by Observer.

.7 Existing Wood Block Replacement: Price to add to Contract to supply and install new matching wood blocking at perimeters, walls, and curbs as required to replace damaged, wet, or deteriorated existing wood blocking, per board foot. Replacement of wood blocking to be reviewed by Observer.

1.5 OWNER OCCUPANCY

.1 Owner will occupy premises during entire construction period for execution of normal operations.

.2 Cooperate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.6 CONTRACTOR USE OF PREMISES

.1 Contractor to limit use of premises for Work, for storage, and access.

.2 Coordinate use of premises under direction of Owner and Consultant.

.3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.7 GENERAL SITE REQUIREMENTS

.1 Temporary Barriers, enclosures and signage will be highly enforced given use of property.

.2 Contractor to ensure safety and proper execution of public routing; ensuring temporary access to fire exits if and when they are affected as part of Work.

.3 Obtain Construction/Building Permit and sidewalk/roadway occupation permits as required by local municipality.

.4 Determine nature and extent of all site services above and below grade prior to commencement of Work.

.5 Coordination of trades will be responsibility of Contractor to ensure work is completed as soon as possible. Provide winter protection and heating as required to perform Work if required and as specified.

.6 Supply, set-up, maintain and remove scaffolding, man-lift platforms and/or swing-stages during performance of Work as required to access work areas. If scaffolding is to be used, Contractor to provide complete shop drawings bearing seal of a Professional Engineer, licensed to practice in

Place of Work. Work to include review and approval of installed scaffolding by Designer. Allowance should be made for access to all elevations of building.

.7 No public access to Work area to be allowed. Ensure access to fire exits are maintained and hoarded through Work area. Pedestrian access along sidewalks must be maintained as per Owner's requirements. No areas of access to or around building are to be restricted without approval of Owner.

.8 Install temporary protection at all locations of Work, as required to ensure safe, clean, orderly removal and disposal work, and to provide protection for all interior and exterior building components, vehicles, pedestrians and occupants.

.9 Provide temporary support to existing structural and cladding components during performance of work if required.

.10 Install temporary protection for all materials and building components, which have been exposed during demolition/removals as specified.

.11 Dispose of all materials at landfill site authorized by authorities having jurisdiction.

1.8 SITE SPECIFIC REQUIREMENTS

.1 No Smoking Policy: Smoking and vaping are strictly prohibited at project worksite; on rooftop and at related staging and storage areas. Comply with Owner's additional smoking restrictions for site and premises.

.1 Smoking and vaping are defined as including cigarettes, cigars, pipes, e-cigarettes, and other equipment used to smoke or burn tobacco, cannabis, and other plant material.

.2 Mechanical Equipment Disconnections: Disconnection and reconnection work required at existing rooftop mechanical equipment to facilitate new roof installation to be performed as quickly as possible to minimize disruptions to building occupants.

.1 Coordinate and plan required disruptions in advance with Owner's representative.

1.9 PROTECTION OF ROOFS

.1 Protect existing roof systems from possible damage during performance of work required by this contract, including transportation across existing roof areas.

.2 Provide protection within area of work where materials, equipment, or heavy tools are placed on or transported across roof surface.

.3 Protection to consist of:

.1 Supply and loose lay a continuous layer of clean 6 mil polyethylene slip sheet over existing roof system. Slip sheet to be a minimum 2.44m (8'-0") wide with minimum 457mm (1'-6") overlaps at end joints.

.2 Supply and loose lay a continuous layer of minimum 25mm (1.0") thick, clean extruded polystyrene insulation centered over polyethylene slip sheet.

.3 Supply and loose lay a continuous layer of minimum 13mm (0.5") thick, clean plywood sheathing.

.4 Provide additional protection over newly installed roof sections where required for temporary storage or transportation of materials, equipment, or heavy tools.

1.10 SCOPE OF WORK: INTERIOR PROTECTION

.1 Interior Protection: Provide new temporary, under-deck, interior dust protection during performance of Work at sections related to corresponding roof replacement work above. Protection to be executed in phases as roof work is performed.

.1 Where partial removal of existing roof system or components is required (not down to roof deck) for installation of a retrofit roof system, limited Interior Protection is required across inside of building, at identified areas.

.1 Protect areas including, but not limited to, offices, back rooms, class rooms, lunch rooms, and around openings in roof deck.

.2 Protect areas including, but not limited to, fresh produce, fresh meat, seafood, deli, food preparation stations, back rooms, lunch rooms and around openings in roof deck.

.1 Interior Protection requirement is waived at all areas with existing drop ceiling or suspended ceiling tiles.

.2 Amount of Interior Protection required at facility to be determined before Award and added to Contract.

.3 Install new, clean, clear plastic tarpaulins with plastic zip-ties and tape as required at designated protection areas under exposed roof decking.

.1 Install tarps safely around lights and sprinkler heads without obstructing or interfering with their normal operation.

.2 Check performance of under-deck protection periodically during performance of roof work to ensure its adequacy and function.

.4 Carefully remove temporary protection at conclusion of work, dispose of any accumulated debris, and avoid dust contamination to interior during tarp removal.

.1 Contractor to be responsible for interior cleaning at no additional cost to Owner, where dust protection work found to be inadequate and resulting in unacceptable levels of dust.

.5 All setup and removal work to be done without disruption to building operations and occupants. Coordinate scheduling of protection work with Owner's on-site representatives to minimize impact on facility's normal operations.

1.11 SCOPE OF WORK: LOW SLOPE ROOF REPLACEMENT

.1 On Roof Areas 1.1, 2.1 and 3.1: Remove existing roof system components, projection and perimeter flashings, and old appurtenances down to existing vapour retarder and gypsum board layer in preparation for installation of a roof system in accordance with Section 07 52 16.

.1 Review exposed existing vapour retarder and supporting deck overlay board for wet, damaged, or deteriorated sections to be cut-out and repaired or replaced with new compatible materials.

.1 Allow in Bid Price for repair or localized replacement of existing vapour retarder with new compatible materials on ten percent (10%) of each roof area. Provide Unit Price to add to or remove from Contract for additional existing vapour retarder and gypsum board repair per square foot.

.2 Where existing deck overlay board is exposed, review surface and integrity of deck overlay board for damage and deterioration that may impact new roof system installation. Cut-out and replace wet, damaged, or deteriorated sections with new compatible materials.

.1 Where metal roof decking is exposed, examine and review exposed existing metal roof deck for corrosion and deterioration. Fix or paint any sections requiring repair.

.3 On Metal Deck Areas: Where existing metal deck is exposed, review surface of deck for corrosion and deterioration that may impact roof assembly installation. Repair or rust paint metal decking as required.

.4 Build up perimeters, curbs, and sleepers to suit height of new roof assembly using new wood blocking and plywood as per detail drawings.

.5 Prime existing substrate and all exposed wood, concrete, gypsum board, and metal surfaces to receive new vapour retarder membrane and flashings.

.6 Install self adhered vapour retarder field membrane across prepared, clean metal roof deck.

.1 Install self adhered modified bitumen base sheet flashings to vapour retarder around roof perimeters and at sleepers, curbs, and penetrations.

.7 Adhere a layer of flat 76mm (3.0") polyisocyanurate base insulation in ribbons of polyurethane roofing adhesive to CSA A123.21 requirements.

.8 Adhere a layer of flat 76mm (3.0") polyisocyanurate overlay insulation in ribbons of polyurethane roofing adhesive to CSA A123.21 requirements.

.9 Install a continuous flat layer of torchable cover board panels with a modified bitumen base sheet membrane in ribbons of polyurethane roofing adhesive.

.1 Soprema Option: Install 7.0mm (9/32") 2-1 Soprasmart Board with factory laminated modified bitumen base sheet membrane. Self adhere and hot air seal all side laps and install modified bitumen base sheet cover strips over board panel end joints.

.2 Siplast Option: Install 6.4mm (1/4") siliconized gypsum roof board and a layer of modified bitumen base sheet membrane, self adhered.

.3 JM Option: Install 6.4mm (1/4") siliconized gypsum roof board and a layer of modified bitumen base sheet membrane, self adhered.

.10 Install one (1) ply of self adhered, modified bitumen base sheet flashings at perimeters, curbs, and projections.

.11 Install one (1) ply, granular modified bitumen cap sheet membrane, torch applied.

.1 Install one (1) ply, granular modified bitumen cap sheet flashings, torch applied.

.12 Install new prefinished sheet metal flashings and trim with required hook strips.

1.12 SCOPE OF WORK: ROOF GUARD RAILING (SEPARATE PRICE)

.1 On Roof Area 3.1: Provide modular guard rail system where indicated on roof plan drawings. Provide new freestanding and self-ballasted guard railings on Roof Area 3.1. Guard rail at north

perimeter near antenna, approximately 16'. Guard rail at roof hatch, approximately 16'. Guard rail at south perimeter at mechanical unit, approximately 26'.

.1 Freestanding: Fall protection railing system using modular pipe railings, upright post, bases, and counterweights with associated fittings and accessories;

.1 Kee Guard Ballasted Roof Edge Guardrail by Kee Safety Inc. (Toll Free 877.505.5003),
.2 Roofbarrier Guardrail by Skyline Group (Toll Free 877.417.6336),
.3 Portable Pipe Hangers (Canada) PHP Systems and Design (Toll Free 877.853.5556),
.4 or IRC Group approved equivalent.

.2 Provide suitable galvanized metal or aluminum tube or HSS railings secured to new railing post or anchor supports. Metal tubing to be structural steel hot dip galvanized after fabrication or structural aluminum. Structural Steel tubing to be post-painted; colour chosen by Owner.

.1 Railing width to be minimum 2.0m (6'-6") on each side of unit, roof hatch or antenna.
.2 Provide posts no more than 2.44m (8'-0") apart.
.3 Top rail to be 1.07m (42") in height above finished roof surface.

.4 Railing design to incorporate a middle rail equally spaced between top rail and roof.

.3 Guard rail system to be engineered for specific project with stamped shop drawings and meet current codes and regulations for fall arrest.

.1 Guard design to be in accordance with the NBC and covering:

.1 OSHA Standard 29 CFR 1910.23,
.2 OSHA Standard 29 CFR 1926.501, 29 CFR 1926.502,

.4 Provide engineered shop drawings to Consultant for review prior to fabrication and installation.

.1 Shop drawings to be specific to this project and include all attachment requirements and securement details for installation.

.5 Free Standing Guards: Provide additional squares of granular modified bitumen cap sheet membrane as a protection pad underneath every counterbalance weight and main upright base plate.

1.13 SCOPE OF WORK: REVIEW & REPAIR OF CORRODED METAL DECK

.1 At Exposed Metal Roof Deck: Review and examine surface of exposed metal roof deck with Consultant to determine level of deck corrosion and corrective action required.

.2 Areas With Severe Corrosion: Roof deck that exhibits pitting, holes, and/or penetrations must be replaced with new metal decking before roof installation may proceed. Small areas may be overlayed with new metal deck of matching size and profile after painting of existing metal as described below. Large areas required engineered shop drawing to determine attachment and design load requirements.

.3 Areas With Light to Moderate Corrosion: Where pitting of base metal does not exceeding 35% of deck thickness, metal roof deck may be cleaned, primed and painted with a two coat application.

.1 Clean exposed metal surfaces to be painted by removing all loose paint, rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances.

.2 Power vacuum and/or wipe with clean cloths, flanges, webs, and ribs clear of all dust and debris. Do not use compressed air tools. Only use leaf-type blowers with approval of Consultant.

.3 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces to original condition.

.4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil, and solvents before primer coat is applied and between applications of remaining coats. Apply primer or paint as soon as possible after cleaning and before deterioration occurs.

.5 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove visible defects.

.6 Apply one prime coat to prepared metal roof deck areas. Primer coat to be:

.1 Devran 205 Epoxy Primer by ICI Devoe Coatings,
.2 Kem-Bond HS Rust Inhibitive Metal Primer (B50AZ8) by Sherwin Williams,
.3 Glid-Guard Metal Primer 4570 by Glidden,
.4 or Consultant approved equal to above.

.7 Apply two finish coats to exposed deck area after primer is dry. Finish coat to be:

.1 Devflex 4216HP Acrylic Semi-gloss Enamel by ICI Devoe Coatings,
.2 Industrial Enamel (B54W101) by Sherwin Williams,
.3 Glid-Guard Alkyd Industrial Enamel 4550 by Glidden,
.4 or Consultant approved equal to above.

.8 Apply paint by brush, roller, or airless sprayer. Conform to Manufacturer's application instructions unless specified otherwise.

.9 Brush and Roller Application:

.1 Apply paint in a uniform layer using brush and/or roller of types suitable for application. Work paint into cracks, crevices and corners.

.2 Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins. Surfaces and corners not accessible to brush, use spray, daubers and/or sheepskins.

.3 Brush and/or roll out runs and sags, and overlap marks. Rolled surfaces to be free of roller tracking and heavy stipple unless approved by Consultant.

.4 Remove runs, sags and brush marks from finished work and repaint.

.10 Spray Application:

.1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.

.2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.

.3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.

.4 Brush out runs and sags immediately. Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.

.11 Apply coats of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.12 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

1.14 CLEANING

.1 Perform daily and final clean-up of work area and areas surrounding site.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION - 01 11 00

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PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 11 00 – Summary of Work

.2 Section 01 56 00 – Temporary Barriers and Enclosures

.3 Section 07 52 16 – SBS Modified Bituminous Membrane Roofing

1.2 REFERENCES

.1 Latest edition of all listed references to apply:

.1 Canadian Standards Association CSA S350, Code of Practice for Safety in Demolition of Structures.

.2 National Building Code of Canada, Part 8, "Safety Measures at Construction and Demolition Sites", and Provincial requirements.

.3 Occupational Health and Safety Act and regulations for Construction Projects.

.4 Canadian Environmental Protection Act (CEPA).

.5 Canadian Environmental Assessment Act (CEAA).

.6 Transportation of Dangerous Goods Act (TDGA).

1.3 ASBESTOS AND DESIGNATED SUBSTANCES

.1 Demolition of spray or trowel applied asbestos can be hazardous to health. Notify Consultant if material resembling spray or trowel applied asbestos is encountered on site. Stop work and do not proceed with further removal until written instructions have been received from Consultant.

.1 Abatement procedures for Asbestos Containing Materials (ACM) pertinent to successful performance of Work to be paid for by Owner, preapproved by Consultant, as an extra cost to Contract.

.2 All ACM work to be in compliance with current provincial asbestos abatement regulations for Place of Work.

1.4 STORAGE AND PROTECTION

.1 Protect existing items designated to remain and items designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Consultant and at no cost to Owner.

.2 In all circumstances, ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

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

1.5 EXISTING CONDITIONS

.1 Prior to start of any demolition work, remove contaminated or hazardous materials from site and dispose of at designated disposal facilities.

.2 Record and discuss with Consultant any deviations from existing assumed conditions as indicated by drawings and/or specifications.

1.6 REGULATORY REQUIREMENTS

.1 Ensure all work is performed in compliance with CEPA, CEAA, TDGA, and all applicable provincial regulations.

1.7 NOTICE

.1 Provide a minimum twenty-four (24) hour notice to Consultant and Owner prior to proceeding with any work that may disrupt building access or services.

PART 2 - NOT USED

PART 3 - EXECUTION

3.1 PREPARATION

.1 Examine site with Consultant and verify extent and location of items designated for removal, disposal, recycling, salvage and items to remain. Removal of HVAC units require confirmation by Owner's Representative.

.2 Locate and protect utilities where applicable. Notify and obtain approval of utility companies before starting demolition.

3.2 GENERAL PROTECTION

.1 Prevent movement, settlement, or other damage to adjacent structures, utilities, and parts of building to remain in place. Provide engineered bracing and shoring as required.

.2 Minimize noise, dust, and inconvenience to occupants.

.3 Protect existing building systems, services and equipment.

.4 Provide temporary dust screens, covers, railings, supports and other protection as required.

.5 Provide required signage, barricades, hoarding, overhead protection and temporary egress.

.6 Support affected structure or building components and if safety of structure being demolished or adjacent structures or services appears to be endangered, take preventative measures and then cease operations and notify Consultant immediately.

.7 Ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.8 Do not dispose of waste or volatile materials such as: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers. Ensure proper disposal procedures are maintained throughout project.

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

.10 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authorities.

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

.12 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on all temporary roads.

3.3 DEMOLITION SALVAGE AND DISPOSAL

.1 Remove parts of existing structure or roof system to permit repairs or new installation. Sort materials into appropriate piles for recycling and or reuse.

.2 Carry in Base Bid Price all costs to salvage, protect from harm, and re-use following components, unless indicated otherwise elsewhere in specifications:

.1 Existing skylights, mechanical equipment, cladding, stairs and ladders, satellite and communications equipment, electrical lines, and service lines, etc.

.3 Refer to drawings and specifications for items identified for reuse or salvage, if applicable.

.4 Remove items to be reused, store in a protected location, and reinstall under appropriate section of specification.

.5 Trim edges of partially demolished building elements to suit future use.

.6 Include for disposal of removed materials to appropriate Landfill and/or recycling facilities, except where specified otherwise, and in accordance with authority having jurisdiction.

.1 Where possible, all existing recyclable materials, gravel, asphalt products, etc. to be transported to an appropriate recycling facility.

.2 Provide location of local facility receiving removed recyclable materials to Owner and Consultant.

.7 Dispose of debris on a continuous basis. Do not stockpile debris in a manner which would overload structure, or impede access around site.

3.4 SEQUENCE OF OPERATION

.1 Removal:

.1 Remove items as indicated in technical sections, including roofing ballast or gravel, metal roofing flashings, roofing membrane and flashings, roofing insulation, and or vapour retarder.

.1 Do not disturb items designated to remain in place.

.2 Restrict roofing demolition work to sections in limited size that will be restored and made watertight by end of working day.

.3 Use extreme caution when performing demolition work around skylights, sloped glazing, and other force and vibration sensitive roof projections.

.2 Removal From Site:

.1 Interim removal of stockpiled material may be required, if it is deemed to interfere with operations of Owner.

.2 Do not overload existing roof structures.

.3 Salvage:

.1 Carefully dismantle items containing materials for salvage and stockpile salvaged materials at locations acceptable to Owner and Consultant.

.4 Disposal of Material:

.1 Dispose of materials not designated for salvage or reuse on site to be hauled to an authorized disposal site and or recycling facilities.

.5 Backfill:

.1 Backfill in areas as indicated.

3.5 ABANDONED AND UNUSED ITEMS

.1 Items of unused and/or abandoned rooftop equipment, units, service lines, cabling, and any related supports which are not operational or in use are to be removed and disposed of.

.2 Existing services for abandoned equipment to be dismantled to below roof deck, and closed off in accordance with local bylaws and Code requirements. Confirm all electrical lockout procedures with Owner's representative.

.3 Existing roof deck openings to be closed using following guidelines:

.1 Openings up to 152mm (6") in diameter or 152x152mm (6"x6"):

.1 Metal Decking: Install 610x610mm (24"x24") galvanized steel plate, min. 18ga. secured with 4 screws per side to existing decking.

.2 Openings greater than 152mm (6") in diameter or 152x152mm (6"x6"):

.1 Wood Planking: Replace with SPF #1 grade boards to match existing thickness. All replacement decking shall have 3 points of bearing. Provide new framing to match original as required.

.2 Plywood Decking: Replace with No.1 construction grade plywood sheathing, Good One Side (G1S), to match existing thickness. All replacement decking shall have 3 points of bearing and installed in logical rectangular shapes. New plywood decking to be supported by at least half thickness of roof joist, turss, or rafter underneath. Provide galv. H-clips to existing decking on unsupported sides.

.3 Steel Decking: Obtain ruling from Engineer whether decking is to be replaced or suitably overlaid with identical decking. Secure all decking with TEK screws at each lower flute bearing point structure; welding is not permitted.

.4 Concrete Deck: Refer to detail drawing.

.3 Openings greater than 915x915mm (3'x3'):

.1 Consult Structural Engineer for deck review and design of new framing, decking, securement, and any other required support.

3.6 DECK REPAIRS

.1 Wood Decking: Areas of deteriorated wood planking or plywood decking to be cut out and replaced with new to match existing.

.2 Metal Decking: Areas of corroded steel decking not requiring replacement to be cleaned using a wire brush to completely remove all evidence of corrosion. Remove all dust and coat with zinc rich epoxy primer to completely cover all areas where corrosion was evident.

.3 Concrete Decking: Areas of concrete decking with pitted or deteriorated surfaces to be cleaned sufficiently to receive repair material. Repairs to be completed with quick set masonry repair grout trowelled to a smooth even finish, flush with surrounding areas.

3.7 RESTORATION

.1 Restore areas and existing works outside areas of demolition to match condition of adjacent, undisturbed areas.

.2 Use only soil treatments and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

3.8 CLEANUP

.1 Upon completion of work, remove debris, trim surfaces and leave work site clean.

.2 Use only cleaning solutions and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

END OF SECTION - 02 41 19

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PART 1 - GENERAL

1.1 SUMMARY

.1 Methods and procedures for plant protection, preservation, and restoration of existing plants, trees, and root systems of trees on site that may be affected by grading, excavating, building construction, and roof rehabilitation work.

.1 Provide for protection of existing trees, plants, shrubbery, and grassy areas from construction activities.

.2 Restore trees, plants, shrubbery, and grassy areas where damaged by construction activates at Contractor's expense to original condition. Arbitration of restoration work by Consultant.

1.2 INTENT

.1 Intent of preservation is to protect existing trees, plants, and shrubs identified at Prestart Review and where shown on drawings, from damage during construction process and to minimize any change or damage to their branching habit, health, and root system areas.

.2 Encroachment into protection zones by vehicles, equipment, excavation material, or other by-products of construction will cause soil compaction in root zone decreasing amount of air space in soil necessary to maintain health, vigour, and life of trees and plants.

1.3 EXAMINATION AND SITE REVIEW

.1 Meet with Consultant and Owner's Representative to review tree and plant preservation measures required at worksite for performance of work, in advance of work commencement.

.2 Determine location and extent of protective fencing required to suit requirements of Work.

.1 Layout of protective fencing to be coordinated on site with Consultant and approved before installation.

.2 Designated protection areas must be fenced off at all times, and may not be encroached upon for any reason without prior written authorization from Consultant.

1.4 APPROVALS

.1 Do not remove branches or limbs from existing trees, remove trees, excavate, or cut roots of trees without prior approval by Consultant. Failure to do so may result in a Stop Work Order.

.2 Required cutting of branches, limbs, or roots of trees, removal of trees, excavation around trees, or access around trees within tree preservation areas to occur in presence of Owner's Representative and Consultant.

.1 Failure to comply will convey responsibility to Contractor for rectification of damages to existing trees and shrubbery at Contractor's expense.

1.5 QUALIFICATIONS

.1 Tree and plant protection to be directed on site by Consultant.

.2 Pruning of overhanging tree branches and other tree modifications by qualified Arborist.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 DISPOSAL OF WASTE

.1 Do not bury rubbish and waste material on site.

3.2 SITE CLEARING AND PLANT PROTECTION

.1 Restrict tree and shrub removal to areas identified at Prestart Review and as indicated on drawings.

.2 Retain and protect existing trees and plants on worksite and adjacent properties where indicated on drawings, identified at Prestart Review with Consultant.

.1 Identify trees, plants, and shrubs adjacent to construction work, storage areas, and trucking lanes, and enclose with temporary protective fencing, from grade level to height of 1.2 m (4'-0"), along perimeter line of protection areas where established by Consultant, and as instructed by Consultant.

.3 Provide protective fencing and signage explaining purpose of protection measures to trade workers on site before commencing with site clearing, excavation, and general construction work.

.1 Protect roots of designated trees to perimeter line of protection areas during excavation, site grading, and other construction work to prevent disturbance and damage.

.4 Excavation and building material storage to be located away from retained trees and protection areas. All excess excavation material beyond what is required for backfilling to be removed immediately from site.

.1 All traffic, dumping, and storage of materials is strictly prohibited within protection areas without prior written authorization.

.2 Where light vehicle travel is preapproved over grassy areas to access building, provide a continuous temporary 152 mm (6.0") thick layer of wood mulch as a roadway protection, where access road may impact existing tree root systems.

.5 Tree and plant materials within protection areas or where indicated to be retained that have been damaged in any fashion by Contractor or Subcontractor, to be replaced by Contractor with same species and size at no cost to Owner.

.1 If size or species cannot be made available, a fair assessment value based on "Valuation of Landscape Trees, Shrubs and other Plants", 7th edition, published by International Society of Arbor Culturist will be under taken. Assessment will be charged to Contractor at no cost to Owner.

3.3 WATERING OF TREES AND PLANTS

.1 Where new trees, plants, and seeded grass are installed for restoration work, provide watering of plants a minimum of twelve (12) times throughout summer, or over three month period after planting, to ensure successful growth.

.1 At each watering, soak area immediately below tree crown for minimum of eight (8) hours, sufficiently deep to reach feeder roots or as directed by Consultant.

3.4 FERTILIZING EXISTING TREES

.1 Where new trees, plants, and seeded grass are installed for restoration work, provide fertilization of new trees, plants, and grasses twice (2) per year, spring and fall, for one year, or as directed by Consultant.

3.5 PRUNING

.1 Branch pruning of dead and hazardous tree limbs to be approved by Consultant and performed by Arborist.

.1 Pruning work not identified in specifications or drawings to be an extra to Contract Price.

.2 Removal of hazardous deadwood and other required crown pruning to be performed before construction work begins.

3.6 ROOT PRUNING OF EXISTING TREES

.1 Where required, root pruning of existing trees to be undertaken by Arborist and approved by Consultant.

.2 If excavation through roots is required, excavate by hand and cut roots with sharp saw. Ensure that all cuts are clean and even.

.3 Where excavation is required, root prune during winter months one year in advanced before excavation is preferred.

.1 Where possible, prune roots minimum 254 mm (10.0") back from finished wall locations.

END OF SECTION - 02 50 01

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PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 56 00 – Temporary Barriers and Enclosures

.2 Section 02 41 19 – Selective Demolition and Removal

.3 Section 07 52 16 – SBS Modified Bituminous Membrane Roofing

.4 Section 07 62 00 – Prefinished Sheet Metal Flashing and Trim

1.2 REFERENCES

Latest edition of listed references apply; most stringent requirement to govern in case of conflict.

.1 American Lumber Standards Committee (ALSC):

.1 Softwood Lumber Standards.

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

.1 A153M-16a: Standard Specification for Zinc Coating (Hot-Dip) on Iron & Steel Hardware.
.2 A653M-15e1: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
.3 D1760-01: Standard Specification for Pressure Treatment of Timber Products.

.3 American Wood-Protection Association (AWPA):

.1 AWPA E12: Standard Method of Determining Corrosion of Metal in Contact with Wood.
.2 AWPA M4: Standard for the Care of Preservative Treated Wood Products.
.3 AWPA P5: Standard for Waterborne Preservatives.
.4 AWPA P26: Standard for Alkaline Copper Quat Type A (ACQ-A).
.5 AWPA P27: Standard for Alkaline Copper Quat Type B (ACQ-B).
.6 AWPA P28: Standard for Alkaline Copper Quat Type C (ACQ-C).
.7 AWPA P29: Standard for Alkaline Copper Quat Type D (ACQ-D).
.8 AWPA U1: Use Category System: User Specification for Treated Wood.

.4 Canadian Standards Association (CAN/CSA):

.1 B111-1974 (R2003): Wire Nails, Spikes and Staples.
.2 G164-M92 (R2003): Hot Dip Galvanizing of Irregularly Shaped Articles.
.3 O121-17: Douglas Fir Plywood.
.4 O141-05 (R2014): Softwood Lumber.
.5 O151-17: Canadian Softwood Plywood.
.6 O325-16: Construction Sheathing.

.5 Engineered Wood Association (EWA); formerly American Plywood Association (APA):

.1 Product Guide: Grades and Specifications.

.6 National Forest Products Association (NFPA):

.1 Grading Rules.

.7 National Lumber Grades Authority (NLGA):

.1 Standard Grading Rules for Canadian Lumber (2014).

1.3 QUALITY ASSURANCE

.1 Lumber identification to be by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood identification to be by grade mark in accordance with applicable CSA standards.

.3 Plywood, OSB and wood based composite panel construction sheathing identification to be by grademark in accordance with applicable CSA standards.

.4 At all times during Work, Contractor will have on site a qualified project supervisor. It will be Supervisor's responsibility to ensure that Work is carried out in an efficient manner, according to Plans and Specifications.

1.4 DELIVERY, STORAGE, AND HANDLING

.1 Protect lumber and other products from dampness both during and after delivery at site.

.2 Pile lumber in stacks in such manner as to provide air circulation around surfaces of each piece.

.3 Stack plywood and other board products so as to prevent warping.

.4 Locate stacks on well drained areas, supported at least 152mm (6") above grade and cover with well ventilated sheds having firmly constructed over hanging roof with sufficient end wall to protect lumber from driving rain.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Set aside damaged wood and dimensional lumber off-cuts for acceptable alternative uses (e.g. bracing, blocking, cripples, bridging, finger-joining, or ties). Store this separated reusable wood waste convenient to cutting station and area of work.

.2 Separate and recycle waste materials in accordance with applicable local, provincial and national regulations. Include for tipping fees associated with landfills and recycling depots

.3 Unused preservatives and fire retardant materials are to be diverted from landfill through disposal at a special wastes depot.

.4 Do not burn scrap at project site.

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

PART 2 - PRODUCTS

2.1 LUMBER MATERIALS

.1 Materials to be best merchantable lumber, straight and sized and shaped to correct dimensions from nominal sizes noted on drawings. Lumber to be selected from well seasoned stock, free from loose resinous knots, shakes, waxed edges, splits, dry rot or other defects which would impair strength or durability.

.2 Lumber in accordance with following standards:

.1 CAN/CSA-O141.
.2 NLGA Standard Grading Rules for Canadian Lumber.

.3 Unless specified otherwise all framing members to be No.1/No.2 SPF.

.4 All materials directly exposed to exterior to be pressure treated unless noted otherwise on drawings or elsewhere in specification.

.5 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers to be pressure treated where exposed to exterior elements.

.6 Moisture Content:

.1 At time of delivery and maintained at site.
.2 Boards and lumber 51mm (2") and less in thickness: 19% or less.
.3 Lumber over 51mm (2") thick: 25% or less.

.7 Preservative Treatment:

.1 All wood exposed to exterior environmental conditions, in contact with concrete or masonry to be treated with roof preservative.

.2 Do not treat Heart Redwood and Western Red Cedar.

.3 Treat wood members and plywood exposed to weather or in contact with plaster, masonry or concrete, including framing of open roofed structures; sills, sole plates, furring, and sleepers that are less than 610mm (24") from ground; nailers, edge strips, blocking, crickets, curbs, cant, vent strips and other members used in connection with roofing and flashing materials.

.4 Treat other members specified as preservative treated (PT).

.5 Preservative treatment by pressure method to ASTM D1760; except any process involving use of prohibited Chromated Copper Arsenate (CCA).

2.2 PANEL MATERIALS

.1 Douglas fir plywood (DFP): to CSA O121, standard construction, Good one side (G1S) when in contact with roofing membrane.

.2 Canadian softwood plywood (CSP): to CSA O151, standard construction, Good one side (G1S) when in contact with roofing membrane.

.3 Plywood, OSB and wood based composite panels: to CAN/CSA-O323.

2.3 ACCESSORIES

.1 Bent metal plate: 18ga or 22ga, galvanized metal sheet, formed as required or as indicated on drawings to provide support for wood blocking or roof assembly components.

.2 Anchorage to hollow masonry and gypsum walls: Galvanized toggle bolts.

.3 Anchorage to solid masonry or concrete: Expansion shields and lag bolts:

.1 Rawl mushroom head lead anchors, min 6mm (0.25") diameter for sheathing,
.2 Hilti Kwik-Bolts for structural members.

.4 Anchorage of wood members to sheet steel studs: Corrosion coated screws, min #14 thread, of length to penetrate minimum 19mm (0.75") through material into base.

.5 Nails: Minimum 6d, hot dip galvanized spiral or ring shank nails, length to penetrate through material 38mm (1.5") into base.

.6 Anchorage of wood blocking to masonry: Masonry screws, Tapcon anchors of sufficient length to penetrate 32mm (1.25") into masonry surfaces.

.7 Batt Insulation: Stone wool mineral fiber batt insulation, Rockwool by Roxul Inc.

.8 Explosive actuated fastening devices are prohibited for use on this project.

2.4 ACCESSORY FINISHES

.1 Galvanizing: to CAN/CSA-G164:

.1 galvanized fasteners for all exterior work unless otherwise specified
.2 galvanized fasteners for all high interior humid areas unless otherwise specified

.2 Use stainless steel type 304 where noted on drawings

PART 3 - EXECUTION

3.1 PREPARATION

.1 Comply with safety regulations and applicable bylaws governing work included in this section. Provide and maintain necessary barriers, guards and rails.

.2 Scope of work includes parapet wall, roof joint, and wall modifications as indicated on drawings or as required to provide a secure, smooth surface to receive the new roof and flashing assembly:

.1 Install wood blocking secured into existing surfaces adequately to resist movement and wind uplift forces as per FMG 1-49, minimum 200 pounds/foot.

.2 Install mineral fiber insulation at all voids and as indicated on drawings.

.3 Install plywood sheathing to drawings.

.3 Complete wood blocking and sheathing to walls, curbs and drains as indicated on drawings.

3.2 SITE APPLIED WOOD TREATMENTS

.1 Treat only wood blocking which will remain exposed to the elements.

.2 Treat ends of site cut surfaces of materials delivered to site with wood preservative.

.3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

3.3 INSTALLATION

.1 Comply with requirements of Provincial Building Code at Place of Work, supplemented by following paragraphs:

.1 Ensure continuity and completeness of vapour retarder membrane as coinciding with new wood blocking installation.

.2 Provide mineral wool insulation to fill voids at roof deck level or as otherwise required or indicated on detail drawings.

.3 Install furring and blocking as required to space-out and support new walls, window projections and louver extensions, fascia, soffit, siding and other work as required.

.4 Align and plumb faces of furring and blocking to tolerance of 1:600.

.5 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

.6 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure with adequate fasteners.

.7 Install sleepers as indicated.

3.4 ERECTION

.1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.2 Countersink bolts where necessary to provide clearance for other work.

END OF SECTION - 06 10 00

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PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Installation of a new roof system over prepared substrate.

.2 Existing roofing components and related appurtenances to be removed as specified in preparation for installation of a new low slope, conventional roofing system, including but not limited to:

.1 On Roof Areas 1.1, 2.1 and 3.1:

.1 Existing metal roof deck,
.2 Existing gypsum overlay board,
.3 Existing vapour retarder,
.4 1 ply SBS & woven polyethylene vapour retarder field membrane, self-adhered,
.5 1 ply modified bitumen vapour retarder tie-in flashings, self-adhered,
.6 76mm (3.0") polyisocyanurate, base insulation, in adhesive,
.7 76mm (3.0") polyisocyanurate, overlay insulation, in adhesive,
.8 7.0mm (9/32") 2-1 Soprasmart Board (with laminated base sheet), in adhesive,
OR 6mm (0.25") siliconized gypsum board (and self-adhered base sheet), in adhesive,
OR 6mm (0.25") asphaltic roof board (and self-adhered base sheet), in adhesive,
.9 1 ply modified bitumen base sheet flashings, self-adhered,
.10 1 ply granular modified bitumen cap sheet field membrane, torch applied,
.11 1 ply granular modified bitumen cap sheet flashings, torch applied,
.12 Prefinished metal flashings and trim.

1.2 RELATED SECTIONS

.1 Section 02 41 19 – Selective Demolition & Removal

.2 Section 07 62 00 – Prefinished Sheet Metal Flashing & Trim

.3 Section 07 92 00 – Joint Sealants

1.3 REFERENCES

.1 Latest edition of all listed references; most stringent requirements to govern in conflicts:

.1 American Society for Testing and Materials (ASTM) International:

.1 C208: Cellulosic Fibre, Insulating Board.
.2 C578: Rigid, Cellular Polystyrene Thermal Insulation.
.3 C1177(M): Standard Specification for Glass Mat Gypsum Substrate.
.4 C1289: Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
.5 C1396(M): Standard Specification for Gypsum Board.
.6 D41: Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
.7 D312: Asphalt Used in Roofing.
.8 D2822: Asphalt Roof Cement.
.9 D4601: Standard for Asphalt Coated Glass Fibre Base Sheet Used in Roofing.
.10 D6162: SBS Mod. Bit. Sheets Using Polyester & Glass Fibre Reinforcements.
.11 D6163: SBS Mod. Bit. Sheets Using Glass Fibre Reinforcements.
.12 D6164: SBS Mod. Bit. Sheets Using Polyester Reinforcements.

.2 Canadian Standards Association (CAN/CSA):

.1 A123.2: Asphalt Coated Roofing Sheets.
.2 A123.16: Asphalt Coated Glass Base Sheets.
.3 A123.21: Dynamic Wind Uplift Resistance of Roof Assemblies.
.4 A231.1: Precast Concrete Paving Slabs.
.5 O121M: Douglas Fir Plywood.
.6 O151M: Canadian Softwood Plywood.

.3 Canadian General Standards Board (CAN/CGSB):

.1 37.29M: Rubber-Asphalt Sealing Compound
.2 37-GP-9M: Primer, Asphalt, unfilled, for Asphalt Roofing and Waterproofing.
.3 37-GP-15M: Application of Asphalt Primer for Asphalt Roofing & Waterproofing.
.4 37-GP-56M: Membrane, Bituminous, Prefabricated and Reinforced for Roofing.
.5 51.26M: Thermal Insulation, Urethane and Isocyanurate, Boards, Faced.
.6 51.33M: Vapour Barrier Sheet, Excluding Polyethylene, for use in Construction.

.4 Underwriters Laboratories of Canada (CAN/ULC):

.1 S701: Thermal Insulation, Polystyrene, Boards and Pipe Covering.
.2 S704: Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Fixed.

.5 New Brunswick Roofing Contractors Association (NBRCA): Roofing Manual.

.6 Canadian Roofing Contractors Association (CRCA): Roofing and Waterproofing Manual.

1.4 SUBMITTALS BY ROOFING CONTRACTOR

.1 Provide with Bid Submission for Roof Work:

.1 Certificate of Insurance for ten million ($10,000,000.^{00}$) in Liability,
.2 WCB Experience Rating & Clearance Letter,
.3 Bid Bond for 10% of Stipulated Bid Price on projects over $50,000 in value,
.4 An Agreement to Bond for 100% Performance, Labour & Materials on Bids over $50,000,
.5 Sample copy of Manufacturer's Labour, Material, and Workmanship Warranty,
.6 Sample copy of Contractor's Warranty.

.7 Roof System Warranty Letter:

.1 Copy of current letter from a specified membrane manufacturer stating opinion that Bidder has necessary resources and expertise required to perform specified work, is an approved applicator of specified roofing system, and is eligible to receive specified Labour, Material, and Workmanship Warranty for an extended warranty term of ten (10) years.

.2 FAILURE TO PROVIDE WARRANTY LETTER WILL RESULT IN BID SUBMISSION TO BE DEEMED INFORMAL AND MAY BE EXCLUDED FROM CONSIDERATION.

.2 Provide to Quality Observer, within five (5) working days after Notice of Award:

.1 Initial project work schedule showing anticipated progress stages and final completion of work from Start Date. Do not commence Work before project schedule has been provided and reviewed.

.2 Provincial Ministry's Notice of Project form or equivalent for Place of Work, notarized and executed.

.3 Current WCB Experience Rating & Clearance Letter for Place of Work.

.4 Specified Bonding and Insurance in Owner's name.

.3 Provide to Quality Observer, at Prestart Meeting:

.1 Finalized project work schedule listing start date, anticipated number of working days working, and manpower assignments for project.

.2 Sample of specified warranties from Manufacturer and Contractor for proposed materials and products to be installed.

.3 Letter and completed Manufacturer's project warranty application form sent to "Warranty Provider" advising them of project start and particulars.

.4 Complete Materials List; including installation instructions and product datasheets providing characteristics of all proposed materials to be installed.

.5 Safety Data Sheets (SDS) pertaining to all proposed materials to be used on site to perform Work.

.6 Certifications by manufacturers of roofing and insulating materials that all products supplied comply with all requirements of current identified ASTM and other industry standards or practices.

.7 Letter by Contractor certifying that all specified roof system components are compatible, are approved by Manufacturer, meet specified warranty terms, and are compatible with existing substrates.

.8 Applicable shop drawings for tapered insulation layout and other specified items to be reviewed by Consultant prior to prefabrication and delivery.

.9 Attachment pattern diagrams to meet wind uplift requirements for mechanical fastening and adhesive securement of deck boards, insulation boards, and cover boards where applicable to project.

.10 List of "Trained and Carded Membrane Approved Applicators" to work and be present during performance of Work.

.11 Health & Safety Plan for Specific Work Site including contact list and phone numbers for project, and twenty-four (24) hour emergency contact numbers.

.4 Provide to Owner, at project completion:

.1 Completed and executed Roof System Warranty for project areas,

.2 Completed and executed Contractor's Warranty for project areas.

1.5 ROOFING CONTRACTOR QUALIFICATION

.1 Contractor to perform specified Work must:

.1 have a minimum ten (10) years work experience with materials specified or similar comparable products,

.2 be a member in good standing with New Brunswick Roofing Contractors Association (NBRCA),

.3 and be licensed and insured for Place of Work.

.2 Contractor must be preapproved and certified by Membrane Manufacturer for specified materials, installation type, and warranty requirements.

.1 Contractor's installers must be certified and carded for installation of specified materials.

.2 Contractor's employees and Subcontractors must be WHMIS certified.

.3 Owner reserves right to reject any proposed Subcontractor for reasonable cause.

.3 Any Bidder, when specifically requested, must complete a questionnaire listing Contractor's qualifications on a form provided by Owner or Consultant, or a CCDC 11 – Contractors' Qualifications Statement with submission of Bid.

.1 Acceptance or rejection of submitted qualifications for suitability to perform specified Work to be made within three (3) working days.

1.6 QUALITY ASSURANCE

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

.2 Perform Work in accordance with Contracts Documents and Manufacturer's written instructions.

.3 Make no deviation from Project Specifications or approved shop drawings without prior written approval by Consultant and, if applicable, Manufacturer.

.4 Arrange for a Technical Representative of Manufacturer to review installed roof system wherever a System Warranty requirement has been specified.

.5 Upon completion of new installation, provide certification that all work has been done in accordance with Contract Documents and to Manufacturer's requirements.

1.7 QUALITY OBSERVATION

.1 IRC Building Sciences Group, A Rimkus Company, hereafter known as "Observer", is an independent Rooftop Quality Observation Agency appointed by Owner to observe performance of roof Work:

.1 Roofing Contractor to Arrange Prestart site meeting with Observer no more than three (3) weeks prior to commencement of Work on site. Obtain Observer's instructions and reference procedures to be followed on project.

.2 Provide to Observer date when each phase of work will begin, at least forty-eight (48) hours prior to commencement of Work for phase.

.3 Arrange Final Observation and examination of installed roof with both Observer and Manufacturer's Technical Representative.

.2 Cooperate with Observer and afford all facilities necessary to permit full Rooftop Quality Observations during performance of Work. Act immediately on instructions given by Observer.

.3 When required, provide roof cut-outs and samples in field where directed by Observer and make good without additional cost to Owner.

.4 When initial tests and observations reveal work failing to meet contract requirements, pay for any additional testing and observations required by Observer or third party testing agency for correction of Work, without additional cost to Owner.

.5 Copies of Observation Reports issued to Owner and Prime Contractor.

1.8 DELIVERY, STORAGE, AND HANDLING

.1 Site storage is limited. Where applicable, location of storage and related facilities to be coordinated with Prime Contractor and Owner.

.2 All materials to be delivered and stored in their original packaging bearing manufacturers label, grade and product weight, including all other related standards, specifications, and like.

.3 All materials to be adequately protected from inclement weather conditions and stored in a dry, well ventilated and weather protected location. Use only dry materials and apply only during weather that will not introduce moisture into roofing system.

.4 Only materials to be installed on same day to be removed from protected location to work site.

.5 During extreme temperature, materials to be stored in a heated location with a 4.4°C (40°F) minimum temperature and removed only as needed.

.6 Modified bitumen rolls to be kept clear of all flames and sparks when not being applied to roof.

.7 All materials in a rolled configuration to be stored on end, elevated off ground, and on a pallet or skid to protect bottom surface from foreign debris and moisture.

.8 Restrict stockpiling of material in one location on roof to prevent exceeding specified deck live load capacity. Avoid point loading that may compromise structural integrity of roof.

.9 Handle and store products in a manner to prevent damage and deterioration.

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

1.9 ENVIRONMENTAL REQUIREMENTS

.1 Do not apply roofing materials to damp, wet, or frozen deck or substrates.

.2 Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

.3 Only install as much new roofing as can be made weather-tight each day, including all flashing and detail work. All seams to be sealed or heat welded before leaving job site that work day.

.4 All work to be scheduled and executed without exposing interior building areas to effects of inclement weather. Existing building and its contents to be protected against all risks.

.5 All new and temporary construction, including equipment and accessories, to be secured in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.

.6 Uninterrupted water-stops to be installed at end of each day's work and to be completely removed before proceeding with next day's work. Water-stops to not emit dangerous or unsafe fumes and to not remain in contact with finished roof as installation progresses. Contaminated membrane to be replaced at no cost to Owner.

.7 Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, provide all necessary protection and barriers to segregate work area and to prevent damage to adjacent areas. A substantial protection layer consisting of plywood over felt or plywood over insulation board to be provided for all new and existing roof areas that receive rooftop traffic during construction.

.8 Prior to and during application, all dirt, debris and dust to be removed from surfaces by vacuuming, sweeping, blowing with compressed air, and/or similar methods.

.9 Follow all safety regulations as required by OHS (Occupational Health and Safety) and any other applicable authority having jurisdiction.

.10 All roofing, insulation, flashings and metal work removed during construction to be immediately taken off site to a legal dumping area authorized to receive such materials. Hazardous materials, such as materials containing asbestos, are to be removed and disposed of in strict accordance with applicable Local, Provincial, and National requirements.

.11 All new roofing waste material (i.e., scrap roof membrane, empty cans of adhesive) to be immediately removed from site by Contractor and properly transported to a legal dumping area authorized to receive such material.

.12 Take precautions that storage and/or application of materials and/or equipment does not overload roof deck or building structure.

.13 Flammable adhesives and deck primers to not be stored and not be used in vicinity of open flames, sparks and excessive heat.

.14 All rooftop contamination that is anticipated or that is occurring to be reported to manufacturer to determine corrective steps to be taken.

.15 Verify that all roof drain lines are functioning correctly (not clogged or blocked) before starting work. Contractor to report any such blockages in writing to Consultant for corrective action prior to installation of roof system.

.16 Immediately stop work if any unusual or concealed condition is discovered and immediately notify Consultant of such condition in writing in order to obtain additional instruction.

.17 Site cleanup, including both interior and exterior building areas that have been affected by construction, to be completed to satisfaction of Consultant.

.18 All landscaped areas damaged by construction activities to be repaired at no cost to Owner.

.19 Take precautions when using adhesives at or near rooftop vents or air intakes. Avoid adhesive odours from entering building. Coordinate operation of vents and air intakes in such a manner as to avoid intake of adhesive odour while ventilating building. Keep lids on unused cans at all times.

.20 Protective wear to be worn when using solvents or adhesives or as required by job conditions.

1.10 PREPARATORY WORK

.1 Review roof levels and advise Consultant of any deviation from specified tolerances.

.2 Review roof drain locations and number. Advise Consultant of any deviation or alteration from specifications.

.3 Sweep roof deck free of dust or dirt and remove all debris prior to any installation work.

1.11 SAFETY AND PROTECTION

.1 Solvents, Adhesives and Membranes:

.1 Store only enough solvents and adhesives on roof for same day use. Do not leave adhesives on roof over night. Manufacturer supplied adhesives should be stored in their

over night containers. Minimum temperature for solvent based adhesives and primers is -5°C (23°F). Refer to Manufacturer's written instructions.

.2 Do not install roof membrane when temperature remains below 5°C (41°F) for self-adhered installations. Apply materials in accordance with manufacturer's recommendations and in accordance with Canadian Modified Bitumen Manufacturer's Association.

.3 Protect walls from damage where hoisting is required.

.4 Protect roofs from damage due to traffic and materials handling until completion.

.2 Fire Safety:

.1 Keep charged and ready to use fire extinguishers on site at all times, including at access to building interior, at rooftop work areas, and wherever solvent based products are stored and accessed.

.2 Provide a minimum two (2) hour fire watch at completion of each day's activities on all projects implementing use of propane torches and/or burners.

.1 A handheld, infrared thermal scanner suitable for roofing applications and fire alert must be kept on site at all times during torching procedures. Fire scanner by Raytek or approved IRC Group equal. Check seams and flashings at hourly intervals for flare ups.

.3 Health and Safety:

.1 Contractor to comply with all safety requirements as per current printed edition of Provincial Occupational Health and Safety Act and with New Brunswick Roofing Contractors Association (NBRCA) standards.

1.12 WARRANTY

.1 Contractor Workmanship Warranty:

.1 On Roof Areas 1.1, 2.1 and 3.1: Provide Owner with Contractor's Warranty for Workmanship on a New Brunswick Roofing Contractors Association (NBRCA) approved form, signed, authorized, and executed. Warranty period to be for minimum two (2) years from date of Substantial Completion.

.1 During Contractor's warranty term, any work related to roofing, flashing, or metal found to be defective or otherwise not in accordance with Contract Documents, to be promptly repaired by Contractor at no additional cost to Owner and in accordance with drawings and specifications. Applicator's warranty obligation to run directly to Owner with a copy sent to Manufacturer.

.2 Roof System Warranty:

.1 On Roof Areas 1.1, 2.1 and 3.1: Provide Owner with Manufacturer's Labour, Material and Workmanship NDL (No Dollar Limit) System Warranty for a period of ten (10) years on roof replacement areas.

.1 Owner to notify both membrane Manufacturer and Contractor of any leak that occurs during time period while warranties remain in effect.

.3 Cost of all warranties to be included in Contract Amount.

PART 2 - PRODUCTS

2.1 GENERAL

.1 All membrane materials are to be supplied by Johns Manville, Siplast, or Soprema, meeting manufacturer's respective material compatibility requirements to achieve required System Warranty.

.2 Components to be used that are other than those supplied or manufactured by membrane manufacturer may be submitted for review and acceptance by membrane manufacturer.

.3 Membrane Manufacturer's acceptance of any other product is only for a determination of compatibility with products and not for inclusion in manufacturer's warranty.

.4 Specifications, installation instructions, limitations, and/or restrictions of respective manufacturers must be reviewed by Consultant for acceptability for intended use with membrane manufacturer's products.

2.2 MEMBRANE PRIMER

.1 General Purpose: Asphalt Primer to ASTM D41 Type II.

.1 Solvent Based Primer: Composed of volatile solvents, synthetic polymers, and/or adhesive enhancing resins to prepare surfaces for membrane application.

.1 JM Asphalt Primer (Black) by Johns Manville,
.2 PA-917 Asphalt Primer by Siplast,
.3 Elastocol 500 Primer (Black) by Soprema.

.2 High-tack for Self-adhered Membranes:

.1 Solvent Based Primer: Composed of volatile solvents, synthetic polymers, and/or adhesive enhancing resins to prepare surfaces for self-adhered membranes.

.1 JM SA Primer (Red) by Johns Manville,
.2 TA-325 Primer (Orange) by Siplast,
.3 Elastocol Stick Primer (Red) by Soprema.

.2 Water Based Primer: Single component resin or emulsion based primer composed with synthetic polymers and/or adhesive enhancing resins to prepare surfaces for self-adhered membranes. Not for use on metal surfaces, between membranes, or between two water repellent components.

.1 TA-119 Primer (Red) by Siplast,
.2 Elastocol 350 Primer (Dark Brown) by Soprema.
.3 Elastocol Stick H2O Primer (Blue) by Soprema.

.3 For Torch Applied Membranes:

.1 Solvent Based Primer: Composed of SBS modified bitumen, volatile solvents, synthetic polymers, and/or adhesive enhancing resins to prepare surfaces for torch applied membranes.

.1 JM Asphalt Primer (Black) by Johns Manville,
.2 PA-917 Asphalt Primer by Siplast,
.3 Elastocol 500 Primer (Black) by Soprema.

.2 Water Based Primer: Emulsion based primer composed with SBS stabilized modified bitumen, synthetic polymers and/or adhesive enhancing resins to prepare surfaces for torch applied membranes. Not for use between membranes or two water repellent components.

.1 Elastocol 350 Primer (Dark Brown) by Soprema.

2.3 ROOFING BOARD ADHESIVE

.1 Polyurethane Adhesive for Deck, Insulation, and Cover Boards:

.1 Ribbons of one or two component polyurethane foamable adhesive.

.1 INSTA-STIK Adhesive by Flexible Products Company-Roofing Group (DOW),
.2 JM Two-Part Urethane Insulation Adhesive by Johns Manville,
.3 OlyBond500 Adhesive by OMG Roofing Products,
.4 Para-Stik Adhesive by Siplast,
.5 Duotack by Soprema.

2.4 DECK BOARD RESTORATION: GYPSUM ROOF BOARD

.1 Deck Board: Dimensionally stable, fire resistant, gypsum based roof board with treated core for moisture and mould resistance; size no larger than 1.22m x 2.44m (4'x8').

.1 Glass-Mat Faced: Siliconized gypsum roof board with factory laminated glass-mat facer meeting ASTM C 1177. Boards with factory applied primer preferred.

.1 DensDeck Prime with EONIC technology by Georgia-Pacific Canada LP,
.2 DEXcell FA Glass Mat Roof Board by National Gypsum (JM).

.2 OR Unfaced, Fibre Reinforced: Gypsum roof board with homogenous composition reinforced with cellulose fibres meeting ASTM C 1278.

.1 CGC Securock Gypsum-Fibre Roof Board by CGC Inc.,
.2 Securock Gypsum-Fibre Roof Board by USG.

.3 Filler overlay board thickness to match existing deck board.

2.5 VAPOUR RETARDER RESTORATION: SELF-ADHERED MODIFIED BITUMEN

.1 Vapour Retarder Field Membrane:

.1 Self-adhered grade modified bitumen, minimum 1.5mm (60 mil) thick, with minimum 85g/m^2 non-woven polyester scrim, random glass fibre mat or composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-15. Top surface lightly sanded and self-adhesive bitumen bottom surface covered with polyolefin or silicone release film.

.1 DynaGrip SD/SA by Johns Manville,
.2 Paradiene 20 SA by Siplast,
.3 Sopraflash Stick Duo by Soprema (Application ≥ 0°C),
.4 SBS Glass SA Base by Tradesman.

.2 Vapour Retarder Flashings:

.1 Self-adhered grade modified bitumen, minimum 1.5mm (60 mil) thick, with minimum 85g/m^2 non-woven polyester scrim, random glass fibre mat, or composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-

15. Top surface lightly sanded and self-adhesive bitumen bottom surface covered with polyolefin or silicone release film.

.1 DynaGrip SD/SA by Johns Manville,
.2 Paradiene 20 SA by Siplast,
.3 Sopraflash Stick Duo by Soprema (Application ≥ 0°C),
.4 SBS Glass SA Base by Tradesman.

2.6 VAPOUR RETARDER: 1 PLY SELF-ADHERED MODIFIED BITUMEN

.1 Vapour Retarder Field Membrane:

.1 Self-adhered grade modified bitumen, minimum 1.5mm (60 mil) thick, with minimum 85g/m^2 non-woven polyester scrim, random glass fibre mat or composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-15. Top surface lightly sanded and self-adhesive bitumen bottom surface covered with polyolefin or silicone release film.

.1 DynaGrip SD/SA by Johns Manville,
.2 Paradiene 20 SA by Siplast,
.3 Sopraflash Stick Duo by Soprema (Application ≥ 0°C),
.4 SBS Glass SA Base by Tradesman.

.2 Vapour Retarder and Tie-in Flashings:

.1 Self-adhered grade modified bitumen, minimum 1.5mm (60 mil) thick, with minimum 85g/m^2 non-woven polyester scrim, random glass fibre mat, or composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-15. Top surface lightly sanded and self-adhesive bitumen bottom surface covered with polyolefin or silicone release film.

.1 DynaGrip SD/SA by Johns Manville,
.2 Paradiene 20 SA by Siplast,
.3 Sopraflash Stick Duo by Soprema (Application ≥ 0°C),
.4 SBS Glass SA Base by Tradesman.

2.7 BASE INSULATION: CGF POLYISOCYANURATE

.1 Base Insulation Type: Closed-cell polyisocyanurate foam rigid insulation boards to ASTM C1289 Type II, Class 1, 2, or 3, Grade 2, manufactured with HCFC-free blowing agent (Pentane) bonded to inorganic coated glass facers on top and bottom surfaces during manufacturing process:

.1 Approved and listed for use with Noncombustible and FM Class 1 rated insulated roof assemblies to FM Standard 4450 on Insulated Steel Deck Roofs and FM Standard 4470 on Roof Covers for durability, wind uplift, and fire resistance.

.2 Meet physical property requirements of ASTM C1289 and CAN/ULC S704.

.3 Compressive strength: Min. 138 kPa (20 psi) to ASTM C1621, Grade 2.

.4 Dimensional stability change of less than 2% conforming to ASTM D2126.

.5 Conformity to CAN/ULC S704 and Can/ULC S770 for Long Term Thermal Resistance (LTTR) in polyisocyanurate insulation.

.6 Acceptable Products:

.1 ACFoam III polyisocyanurate by Atlas Roofing Corp.,

.2 Enrgy 3 CGF polyisocyanurate by Johns Manville,
.3 Paratherm CG polyisocyanurate by Siplast,
.4 Sopra-ISO Plus polyisocyanurate by Soprema.

.1 Base Insulation Thickness:

.1 On Roof Areas 1.1, 2.1 and 3.1: Continuous flat layer of polyisocyanurate insulation boards 76mm (3.0") in thickness, with butt lapped joints.

.2 Base Insulation Panel Size:

.1 Tapered Panels: Maximum 1.22m x 1.22m (4' x 4') regardless of attachment method.

.2 Flat Panels: Maximum 1.22m x 1.22m (4' x 4') when adhered to substrate.

.3 Tapered Insulation Supply:

.1 All tapered insulation panels, drain sumps, and crickets to be factory cut and mitred to suit layout. Individual panels to be clearly labeled for easy identification and assembly.

.2 Submit shop drawings to Consultant for review prior to prefabrication and shipping.

2.8 OVERLAY INSULATION: CGF POLYISOCYANURATE

.1 Overlay Insulation Type: Closed-cell polyisocyanurate foam rigid insulation boards to ASTM C1289 Type II, Class 1, 2, or 3, Grade 2, manufactured with HCFC-free blowing agent (Pentane) bonded to inorganic coated glass facers on top and bottom surfaces during manufacturing process:

.1 Approved and listed for use with Noncombustible and FM Class 1 rated insulated roof assemblies to FM Standard 4450 on Insulated Steel Deck Roofs and FM Standard 4470 on Roof Covers for durability, wind uplift, and fire resistance.

.2 Meet physical property requirements of ASTM C 289 and CAN/ULC S704.

.3 Compressive strength: Min. 138 kPa (20 psi) to ASTM C1621, Grade 2.

.4 Dimensional stability change of less than 2% conforming to ASTM D2126.

.5 Conformity to CAN/ULC S704 and Can/ULC S770 for Long Term Thermal Resistance (LTTR) in polyisocyanurate insulation.

.6 Acceptable Products:

.1 ACFoam III polyisocyanurate by Atlas Roofing Corp.,
.2 Enrgy 3 CGF polyisocyanurate by Johns Manville,
.3 Paratherm CG polyisocyanurate by Siplast,
.4 Sopra-ISO Plus polyisocyanurate by Soprema.

.1 Overlay Insulation Thickness:

.1 On Roof Areas 1.1, 2.1 and 3.1: Continuous flat layer of polyisocyanurate insulation boards 76mm (3.0") in thickness, with butt lapped joints.

.2 Base Insulation Panel Size:

.1 Tapered Panels: Maximum 1.22m x 1.22m (4' x 4') regardless of attachment method.

.2 Flat Panels: Maximum 1.22m x 1.22m (4' x 4') when adhered to substrate.

.3 Tapered Drainage Sumps: Tapered closed-cell polyisocyanurate foam rigid insulation boards with to inorganic coated glass facers.

.1 At Roof Drains: Delete section of overlay insulation to accommodate tapered sump:

.1 On Roof Areas 1.1, 2.1 and 3.1: Size to be 2.44m x 2.44m (8' x 8') and tapered from 76mm (3.0") at outer edge down 2% to a 610mm x 610mm (2' x 2') central flat area 57mm (2.25") thick.

.4 Tapered Insulation Supply:

.1 All tapered insulation panels, drain sumps, and crickets to be factory cut and mitred to suit layout. Individual panels to be clearly labeled for easy identification and assembly.

.2 Submit shop drawings to Consultant for review prior to prefabrication and shipping.

2.9 COVER BOARD

.1 Gypsum Cover Board: Dimensionally stable, fire resistant, gypsum based roof board with treated core for moisture and mould resistance; size no larger than 1.22m x 2.44m (4' x 8'):

.1 Glass-Mat Faced: Siliconized gypsum roof board with factory laminated glass-mat facer meeting ASTM C 1177. Boards with factory applied primer preferred.

.1 6mm (1/4") DensDeck Prime with EONIC technology by Georgia-Pacific,
.2 6mm (1/4") DEXcell FA Glass Mat Roof Board by National Gypsum (JM).

.2 OR Unfaced, Fibre Reinforced: Gypsum roof board with homogenous composition reinforced with cellulose fibres meeting ASTM C 1278.

.1 6mm (1/4") CGC Securock Gypsum-Fibre Roof Board by CGC Inc.,
.2 6mm (1/4") Securock Gypsum-Fibre Roof Board by USG.

.2 OR Asphaltic Cover Board: Dimensionally stable, laminated board, max size 1.2m x 2.4m (4'x8'):

.1 Multi-ply, semi-rigid asphaltic roofing recovery board composed of a mineral fortified asphaltic core formed between two asphaltic saturated fibreglass liners.

.1 6.4mm (1/4") Protectoboard by IKO,
.2 6.4mm (1/4") Sopraboard by Soprema.

.3 OR Base Sheet Laminated Asphaltic Board:

.1 4.8mm (3/16") thick multi-ply, semi-rigid asphaltic roofing recovery board composed of a mineral fortified asphaltic core formed between two asphaltic saturated fibreglass liners with 2.2mm (3/32") factory laminated non-woven polyester reinforced SBS modified bitumen base sheet membrane conforming to CSA A123.23-15. Panel boards to have a membrane duo selvedge edge width of 89mm (3.5") for overlapping onto next board.

.1 7.0mm (9/32") 2-1 Soprasmart Board by Soprema.

.2 Laminated Asphaltic Board Size: Flat panels, max. size 0.91m x 2.44m (3' x 8').

.3 Laminated Asphaltic Board Surface: Thermofusible polyolefin film top surface.

.4 Cover Strips For Base Sheet Laminated Panels: At insulation panel end joints, 330mm (13.0") wide strips of 2.5mm (3/32") thick base sheet membrane with composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-15.

.1 Self-adhered Application: Top surface to be lightly sanded with bottom surface covered with silicone release film; SopraLap Stick by Soprema.

.2 Heat Welded Application: Top surface and bottom surface covered with thermofusible polyfilm; SopraLap by Soprema.

2.10 MODIFIED BITUMEN MEMBRANE: SELF-ADHERED BASE & TORCH CAP

.1 Two (2) ply modified bitumen membrane system for specified System Warranty.

.2 Base Sheet Field Membrane:

.1 Soprema Option: Factory laminated to cover board.

.2 JM & Siplast Option: Self-adhered grade modified bitumen; minimum 2.5mm thick, with minimum 180 g/m^2 non-woven polyester scrim, random glass fibre mat or composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-15. Top surface light sanded or covered with thermofusible polyolefin film and self-adhesive bitumen bottom surface covered with polyolefin or silicone release film.

.1 For Ten (10) Year System Warranty:

.1 DynaGrip P/SA by Johns Manville,
.2 Paradiene 20 SA by Siplast,

.3 Base Sheet Field Membrane:

.1 Self-adhered grade modified bitumen; minimum 2.5mm thick, with minimum 180 g/m^2 non-woven polyester scrim, random glass fibre mat or composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-15. Top surface lightly sanded or covered with thermofusible polyolefin film and self-adhesive bitumen bottom surface covered with polyolefin or silicone release film.

.1 For Ten (10) Year System Warranty:

.1 DynaGrip P/SA by Johns Manville,
.2 Paradiene 20 SA by Siplast,
.3 Sopraflash Flam Stick by Soprema (Use Winter Grade at -10 to 10°C).

.4 Base Sheet Flashing:

.1 Self-adhered grade modified bitumen; minimum 2.5mm with minimum 180 g/m^2 non-woven polyester scrim, random glass fibre mat, or composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-15. Top surface lightly sanded or covered with thermofusible polyolefin film and self-adhesive bitumen bottom surface covered with polyolefin or silicone release film.

.1 For Ten (10) Year System Warranty:

.1 DynaGrip P/SA by Johns Manville,
.2 Paradiene 20 SA by Siplast,
.3 Sopraflash Flam Stick by Soprema (Use Winter Grade at -10 to 10°C).

.5 Cap Sheet Field Membrane:

.1 Torch grade modified bitumen; minimum thickness 3.3mm, with minimum 250 g/m^2 non-woven polyester scrim, random glass fibre mat, or composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-15. Top surface to have No. 11 ceramic granules and torch grade bitumen bottom surface

covered with thermofusible polyolefin film or lightly sanded. Colour of granules to be chosen by Owner from Contractor supplied samples of standard colours.

.1 For Ten (10) Year System Warranty:

.1 DynaWeld 250 Cap by Johns Manville,
.2 Paradiene 30 TG by Siplast,
.3 Sopralene Flam 250 GR by Soprema.

.6 Cap Sheet Flashing:

.1 Torch grade modified bitumen; minimum thickness 3.3mm, with minimum 250 g/m^2 non-woven polyester scrim, random glass fibre mat, or composite reinforcement, impregnated and coated with SBS modified bitumen, and conforming to CSA A123.23-15. Top surface to have No. 11 ceramic granules and torch grade bitumen bottom surface covered with thermofusible polyolefin film or lightly sanded. Colour of granules to be chosen by Owner from Contractor supplied samples of standard colours.

.1 For Ten (10) Year System Warranty:

.1 DynaWeld 250 Cap by Johns Manville,
.2 Parafor 30 TG by Siplast,
.3 Sopralene Flam 250 GR by Soprema.

2.11 LIQUID APPLIED PMMA RESIN FLASHINGS

.1 Flexible, polymethylmethacrylate (PMMA) based resin system combined with a thixotropic agent for use in combination with fleece fabric to form a monolithic, reinforced flashing membrane:

.1 SeamFree PMMA resin system by Johns Manville,
.2 Parapro 123 PMMA resin flashing system by Siplast,
.3 Alsan-RS PMMA resin flashing system by Soprema.

.2 PMMA Roof Flashing Components:

.1 PMMA Primer for vertical concrete, wood, and plywood substrates: SeamFree Flashing Primer by Johns Manville, Pro Primer W by Siplast, or Alsan-RS 276 Primer by Soprema.

.2 PMMA Primer for horizontal concrete substrates: SeamFree Primer and Metal Primer by Johns Manville, Pro Primer T by Siplast, or Alsan-RS 276 Primer by Soprema.

.3 PMMA Primer for asphaltic surfaces and substrates: SeamFree Primer by Johns Manville, Pro Primer R by Siplast, or Alsan-RS 222 Primer by Soprema.

.4 PMMA Resin: Polymethylmethacrylate based resin combined with a thixotropic agent. Where applicable, resin colour to be chosen by Owner from standard pallet of available colours from manufacturer: SeamFree PMMA resin by Johns Manville, PMMA resin by Siplast, or Alsan-RS 260 LO Field and Flash resin by Soprema.

.5 PMMA Catalyst: SeamFree Catalyst by Johns Manville, Pro Catalyst by Siplast, or Alsan-RS LO Catalyst Powder by Soprema.

.6 Thixotropic agent: Liquid additive used to increase viscosity of PMMA-based resin products, allowing resins to be applied over vertical or sloped substrates: SeamFree Thixo Liquid by Johns Manville, Pro Thixo by Siplast, or Alsan-RS Catalyst Agent by Soprema.

.7 Fleece reinforcement: Non-woven, 110 g/m², needle punched, polyester fabric reinforcement as supplied by system manufacturer: SeamFree Scrim by Johns Manville, Pro Fleece by Siplast, or Alsan-RS Fleece by Soprema.

.8 Colour finish resin: Pigmented, polymethylmethacrylate (PMMA) based resin for use as a wearing coat over field of finished roof membrane and to provide a desired colour finish: SeamFree Top Coat by Johns Manville, Pro Color Finish by Siplast, or Alsan-RS 281 Finish by Soprema. Colour to be chosen by Owner from standard pallet of available colours from manufacturer.

.9 Anti-Skid Surfacing: Ceramic granules suitable for broadcast into horizontal PMMA based wearing layer: SeamFree Textured Traffic Coat by Johns Manville, No. 11 Granules by Siplast, or Alsan-RS Surfacing Aggregate by Soprema. Colour to be chosen by Owner from standard palette of available colours.

.3 PMMA Accessories:

.1 Cleaning solution/solvent: Clear solvent used to clean and prepare transition areas of in-place catalyzed resin to receive subsequent coats of resin and to clean substrate materials to receive resin: SeamFree Cleaner by Johns Manville, Pro Prep by Siplast or Alsan-RS Cleaning Agent by Soprema.

.2 Preparation paste: PMMA based paste used for remediation of depressions in substrate surfaces or other irregularities: SeamFree Joint/Repair Paste by Johns Manville, Pro Paste Resin by Siplast or Alsan-RS Paste by Soprema.

.3 Repair mortar: Two component, PMMA based, aggregate filled mortar used for remediation of depressions or patching concrete substrates: SeamFree Joint/Repair Paste by Johns Manville, Pro Repair Mortar by Siplast or Alsan-RS Repair Mortar by Soprema.

.4 Tape: White, flexible, coated cotton cloth tape designed for treatment of insulation panel joints, deck/wall transitions and joints in flashing substrates: SeamFree Primer by Johns Manville, Pro Tape by Siplast or approved equal from Soprema.

2.12 MISCELLANEOUS INSULATION

.1 Batt Insulation: Non-combustible, water resistant, vapour permeable, semi rigid mineral wool batt insulation made from slag and basalt rock, conforming to CAN/ULC S702-09 with a density of 45 kg/m^3 (2.8 lb/ft^3).

.1 Rockwool AFB (Acoustical Fire Batt) by Rockwool Inc.

.2 Extruded Polystyrene Insulation: Closed cell, Type IV (4) extruded expanded polystyrene foam insulation boards with continuous skin surface on top face and back meeting requirements of CAN/ULC S701. Minimum thickness 25mm (1.0").

.1 Foamular 350 or 400 series XPS by Owens Corning (Light Pink),
.2 Styrofoam Brand Roofmate XPS insulation by Dow (Light Cyan),
.3 Sopra-XPS 35 insulation by Soprema (Light Orange).

2.13 FASTENERS, PLATES & FASTENING BARS

.1 All fasteners and plates to meet requirements of Factory Mutual Global 4470 Standard for wind uplift and corrosion resistance in roofing.

.2 Wood to steel, wood to wood or steel to steel:

.1 Tru-Fast Ultra Solid Stainless Steel fastener or equal approved by membrane Manufacturer, to penetrate substrate by minimum 19mm (3/4").

.3 Wood/steel to concrete or concrete block:

.1 Perma-Grip Tap Grip HD Truss Head fastener with Perma-Coat Z3 corrosion protection or equal approved by membrane Manufacturer, to penetrate substrate by 32mm (1 1/4").

.2 Tru-Fast Tap Grip HD Truss Head fastener with Perma-Coat Z3 corrosion protection to penetrate substrate by 32mm (1 1/4").

.4 Steel/aluminum to aluminum:

.1 Tru-Fast DP with Trucote PC-3 corrosion protection fastener c/w EPDM galvanized steel sealing washers or equal approved by membrane Manufacturer, to penetrate substrate by 19mm (3/4").

.5 Termination bar for membrane:

.1 Extruded aluminum, 1.5mm (0.060") thick x 25mm (1") wide x 3.05m (10') long with 6mm x 9.5mm (1/4" x 3/8") slotted holes on 203mm (8") o/c. Acceptable material: TB-120 aluminum termination bar by Tru-Fast or equal approved by membrane Manufacturer.

.6 Termination bar fastener for wood, steel or aluminum:

.1 Tru-Fast Ultra Solid Stainless Steel fastener to penetrate substrate by 19mm (3/4") c/w EPDM galvanized steel sealing washers or Construction Fasteners Inc. Woodgrip #14 screw complete with Sentri coating on threads, Chromagard colour match head and EPDM washer, or equal approved by membrane Manufacturer,

.7 Termination bar fastener for concrete or masonry:

.1 Tru-Fast Tap Grip Truss Head fastener with Perma-Coat Z3 corrosion protection or equal approved by membrane Manufacturer, to penetrate substrate by 32mm (1 1/4") c/w EPDM galvanized steel sealing washers.

.8 Pre-painted metal flashing to steel or wood:

.1 #14 Colormate fasteners by Leland Industries, Construction Fasteners Inc. Woodgrip #14 screw complete with Sentri coating on threads and Chromagard colour match heads with EPDM washer, or equal approved by membrane Manufacturer, to penetrate substrate by minimum 19mm (3/4").

.9 Membrane to wood:

.1 Galvanized round top roofing nails with minimum 25mm (1") diameter heads or plate and head combination, to penetrate substrate a minimum 32mm (1 1/4").

2.14 ROOFING ACCESSORIES

.1 Roofing accessories to be manufactured from spun aluminum or copper as required, and complete with removable caps where applicable. Unless otherwise designated by Consultant, pitch pockets are strictly prohibited. All units are to have foamed in place closed cell urethane foam insulation sprayed into unit at plant under controlled conditions. Flanges to be primed with rubberized asphalt compatible primer. Supply roof drains with control flow weirs and install weirs only at existing roof drains currently using control flow.

.1 Retrofit Roof Drain Insert: RD-4C-RR-FLAT by Thaler with T-7 Control Flow Weirs,
.2 Plumbing Stack Flashing: SJ-26A insulated stack by Thaler Metal Industries Inc.,

.3 Tall Plumbing Stack Flashing: SJ-38A insulated stack by Thaler Metal Industries Inc.,
.4 Tallcone/B-Vent Flashing: MEF-4A by Thaler Metal Industries Inc.,
.5 Hot Pipe Flashing: MEF-3A by Thaler Metal Industries Inc.,
.6 Guy Wire Support: ARS-300 by Thaler Metal Industries,
.7 Antenna Support (Round HSS): ARS-133 b Thaler Metal Industries,
.8 Conduit penetrations: MEF-2A Gooseneck by Thaler Metal Industries,
.9 Gasline Penetrations: MEF-AE1-12 to suit diameter by Thaler Metal Industries,
.10 Walkway Pavers: Pedslab by Brooklin Concrete and to IRC Detail.

.2 Membrane Tools: Use tools, hand rollers, weighted rollers, squeegees, etc. as recommended by membrane Manufacturer for installation of their product to ensure compatibility and avoid damaging of pressure sensitive membranes.

.3 Retro Roof Drains: Copper retrofit drain inserts using U-Flow connectors. Retrofit roof drains shall be RD-4C-RR-FLAT by Thaler Metal Industries, complete with cast aluminum domes and U-Flow seal connectors.

.4 Pourable Sealer: Elastomeric pourable sealer as recommended by manufacturer.

.5 Sealing Compound: Rubberized Sealing Compound to CAN/CGSB-37.29, rubber asphalt type Sopramastic by Soprema, MBR Utility Cement by Johns Manville, or PS-209 Elastomeric Sealant by Siplast.

.6 Spray Urethane foam: One or two component polyurethane spray foam insulation. Use low pressure expanding spray foam insulation at force sensitive areas.

.7 Fire Rated Spray Foam: Two component, fire rated (2 Hour) polyurethane spray foam insulation; Fire Barrier FIP-1Step by 3M.

.8 Firestop Sealant: One component, neutral cure silicone sealant meeting ASTM E84 and CAN4-S115M, designed for firestop applications at joints and through-wall penetrations; TREMstop Fyre-Sil siliconce sealant (red) by Tremco or IRC Group approved equal.

.9 Cold Applied Mastic: Trowel grade, asbestos-free plastic cement composed of bitumen, solvents, and mineral fillers for use with bituminous waterproofing membranes:

.1 MBR Utility Cement by Johns Manville,
.2 PA-828 Flashing Cement by Siplast,
.3 Sopralastic 110 by Soprema.

.10 Sheet Metal Flashings and Trim: As per Section 07 62 00 and fabricated from 24 gauge prepainted steel. Hook strips to be 2 gauges heavier than flashings. Colour to match existing.

.11 Sealants: As per Section 07 92 00. Colour of sealants to match component applied against.

.12 Membrane Walkway Pads: Surface granules to contrast colour of finished cap sheet.

.1 Soprema: 5mm (0.20") thick SBS modified bitumen membrane roll 1.0m (39.4") wide with non-woven polyester fabric reinforcement and no selvedge edge. Top surface covered with Black coloured ceramic granules and bottom surface lightly sanded; Soprawalk by Soprema.

.2 Siplast: 5.5mm (0.22") thick SBS modified bitumen membrane roll 762mm (30") wide with non-woven polyester fabric reinforcement. Top surface covered with Grey-Brown coloured ceramic granules and bottom surface covered with perforated plastic film; Paratread by Siplast.

.3 Johns Manville: Min. 6.4mm (0.25") thick SBS modified bitumen membrane squares 813mm x 813mm (32" x 32") with non-woven polyester fabric reinforcement. Top and bottom surface covered with White or Black coloured ceramic granules; DynaTred or DynaTred Plus by JM.

.13 Sacrificial Protection Membrane: Self adhered or cold applied squares of matching cap sheet membrane under all bases and footings of rooftop supports and equipment set on roof membrane. Custom cut to suit base or footing size with min. 51mm (2.0") extension on all sides.

PART 3 - EXECUTION

3.1 WORKMANSHIP

.1 Perform roofing work which is not specifically covered by these Specifications in accordance with applicable industry standards and good roofing practices of:

.1 Canadian Roofing Contractors Association (CRCA),
.2 Canadian Modified Bitumen Manufacturer's Association's recommendations,
.3 Manufacturer's preprinted and published technical specifications,
.4 ULC Design No. S-107 criteria,
.5 Factory Mutual Global design criteria FM 1-28 and 1.49,
.6 Compliance with local fire insurance requirements,
.7 Compliance with local building codes.

.2 Procedures for application of materials should be in accordance with Manufacturer's printed instructions and recommendations.

.1 Advise Consultant of adjustments to specified roofing procedures recommended by Manufacturer or due to site conditions.

.2 Written approval by Consultant is required to make any adjustments to specified procedures.

.3 All work to be carried out in accordance with drawings, and specifications provided.

.1 All supplied drawings and details constitute acceptable installations. Any deviance from these details must first approved by Consultant prior to installation.

.4 While work is in progress, all steps must be taken to safeguard building from damage due to weather, fire, and structural overloading.

.5 Examine underside of roof deck when installing mechanical fasteners, where possible, to avoid accidental damage to existing services.

.6 Apply each part of roofing system when surfaces are free of moisture for successful application.

.7 Do priming for asphalt roofing in accordance with CAN/CGSB 37-GP-15M and as recommended by membrane manufacturer.

.1 Adhesives or sealants and liquid primers will not be applied until surfaces are dry.

3.2 EXAMINATION OF SITE CONDITIONS

.1 Examine existing site conditions and substrates upon which work of this section is dependent. Report to Consultant in writing any defects or discrepancies. Commencement of work implies acceptance of existing conditions and assumption of full responsibility for finished condition of work.

.2 Defective work resulting from application to unsatisfactory conditions will be considered responsibility of those performing work of this section.

3.3 PROTECTION

.1 Adjacent Buildings and Tenants:

.1 Take care to not damage any adjacent or closely located buildings and all related grounds in vicinity of Work during roofing operations.

.2 Protect against infiltration of dust, debris, and other such contaminants and occurrences.

.3 Locate garbage chutes to minimize exposure to adjacent building, its grounds, and its occupants.

.4 Protect walls by means of tarpaulins where garbage chutes and hoisting equipment are located and operated.

.5 Cover dumpsters and bins to prevent debris from blowing away.

.6 Do not use spray installation methods on days with significant wind.

.7 Damage to adjacent buildings, grounds, and vehicles to be rectified by Contractor at no additional cost.

.2 Adjacent Roof Areas and Completed Work:

.1 Take care not to damage any previously performed work or existing roofs.

.2 If work area is accessed across existing roof areas, provide protection to existing roof system. Use continuous Protection Walkways consisting of 19mm (0.75") plywood sheathing over 38mm (1.5") extruded polystyrene insulation.

.3 Protect newly installed roof work from traffic and damage using Protection Walkways where warranted by traffic requirements.

.4 Comply with any precautions deemed necessary by Consultant.

.3 Material Storage:

.1 Deliver all materials to site in undamaged condition with original manufacturer's label intact and clearly visible for easy verification of specified materials.

.2 Provide security fencing at all times for equipment and materials stored at ground level.

.3 Protect rolls from flattening by storing on ends on skids.

.4 Whenever possible, store roof materials off roof at designated, protected storage area.

.4 Structural Integrity of Roof:

.1 Use only equipment that will not adversely affect, damage, or otherwise alter roof deck.

.2 DO NOT STRUCTURALLY OVERLOAD ROOF DECK WITH STORAGE PILES OF STONE BALLAST AND CONCRETE PAVERS ON ROOFTOP.

.3 Ensure weight of paver and stone ballast is adequately distributed across roof at all times, or temporarily remove ballast from roof and store at ground level staging area.

.4 Immediately separate and reorganize pallets of stacked concrete pavers hoisted or carried to roof. Spread Dead Load out across roof and concentrate loading over structural members. Expect roofs to have less reserve load capacity in winter.

.5 Inclement Weather:

.1 Immediately halt work during inclement weather, including but not limited to rain fall, snow, drizzle, fog, and hail. Protect exposed building substrates, open building cavities, and moisture sensitive products.

.2 At end of each work day or when stoppage occurs due to inclement weather, provide suitable protection from elements for completed work and materials out of storage.

.3 Place in to heated storage any temperature sensitive materials such as membranes, adhesives, and sealants when temperature falls below 5 °C (40 °F).

.4 Protect all vents, stacks, drains and related deck openings from inclement weather and contamination from debris.

.6 Roof Safety, Access, and Egress:

.1 Use warning signs and barriers. Maintain in good order until completion of work.

.2 Access to roof to remain unobstructed.

.3 Keep doorways and fire routes clean and clear of any obstacles.

.4 Protect and safeguard all man-size or larger openings in roof deck with warning flags and suitable temporary barriers or railings.

.7 Damage and Defective Work:

.1 Avoid use on roof of any petroleum based and other chemical products that are corrosive and/or damaging to membrane. Provide protection to membrane from any accidental spills or drips. Any damage to roof system caused by non-compatible products to be cut out and replaced at no cost to Owner.

.2 Investigate and examine any damage caused by execution of Work for this contract, and repair or replace with new materials to match original finish. Restoration and repair work to be reviewed and approved by Consultant.

.3 Defective Work resulting from application of material on unsatisfactory surface or substrate to be rectified by Contractor at no additional cost.

.4 Defective Work resulting from improper installation of materials to be rectified by Contractor at no additional cost.

3.4 SURFACE PREPARATION

.1 Preparation:

.1 Examine all roof decks and existing site conditions to ensure that they are in satisfactory condition for commencement of work in this section.

.2 Divide work into logical sections and only tear-off as much existing roof as can be made watertight in same working day to prevent damage to building interior.

.3 Prior to removal of any roof components, all existing openings (drains, vents, air intakes, etc.) to be covered or plugged to prevent any debris or contaminate from entering

building below. All such coverings are to be removed at end of each working day and reinstalled prior to next day's start up.

.4 Disconnect and reconnect Electrical Services and Mechanical Equipment as required.

.1 Rooftop equipment requiring disconnection and reconnection to be responsibility of Contractor unless otherwise specified elsewhere in contract documents or in consultation with Owner.

.2 Include for modifications required to existing rooftop curbs and supports and related cabling, conduits, cable trays, ductwork, etc. as required to suit height of new finished roof system.

.2 Existing Roof Removal:

.1 On Roof Areas 1.1, 2.1 and 3.1: Remove existing roof components down to expose existing vapour retarder membrane and gypsum board in preparation for installation of new roof system.

.1 Remove and dispose loose or debonded sections of existing vapour retarder membrane from roof deck.

.2 Include in Bid Price for localized repair and replacement of existing vapour retarder membrane and gypsum board on 10% of each roof area.

.2 At areas designated for roof removal and replacement, remove existing projection and perimeter metal flashings, ballast, gravel, roof membrane and flashings, insulation, vapour retarder and flashings, and old appurtenances. Dispose removed items to an appropriate site for building material waste.

.3 All unused and abandoned pitch pockets, vents, curbs, sleepers, projections, etc. are to be removed from designated areas and disposed of.

.1 Obtain verification and authorization from Client before removing and disposing of any suspected unused or abandoned projections.

.2 Install new roof decking as required to close off any deck openings prior before proceeding with new roof system installation.

.3 Where existing insulation is exposed, examine insulation for any damage and deterioration required to be cut out and repaired with new compatible materials.

.3 Substrate Review:

.1 Exposed roof deck surfaces to be reviewed by Contractor with Consultant. Ensure to review entire roof area to satisfy any warranty requirements of Manufacturer of new roof membrane system.

.1 Notify Consultant of review at least forty-eight (48) hours prior to site review.

.2 Report any anomalies found that may impact soundness and structural integrity of roof system to Consultant and Owner immediately. Areas with damaged decking must be replaced or repaired before any further work may take place on that particular section.

.3 Ensure roof decks are firm, straight, smooth, dry, free of snow, ice, frost, oils, or other contaminants. Decking must be properly cleaned of any dust and debris prior to proceeding with new installation. Test whether specified adhesion to deck will be obtained where required.

.4 Prior to application of vapour retarder, examine deck and ensure any defect of level or construction is correct before proceeding with work.

.5 Verify that roof drains have been installed at proper elevations relative to finished roof surface to allow for sufficient drainage of roof surface.

.6 Review securement of existing projections and equipment (electrical conduit, gas lines, etc.). If inadequate securement is found, inform Consultant and halt work around that area until situation is rectified.

.7 Review securement of existing plywood sheathing, wood blocking, and cant strips. Do not install new roofing unless such items are adequately secured to withstand stresses imposed by thermal movement of new roofing components.

3.5 LOCALIZED REPAIR OF EXISTING VAPOUR RETARDER & DECK OVERLAY

.1 On Roof Areas 1.1, 2.1 and 3.1: Examine and review surface of exposed existing vapour retarder membrane and gypsum deck overlay board for damage and deterioration in consultation with Observer. All damaged sections are to be cut out and repaired with new material in logical rectangular sections, centered over existing metal deck flutes.

.1 Allow for existing vapour retarder repair on 10% of each roof area in Bid Price. Provide a Unit Price to add to or delete from Contract Price for localized repair of existing mopped vapour retarder, per square foot.

.2 At repair sections, neatly cut out sections of discovered wet and/or damaged sections of existing vapour retarder and/or deck overlay board in logical rectangular shapes as required. Clean and prep exposed existing metal deck.

.3 Install new deck overlay board with a low rise polyurethane roofing adhesive at repair sections. Thickness of new deck overlay board to match existing for flush fit. Cut new board to achieve a tight fit into existing cut-out. Prime exposed surface of new deck overlay board and existing membrane around outer perimeter edge of each cut-out section

.4 Restore existing vapour retarder with one (1) ply of self-adhered modified bitumen base sheet membrane. Install new vapour retarder patch across entire repair area and carry membrane up, on to existing, vapour retarder membrane around perimeter of cut-out area by a minimum of 102mm (4”). Ensure good bond to existing membrane.

3.6 CARPENTRY

.1 On Roof Areas 1.1, 2.1 and 3.1: Refer to drawings for carpentry requirements. Install wood blocking, plywood, and cant strips to accommodate required slopes, insulation, membranes, and finish sheet metal and trim. Carpentry alterations to be performed to accepted trade practices.

.1 Mechanically fasten new 13mm (0.5”) plywood sheathing or 6mm (0.25”) Densdeck Prime roofing board over all EPDM membrane or adhesive left in place at roof perimeters, sleepers, curbs, and overtop of parapets.

.2 Add new wood blocking as necessary to maintain minimum heights at perimeters and roof curbs.

.1 At Existing Roof Curbs: Minimum height to be 203mm (8”) above finished roof membrane and at least 51mm (2.0”) higher than adjacent roof perimeters, up to a maximum 460mm (1’-6”) above finished roof membrane.

.1 At metal roof curbs: Where extension height required is greater than 102mm (4.0”), install new galvanized metal C-Channel, prefab curb extension, or prefab curb adapter or reducer to raise curb as required to suit new height.

.2 At Existing Parapets: Minimum height to be 102mm (4") above finished roof membrane, unless otherwise indicated on detail drawings.

.3 Replace any damaged or deteriorated wood at perimeters and projections with new construction grade spruce wood blocking or exterior grade plywood, good one side, to match existing. Determination of suitability to reuse or replace existing wood to be by Observer.

.1 Ensure existing wood blocking remaining at perimeters and curbs is securely fastened to existing substrate before installing new wood blocking and plywood.

.4 Install wood blocking as required to ensure that all roof curbs and sleepers supporting HVAC and mechanical equipment are level.

.5 Wood to wood, wood to metal, wood to masonry or concrete to be secured at 305mm (12") on center with alternating fasteners staggered.

.1 Avoid protruding fastener heads. Where possible, all fasteners to be flush with or slightly sunk below surface of wood blocking being secured.

.6 All wood blocking and plywood to be considered part of roof, and to be made watertight by end of each work day to eliminate moisture infiltration into roof system.

3.7 VAPOUR RETARDER

.1 On Roof Areas 1.1, 2.1 and 3.1: Install one (1) ply modified bitumen vapour retarder with flashings as per Manufacturer's written guidelines. Installation to be free of blisters, wrinkles and fish-mouths.

.1 Vapour retarder must be installed on same day as primer application.

.2 Do not install when it is raining or snowing, on wet/humid surfaces, or when inclement weather is expected shortly.

.3 Deck substrate must be clean, dry, and free of dirt, dust, grease, or other contaminants.

.2 Primer Installation:

.1 Prime exposed surfaces to receive vapour retarder membrane and flashings. Apply primer to clean and dry surfaces with a paint brush, roller or sprayer at temperatures 0°C (31°F) and above.

.2 Apply primer at a coverage rate between of 0.1 to 0.5 L/m^2 (0.25 to 1.22 gallon/100 ft^2) as recommended by membrane manufacturer for surface type.

.3 Ensure all substrates are fully covered with primer with no areas bare and avoid pooling.

.4 Allow primer to dry completely prior to installation of new vapour retarder membrane.

.3 Field Membrane Installation:

.1 Begin application at bottom of roof slope. Position membrane rolls for alignment and unroll to apply membrane. Do not immediately remove release sheet on self-adhered membranes until satisfied with alignment.

.2 Overlap each preceding row of membrane sheet by min. 76mm (3") on side laps and by a min. 152mm (6") at end laps. Stagger end laps of adjacent rows by at least 305mm (12").

.3 Use a 34kg (75lb) roller to press membrane down onto substrate including laps. Finish by aligning edge of roller with lower end of side laps and rolling up membrane.

.1 Do not cut membrane to remove trapped air bubbles. Squeeze out air bubbles by pushing roller to edge of laps.

.4 All side and end laps of base sheet to be heat welded to satisfaction of Observer.

.5 Carry vapour retarder up all vertical surfaces at parapets and projections a minimum of 152mm (6") to allow for encapsulating of new insulation with roof membrane as indicated on detail drawings.

.6 INSTALL MEMBRANE GUSSET REINFORCEMENT AT ALL INSIDE AND OUTSIDE CORNERS ON TOP OF BASE SHEET MEMBRANE.

.4 Membrane Flashing Installation:

.1 Ensure all substrates are fully covered with primer leaving no areas bare and allow to completely dry.

.2 Install membrane flashing onto substrate in strips one membrane roll wide (40" or 1m) and extend over perimeters as shown on detail drawings

.3 Field measure and cut flashing membrane to length required for flashing at each detail and roll up for installation.

.4 Once aligned in position, peel back a portion of release sheet and press membrane onto substrate for initial adherence. Hold membrane flashing tight and peel back release sheet by pulling diagonally.

.5 Overlap each preceding flashing sheet by min. 76mm (3") on side laps and align bottom edge to a chalk reference line along base sheet membrane. Lap membrane flashing onto field membrane a minimum 102mm (4").

.6 Use a weighted roller to press membrane down onto substrate including laps. Finish by aligning edge of roller with lower end of side laps and rolling up membrane.

.1 Do not cut membrane to remove trapped air bubbles. Squeeze out air bubbles by pushing roller to edge of laps.

.7 All side and end laps of base sheet to be heat welded to satisfaction of Observer.

3.8 BASE INSULATION

.1 On Roof Areas 1.1, 2.1 and 3.1: Install a layer of base insulation boards over prepared vapour retarder in accordance with insulation manufacturer's instructions.

.2 Where applicable, install tapered base insulation according to layout on reviewed shop drawings and roof plan drawing(s). Report any discrepancies to Consultant before proceeding.

.3 Do not install more insulation board than can be covered with membrane by end of work day or before onset of inclement weather.

.4 Do not install warped, curled, damaged, or wet insulation boards.

.5 Install base insulation boards in parallel rows and butt tightly together with joints staggered by one half board length.

.1 Where multiple layers of insulation are required, stagger all board joints at least 305mm (12") between rows.

.6 On Roof Areas 1.1, 2.1 and 3.1: Adhere base insulation to substrate using continuous beads of polyurethane foamable roofing adhesive. Follow manufacturer's installation instructions.

.1 Install continuous ribbons of polyurethane adhesive in parallel lines to meet CSA A123.21 requirements. Use a "Z" pattern over an application area no larger than 3.66m (12'-0") at a time. Minimum securement pattern:

.1 Adhesive ribbons to be no less than 13mm (1/2") to 19mm (3/4") in width at time of application.

.2 Parallel rows of adhesive ribbons to be no more than 305mm (1'-0") apart in field of roof.

.3 Along 3.05m (10'-0") wide perimeter zones, rows of adhesive to be no more than 152mm (6") apart.

.4 Rows of adhesive to be no more than 102mm (4") apart in corner zones.

.2 Do not allow rising foam adhesive to skin-over. Place insulation panels immediately into wet adhesive.

.3 Walk-in board panels to ensure positive adhesion of substrate across full panel. Repeat walk-in every five (5) minutes until insulation is firmly attached.

.7 Custom cut insulation boards as required at perimeters and projections to suit. Field cuts to be neat and provide tight fit around penetrations, projections, and at perimeters.

.8 For uneven surfaces, trimming or slitting of boards may be necessary. Fill all gaps larger than 3mm (1/8") with insulation slivers or continuous spray polyurethane foam insulation to ensure thermal barrier continuity.

3.9 OVERLAY INSULATION

.1 On Roof Areas 1.1, 2.1 and 3.1: Install a continuous layer of overlay insulation boards over base insulation in accordance with insulation manufacturer's instructions.

.2 Where applicable, install tapered overlay insulation according to layout on reviewed shop drawings and roof plan drawing(s). Report any discrepancies to Consultant before proceeding.

.3 Do not install more insulation board than can be covered with membrane by end of work day or before onset of inclement weather.

.4 Do not install warped, curled, damaged, or wet insulation boards.

.5 Install overlay insulation boards in parallel rows and butt tightly together with joints staggered by one half board length.

.1 Where multiple layers of insulation are required, stagger all board joints at least 305mm (12") between rows.

.6 On Roof Areas 1.1, 2.1 and 3.1: Adhere overlay insulation to substrate using continuous beads of polyurethane foamable roofing adhesive. Follow manufacturer's installation instructions.

.1 Install continuous ribbons of polyurethane adhesive in parallel lines to meet CSA A123.21 requirements. Use a "Z" pattern over an application area no larger than 3.66m (12'-0") at a time. Minimum securement pattern:

.1 Adhesive ribbons to be no less than 13mm (1/2") to 19mm (3/4") in width at time of application.

.2 Parallel rows of adhesive ribbons to be no more than 305mm (1'-0") apart in field of roof.

.3 Along 3.05m (10'-0") wide perimeter zones, rows of adhesive to be no more than 152mm (6") apart.

.4 Rows of adhesive to be no more than 102mm (4") apart in corner zones.

.2 Do not allow rising foam adhesive to skin-over. Place insulation panels immediately into wet adhesive.

.3 Walk-in board panels to ensure positive adhesion of substrate across full panel. Repeat walk-in every five (5) minutes until insulation is firmly attached.

.7 On Roof Areas 1.1, 2.1 and 3.1: At all existing roof drain locations, delete a section of overlay insulation in a 2.4m x 2.4m (8' x 8') area centered around each drain.

.1 At each drain location, install a new 2.4m x 2.4m (8' x 8') prefabricated, tapered insulation drain sump over prepared substrate.

.8 Custom cut insulation boards as required at perimeters and projections to suit. Field cuts to be neat and provide tight fit around penetrations, projections, and at perimeters.

.9 For uneven surfaces, trimming or slitting of boards may be necessary. Fill all gaps larger than 3mm (1/8") with insulation slivers or continuous spray polyurethane foam insulation to ensure thermal barrier continuity.

3.10 COVER BOARD

.1 On Roof Areas 1.1, 2.1 and 3.1: Install a continuous layer of cover board panels over existing substrate insulation in accordance with insulation manufacturer's instructions.

.2 Do not install more insulation board than can be covered with membrane by end of work day or before onset of inclement weather.

.3 Do not install warped, curled, damaged, or wet panel boards.

.4 Install panels in parallel rows and butt tightly together with joints staggered by one half board length. Where multiple layers of insulation are required, stagger all board joints at least 305mm (12") between rows.

.1 Cut boards as required to fit snug at all perimeters, walls, and roof projections.

.2 Cut straight lines using proper tools and snap chalk lines.

.3 Cut boards cleanly where slope changes direction. Do not break boards by stepping on them to acquire changes in deck slope.

.5 For Base Sheet Laminated Cover Board: Install continuous ribbons of polyurethane adhesive in parallel lines to meet CSA A123.21 requirements. Use a "Z" pattern over an application area no larger than 3.66m (12'-0") at a time to minimum securement pattern:

.1 Adhesive ribbons to be no less than 13mm (1/2") to 19mm (3/4") in width at time of application.

.2 Parallel rows of adhesive ribbons to be no more than 305mm (1'-0") apart in field of roof.

.3 Along 3.05m (10'-0") wide perimeter zones, rows of adhesive to be no more than 152mm (6") apart.

.4 Rows of adhesive to be no more than 102mm (4") apart in corner zones.

.5 Do not allow rising foam adhesive to skin over. Place roof board panels immediately into wet adhesive.

.6 Walk-in board panels to ensure positive adhesion to substrate across full panel. Repeat walk-in every five (5) minutes until insulation is firmly attached.

.1 For improved adhesion with semi-rigid cover boards, roll cover board panels using weighted roller to press board into expanding adhesive foam.

.2 For improved adhesion with rigid cover boards, temporarily place minimum of four (4) equally spaced weighted pails on each cover board panel and leave for min. ten (10) minutes during rise and set of adhesive foam.

.6 Custom cut boards as required at perimeters and projections to suit. Field cuts to be neat and provide tight fit around penetrations, projections, and at perimeters. For uneven surfaces, trimming or slitting of boards may be necessary.

.7 Ensure all panels are fit tightly together. Fill all gaps larger than 3mm (1/8") with insulation slivers or continuous spray polyurethane foam insulation to ensure thermal barrier continuity of same materials.

.8 With Base Sheet Laminated Panels:

.1 Side Laps: Adhere and heat weld with hot air gun or torch to satisfaction of Observer all side laps of modified bitumen base sheet membrane.

.2 End Joints: Install 330mm (13") wide self-adhered, modified bitumen base sheet cover strips centered over panel end joints. Cover strips to extend a min. of 152mm (6") past each side of end joint.

.3 Ensure all laps and seams in base sheet membrane are well bonded to form a single continuous waterproof membrane barrier.

3.11 MODIFIED BITUMEN MEMBRANE APPLICATION

.1 On Roof Areas 1.3A, 1.3B, 2.1, and 9.1: Install a two (2) ply, SBS modified bitumen membrane system overtop of prepared substrate. Base sheet layer to be self-adhered with self-adhered flashings. Cap sheet layer and flashings to be torch applied.

.1 Soprema Option: Base sheet field membrane factory laminated to Cover Board.

.2 Provide materials from same manufacturer to meet material compatibility and warranty requirements necessary to attain specified roofing manufacturer warranty.

.3 Install membranes in accordance with manufacturer's written instructions and applicable project specific report notes.

.4 Membrane applications to be free of sags, blisters, wrinkles, and fish-mouths.

.5 General Requirements for Application:

.1 Tools, Rollers, & Squeegees: Use membrane manufacture's recommended tools and accessories. Keep tools clean during performance of work and frequently replace application roller tips and squeegee heads with new when clogged.

.2 Surface Review: Apply over wood, metal, gypsum board and concrete decks which are clean, smooth, and free of snow, ice, moisture, and debris. Concrete decks must have all holes filled with quick drying cement and rough patches removed.

.3 Application of Primer: Priming is required for all substrates prior to installation. Avoid pooling primer and allow to completely dry before membrane installation. Drying time will vary according to absorptive qualities of material and ambient weather conditions.

.4 First Roll Starting Point: Base sheet to begin at drain level with side lap aligned to centre of drain. Run rolls perpendicular to slope. Cap sheet to be installed over base sheet covering base sheet overlap. Center of cap sheet to align up with centre of drain.

.5 Relaxing of Roll Membrane: ALL ROLL MEMBRANES ARE TO BE FULLY UNROLLED AND ALLOWED TO RELAX FOR A MIN. OF 15 MINUTES PRIOR TO INSTALLATION. Wait longer in cooler temperatures. Trace zig-zag pattern with torch as recommended by manufacturer over membranes that are covered with thermal-fusible film.

.6 Alignment of Rolls: Completely unroll first roll and align with edge of roof. Reroll membrane from both ends to centre and apply as per specifications.

.7 Staggering of Sheets: End laps between base and cap sheets to be offset a min. of 610mm (24”). Side laps between base and cap sheets to be offset a min. of 305mm (12”), centered alignment preferred. Laps in same membrane layer to be min. 76mm (3”) wide for side laps and min. 305mm (12”) wide for end laps. When salvage side laps of base and cap sheets are unequal, adjust cap roll width occasionally to maintain alignment.

.8 Procedure to Seal Voids: Where voids are created by overlapping rolls of membrane, cut off corner of salvage edge where covered by next roll of material.

.9 Salvage Edge Protection: Granules along edge of membrane to be primed prior to application of adhesive to provide good adhesion of laps.

.10 Membrane Flashings: Base flashings to extend min. 102mm (4”) onto field of roof. Cap flashings to overlap base sheet flashings and extend min. 152mm (6”) onto field or roof. Use wider overlap widths where required by manufacturer for warranty requirements.

.11 Bleed-Out at Seams: When torch applying membrane, provide consistent, continuous bleed-out along all seams, no less 3mm (1/8”) and no greater than 6mm (1/4”) in width.

.12 All Seams: Check all seams in all sheets with a round nosed trowel while work is in progress. Repair found deficiencies immediately and before continuing roof installation.

.13 Base Sheet Seams: Butter all seams and laps. Provide additional bitumen at point of 90° upturns in base sheet flashings. Recheck self-adhered membrane seams left exposed within forty-eight (48) hours of installation to repair any revealed seam deficiencies with clean, heated trowel.

.14 Cap Sheet Seams: At all end laps and membrane flashing overlaps, degranulate area (embed granules) of surface to be bonded by embedding ceramic granules into bitumen of membrane using clean, heated trowel to push in. Measure and use straight chalk lines to mark outline of areas requiring degranulation. Achieve a uniform black surface of bitumen across 100% of embedment areas to be overlapped.

.15 Reinforcement: Required at all corners, vents, drains, HVAC units, and gravel stops.

.16 Primer Application: Sanded membrane left exposed overnight or longer to be primed before continuing membrane installation to ensure good adhesion.

.17 Torch Application: During windy periods, slow application rate down to ensure good bond with proper level of heat. Stop and periodically check for proper adhesion.

.6 Correction Requirements for Defects and Deficiencies:

.1 Delamination: Membrane may not be fully bonded to substrate due to:

.1 Moisture present on substrate,

.2 Dirt, dust, or other contaminate on substrate acting as a parting agent,

.3 Inadequate application of primer or adhesive.

.2 Misalignment: Alignment of row to starting line is lost due to swerving during application or to roll not being unrolled, aligned, and rerolled straight prior to application.

.1 Misaligned roll to be cut at point where swerve begins and restarted.

.2 Ensure membrane rolls are allowed to relax. Use heat in a zig-zag pattern to relax thermo-fusible films and membrane reinforcement.

.3 Ensure pressure is applied evenly across roll during application to avoid drifting.

.3 Wrinkles: Undulations located on surface of membrane after it has been applied:

.1 Cross-Sheet Undulations: Waves in membrane due to installation in a stop and go fashion.

.2 Continuous Ridging of Membrane: Formed by movement of substrate underneath membrane. Ensure substrate is secure before continuing.

.4 Blisters: Pocket of air trapped under membrane where full adhesion was not achieved or trapped moisture released from substrate:

.1 Remove and repair significant blisters.

.2 Cut blister and adhere any loose membrane.

.3 Apply patch membrane over repair area, extend a min. 152mm (6") on all sides.

.5 Membrane Patches: Cap sheet membrane patches to be installed from seam to seam. Minimum size of membrane patch to be 915 x 915 mm (36" x36").

.7 Primer Installation:

.1 Apply primer to clean and dry surfaces with a paint brush, roller or sprayer at temperatures 0°C (31°F) and above.

.2 Apply primer at a coverage rate between of 0.1 to 0.5 L/m^2 (0.25 to 1.22 gallon/100 ft^2) as recommended by membrane manufacturer for surface type.

.3 Ensure all substrates are fully covered with primer with no areas bare and avoid pooling.

.4 Allow primer to dry and flash-off prior to installation of new membrane and flashings.

.8 Base Sheet Field Membrane: Factory Laminated to Cover Board (Soprema Option):

.1 Self-adhere first part of dual edge membrane side laps and heat weld with hot air gun or torch remaining part of side laps to satisfaction of Observer.

.2 Use a membrane manufacturer recommended weighted roller to press membrane down onto substrate over side laps.

.3 Install 330mm (13") wide modified bitumen base sheet cover strips along and centered over all panel end joints.

.4 Heat weld side laps and end laps of base sheet field membrane to achieve continuous bond and seal between overlapping sheets.

.9 Base Sheet Field Membrane, Self-adhered Installation: (JM & Siplast Option)

.1 Prime substrate and around perimeters to receive new self-adhered base sheet membrane and flashings.

.1 Install specified primer at application rate and temperature recommended by manufacturer to avoid pooling and heavy areas.

.2 Allow primer to dry a minimum of 30 minutes or until staining does not occur upon touch and surface becomes tacky.

.2 Field measure and cut membrane to length of run required and roll up for installation.

.3 Starting at low point of roof, perpendicular to slope, unroll base sheet membrane and position.

.4 Once aligned in desired position, peel back a portion of release under film and press membrane onto substrate for initial adherence.

.5 Hold membrane tight and peel back release under film by pulling diagonally to remove fully and discard. Broom sheet into place to ensure full contact with substrate

.6 Overlap each preceding flashing sheet by min. 76mm (3") on side laps and align bottom edge to a chalk reference line along base sheet membrane. Lap membrane flashing onto field membrane a minimum 102mm (4").

.7 Use a membrane manufacturer recommended weighted roller to press membrane down onto substrate including laps. Finish by aligning edge of roller with lower end of side laps and rolling up membrane.

.1 Do not cut membrane to remove trapped air bubbles. Squeeze out air bubbles by pushing roller to edge of laps.

.8 Heat weld side laps and end laps of base sheet field membrane to achieve continuous bond and seal between overlapping sheets.

.10 Base Sheet Flashing, Self-adhered Installation:

.1 Where required, prime concrete and wood surfaces at roof projections and around perimeter to receive new base sheet membrane flashings.

.2 Install membrane flashing onto substrate in strips one membrane roll wide (40" or 1m) and extend over perimeters as shown on detail drawings

.3 Field measure and cut flashing membrane to length required for flashing at each detail and roll up for installation.

.4 Install base sheet flashing starting at outside face of perimeter, running across perimeter detail, and down onto flat of roof.

.5 Once aligned in position, peel back a portion of release sheet and press membrane onto substrate for initial adherence. Hold membrane flashing tight and peel back release sheet by pulling diagonally.

.6 Overlap each preceding flashing sheet by min. 76mm (3") on side laps and align bottom edge to a chalk reference line along base sheet membrane. Lap membrane flashing onto field membrane a minimum 102mm (4").

.7 Use a membrane manufacturer recommended weighted roller to press membrane down onto substrate including laps. Finish by aligning edge of roller with lower end of side laps and rolling up membrane.

.1 Do not cut membrane to remove trapped air bubbles. Squeeze out air bubbles by pushing roller to edge of laps.

.8 Provide preliminary securement of membrane on outside edge or perimeters before installation of finish metal flashings and trim. Fasten top edge of membrane flashings on outside face of perimeter details with round top nails spaced every 229mm (9") o/c.

.9 Heat weld side laps and end laps of base sheet flashing to achieve continuous bond and seal between overlapping sheets.

.11 Gusset Reinforcement:

.1 Install membrane gussets at inside and outside corner locations around perimeters, roof curbs, and sleepers to reinforce base sheet membrane layer.

.1 Gusset size to be approx. 76x152mm (3"x6") with bottom cut to form "V" shape. Where installing over cant strip, provide additional "V" shape at top of gusset.

.2 OBSERVER TO REVIEW MEMBRANE GUSSET INSTALLATION WORK BEFORE COMMENCEMENT OF CAP SHEET MEMBRANE INSTALLATION.

.12 Cap Sheet Field Membrane, Torch Installation:

.1 Complete installation of base sheet flashing prior to installing membrane cap sheet and cap sheet flashings.

.2 Field measure and cut membrane to length of run required and roll up for installation.

.3 Starting at low point on roof, perpendicular to slope, unroll cap sheet, align and re-roll from both ends.

.4 Unroll and install cap sheet carefully in straight and parallel rows keeping majority of flame on membrane roll.

.5 Cap sheet to be torched across flat of roof, overtop of base sheet, and terminated at perimeters and vertical surfaces ensuring a good bond.

.6 Lap sheets 76mm (3") for side laps and a minimum 152mm (6") for end laps. Offset joints in cap sheet 305mm (12") minimum from those of base sheet.

.7 Heat weld side laps and end laps of cap sheet field membrane to achieve continuous bond and seal between overlapping sheets.

.13 Cap Sheet Flashing, Torch Installation:

.1 Cap sheet membrane flashing to be torched up and over perimeter details.

.2 Install membrane flashing onto substrate in strips one membrane roll wide (40" or 1m) and extend up perimeters as shown on detail drawings

.3 Field measure and cut flashing membrane to length required for flashing at each detail and roll up for installation.

.4 Set cap sheet to offset base sheet flashing joints by 50% and extend a minimum of 152mm (6") onto roof. All side lap joints to be a minimum 76mm (3").

.5 Align bottom edge to a chalk reference line along cap sheet membrane.

.6 Install cap sheet flashing onto field membrane a minimum 102mm (4") at base of perimeter detail. Run flashing up vertical and across perimeter detail to outside edge.

.7 Overlap each preceding cap sheet flashing sheet by min. 76mm (3") on side laps. Offset joints in cap sheet flashing 305mm (12") minimum from those of base sheet flashing.

.8 Properly secure flashings to their support, without sags, blisters, fish-mouths or wrinkles with terminations as indicated on drawings and details.

.9 Heat weld side laps and end laps of cap sheet flashing to achieve continuous bond and seal between overlapping sheets.

3.12 LIQUID APPLIED PMMA RESIN FLASHINGS

.1 On Roof Areas 1.1, 2.1 and 3.1: Where specifically indicated in detail drawings and at any junctions where conventional installation of membrane flashings are not feasible, install new liquid applied resin flashing system.

.2 Resin system to be a layered application consisting of two coats of thixotropic catalyzed polymethylmethacrylate (PMMA) resin encapsulating a layer of polyester fleece reinforcement.

.3 Installation of liquid applied flashing system to follow in STRICT ACCORDANCE with manufacturer's written instructions.

.4 Ensure substrates are free from gross irregularities, loose, unsound or foreign material such as dirt, ice, snow, water, grease, oil, bituminous products, release agents, laitance, paint, loose particles/friable matter, rust or any other material that would be detrimental to adhesion of catalyzed primer and/or resin to substrate.

.1 Some surfaces may require scarification, shot-blasting, or grinding to achieve a suitable substrate. Wipe surfaces with a clean cloth saturated with specified cleaner/solvent to remove grease, oils or dust that may affect adhesion and to cured PMMA surfaces to receive a subsequent coat of resin.

.2 Concrete substrates to receive an application of specified PMMA roofing system to have a maximum moisture content of 6% and a maximum internal relative humidity of 75%.

.5 Preparation of Concrete Block and/or Masonry Substrates:

.1 Existing concrete substrates to have a minimum hardness of 24 N/mm^2 (3,500 psi).

.2 Scarify or shot-blast concrete or masonry surfaces to provide a sound substrate free from laitance and residue from bitumen, coal tar, primer, coatings, adhesives, sealer or any material that may inhibit adhesion.

.3 Prepare concrete surface to generate a concrete surface profile of CSP-2 to CSP-4 as defined by ICRI.

.4 Repair spalls and voids on vertical or horizontal surfaces using specified primer and preparation paste.

.6 Preparation of Poured or Precast Concrete Substrates:

.1 Repair and Leveling: Before application of roofing membrane, and after priming, fill all joints, cracks, voids, fractures, depressions, small indentations, and low areas in substrate using specified paste or repair mortar.

.2 Prime cracks and joints with specified PMMA primer and fill cracks and joints using specified preparation paste prior to flashing application. Commence flashing application immediately following catalyzation of preparation paste.

.3 Prime areas of concrete substrate intended for repair using specified PMMA primer. Fill areas using specified paste or repair mortar and allow to catalyze. Follow paste or repair mortar manufacturer's published minimum and maximum product thickness limitations per lift.

.7 Preparation of Steel and/or Aluminum Substrates:

.1 Grind to generate a "white-metal" surface and remove loose particles. Extend preparation area a minimum of 13mm (½") beyond termination of roofing/flashing system. Do not used cleaner/solvent after grinding. Notch steel surfaces to provide a rust-stop where detailed.

.8 Preparation of Plastic (PVC, ABS) Substrates:

.1 Tape joint around bottom of pipe penetrations using specified tape. Lightly sand and prime wood/plywood surfaces to receive specified flashing system with specified PMMA-based primer and allow primer to set prior to application of flashing system.

.2 Fill joints, voids, and cracks around base of pipe penetrations using specified preparation paste or repair mortar prior to flashing application. Use tape joints around base for larger gaps.

.3 Follow paste or repair mortar manufacturer's published minimum and maximum product thickness limitations per lift. Commence flashing application immediately following catalyzation of preparation paste.

.9 Preparation/Mixing/Catalyzing Resin Products:

.1 Pour desired quantity of resin into a clean container and using a spiral mixer or mixing paddle, stir liquid for time period specified by resin manufacturer.

.2 Calculate amount of catalyst powder needed using manufacturer's guidelines and add pre-measured catalyst to resin component.

.3 Mix again for time period specified by resin manufacturer, ensuring that product is free from swirls and bubbles.

.4 Ensure that air is not entrained into product during mixing process. To avoid aeration, do not use a spiral mixer unless spiral section of mixer can be fully contained in liquid during mixing process.

.5 Mix only enough product to ensure it can be applied before expiration of resin pot life.

.10 Primer Application:

.1 Apply primer resin using a roller or brush at minimum rate specified by primer manufacturer over poured reinforced concrete substrates.

.2 Apply primer resin using a roller or brush at increased rate specified by primer manufacturer over DensDeck, DensDeck Prime, and granule surfaced membrane substrates.

.3 Increase application rates over other absorbent substrates. Do not let resin pool or pond. Do not under-apply or over-apply primers as this may interfere with proper primer catalyzation.

.4 Make allowances for saturation of roller covers and application equipment.

.11 Paste Application:

.1 Allow primer to set and apply catalyzed preparation paste using a trowel.

.2 Before application of resin over catalyzed paste surface, specified cleaner/solvent, wipe surface of paste using specified cleaner/solvent and allow to dry.

.3 Treat surface again if not followed up by resin application within 60 minutes.

.12 Flashing Membrane Application:

.1 Using masking tape, mask perimeter of area to receive flashing system.

.2 Apply resin primer to substrates requiring additional preparation and allow primer to set.

.3 Pre-cut fleece to ensure a proper fit at transitions and corners prior to membrane application.

.4 Apply an even, generous base coat of flashing resin using a roller at minimum rate specified by resin manufacturer to prepared surfaces requiring flashing coverage.

.5 Work fleece into wet, catalyzed resin using a brush or roller to fully embed fleece in resin and remove trapped air.

.6 Lap fleece layers a minimum of 51mm (2") and apply an additional coat of catalyzed resin between layers of overlapping fleece.

.7 Again using a roller, apply an even top coat of catalyzed resin at minimum rate specified by resin manufacturer immediately following embedment of fleece, ensuring full saturation of fleece.

.8 Ensure that flashing resin is applied to extend a 6mm (0.25") beyond fleece. Remove tape before catalyzed resin sets. Make allowances for saturation of roller covers and application equipment.

.9 Should work be interrupted for more than 12 hours or surface of catalyzed resin becomes dirty or contaminated by elements, wipe surface to be lapped with new flashing resin using specified cleaner/solvent.

.10 Allow surface to dry for a minimum 20 minutes and a maximum 60 minutes before continuing work.

.13 Skid Resistant Surfacing:

.1 Over horizontal area of new resin flashing, apply an additional top coat of catalyzed roof resin at minimum rate specified by manufacturer; and broadcast granules into resin at a rate recommended by manufacturer before resin sets.

.2 Apply a clear coat of resin over granular surface if required by system manufacturer.

3.13 ROOF PENETRATIONS & ACCESSORIES

.1 On Roof Areas 1.1, 2.1 and 3.1: Install vent stack flashings, support flashings, and other roof penetration flashings, and seal with roof membrane in accordance with Manufacturer's instructions and as indicated on detail drawings.

.1 Prime all metal flanges with modified bitumen compatible primer, and allow any solvents to flash-off and dry completely prior to installation.

.2 Set metal flange in bed of manufacturer recommended and system compatible roofing cement applied over base sheet membrane, ensuring a positive bond.

.3 Install an additional ply of base sheet membrane flashing over metal flange prior to installing cap sheet membrane. Additional ply of base membrane to extend a minimum of 152mm (6") past all edges of metal flange.

.4 Install cap sheet ply over base flashing ensuring a full bond to base ply membrane.

.5 Apply continuous bead of manufacturer's recommended and system compatible sealant around penetration at point where membrane terminates.

.2 Reinstall and modify existing lightning protection system to suit new roof system installation.

.3 Sacrificial Protection Membrane: Protect surface of finished roof membrane from damage underneath all rooftop supports and equipment laid on top of roof membrane.

.1 Provide self adhered or cold applied sacrificial squares of matching cap sheet membrane under each base or footing of rooftop support and equipment.

.2 Custom cut cap sheet squares to suit width and length of each occurrence and include additional minimum 51mm (2.0") extension of membrane on all sides.

3.14 ROOF DRAINS

.1 General Practice:

.1 Ensure existing roof drains, rain gutters, and down pipes are clear of debris and are free flowing prior to installation of new roof system.

.1 Any blockages are to be reported prior to start of Work. Once Work has begun, Contractor assumes responsibility for free flowing drains and clearing blockages at no additional cost to Owner.

.2 Where required for new roof drains and interior plumbing, Contractor to provide interior plumbing and hook-up to existing storm water drainage system and co-ordinate installation of same with Owner.

.2 Prior to installation of new roof, ensure that all drains are located at a height where new roof system is able to clear majority of roof top water caused by rainfall within a seventy-two (72) hour period.

.3 Once work has begun, no roof area to be left overnight without adequate provision for drainage.

.4 Install drains in accordance with detail drawings and as per manufacturer's written instructions and guidelines.

.2 Roof Drain Installation:

.1 On Roof Areas 1.1, 2.1 and 3.1: At all existing roof drain locations, install new spun copper retrofit drain inserts into existing drain piping with attached new U-Flow connectors. Drain body insert to be secured to substrate with min. four (4) fasteners per drain as required to properly secure drain body.

.1 At all existing roof drains employing control flow weir devices, it is mandatory to reinstate existing devices or provide new control flow devices with equivalent flow rates inside new roof drains.

.2 Affix U-Flow connector seal to bottom of drain stem before insert retrofit drain body down into existing storm drainage pipe.

.2 Set metal flange of drain body into continuous bed of manufacturer recommended and system compatible roofing cement applied over base sheet membrane.

.3 Mechanically secure drain body to deck and substrate with min. four (4) fasteners per drain through drain flange or by underdeck clamping ring.

.4 Install target patch of membrane reinforcement over metal drain flange. Use a square of 1m x 1m (39" x 39") base sheet membrane and install over drain at a 45° angle to direction of base sheet rolls.

.5 Install cap sheet over base sheet membrane with drain in center of roll and without seams in drain area.

.1 All end laps of cap sheet to be min. 915mm (36") away from drain.

.2 Where seams of cap sheet do not align properly with drain location, install cap sheet over drain area first and picture-frame cap sheet into remainder of roof.

.3 At drain sump areas larger than 1.2m x 1.2m (4' x 4'), install cap sheet over sump area first without any endlaps and picture-frame into remainder of roof.

.6 Place Clamping Ring over raised bolt studs. Install stainless steel self locking nuts to tighten Clamping Ring against membrane flashings until secure.

.7 Install ballast guard strainer dome and secure with cotterless pin or wing nut screw.

.3 Overflow Scupper Drain Installation:

.1 On Roof Areas 1.1, 2.1 and 3.1: Install new metal overflow scupper drains at perimeter locations indicated on roof plan and where directed on site. Coordinate final locations on site with Observer to suit existing building and site conditions.

.1 Allow for one (1) overflow scupper drain for each 465m^2 (5000ft^2) of roof area, with a minimum of two (2) scuppers per roof area larger than 465m^2 (5000ft^2).

.2 Install open-top overflow scupper drains to suit height of finished perimeter detail:

.1 New open-top overflow scuppers to be min. 152x152mm (6"x6") fabricated from 24 gauge galvanized metal to suit and complete with gravel stop edge on three sides of flange, set at inside face of parapet.

.3 Height of Overflow Scupper Drains:

.1 On roof areas without sloped roof deck or tapered insulation, install overflow scupper drains 25mm (1") to 76mm (3") above finished roof membrane as directed on site by Consultant for each roof area.

.2 On roof areas with sloped roof deck or tapered insulation, install overflow scupper drains at level of finished roof membrane, unless directed otherwise on site by Consultant.

.4 Solder all joints to make continuous water tight seal. Outer face of scupper penetrating through or beyond parapet/perimeter to be encapsulated with prefinished metal cover.

.5 Where draining on to lower roof areas, provide suitable concrete paver on 25mm (1") extruded polystyrene insulation as per IRC detail at bottom of downpipe as a splash pad.

3.15 MISCELLANEOUS MECHANICAL & ELECTRICAL

.1 Unless stated in writing elsewhere, Contractor responsible for all Mechanical and Electrical Work required to perform complete installation of new roofing. Any and all costs associated with HVAC disconnection, removal, and reconnection, including modification of gas and conduit lines, to be included in Bid Pricing, unless specified otherwise.

.1 Coordinate any planned disruptions in advance with Owner to minimize inconvenience.

.2 HVAC and Rooftop Equipment: Disconnect, lift (if necessary), modify, and reconnect all Heating, Ventilation, Air Conditioning, and Mechanical units as required to for new roof system.

.1 Modify existing sleepers, curbs, and supports as required to suit new roof system installation and configuration as detailed. Ensure modified sleepers, curbs, and supports are made watertight with new membrane and flashings as required.

.2 Remove and dispose of identified and designated abandoned, redundant, and unused HVAC equipment from roof and worksite.

.3 Gas Lines and Conduits: Disconnect, modify, and reconnect all gas lines, electrical lines, and conduits as required to suit new roof installation height and configuration of projection detailing.

.1 All gas line work must be performed by a qualified Gas Fitter and must conform to requirements of CSA B149.1-10.

.2 Re-install gas lines and conduits at a height of 150mm (6") to 200mm (8") above finished roof surface. Secure all loose cabling and conduits off surface of roof membrane.

.3 Ensure that all gas line penetrations are separated from all electrical line penetrations with their own roof flashing supports. Provide any new sleeves, goosenecks, or curbs required using IRC Group approved flashing supports and installation methods.

.4 At threaded gas line piping, which cannot be permanently enclosed or covered, construct new insulated and waterproof dog house detail with removable lid for periodic thread inspection.

.5 Paint all gas lines on areas of roof work with exterior grade, yellow paint for metal surfaces; Rust Paint by Tremclad or IRC Group approved equivalent.

.4 Underdeck Securement: Where existing sections of roof decking are to be removed, ensure any cabling, conduits, and attachments (plumbing, electrical wiring, lighting fixtures, etc.) secured to underside are disconnected, removed, and relocated. Notify Owner's Representative, if necessary, to have interior services disconnected, removed, and relocated by Owner.

.5 Temporary Security: Provide overnight security, at no additional cost to Owner, where removal of any venting or HVAC equipment results with an opening in roof deck that cannot be permanently sealed on same day. Security company must be preapproved by both Owner and Consultant in advance.

3.16 TEMPORARY WATER CUT-OFFS

.1 All membrane flashings to be installed concurrently with roof membrane in order to keep roof system watertight during performance of work.

.2 Temporary waterproof seals to be placed on daily work as required. All temporary water-stops to be constructed to provide a one hundred (100) percent watertight seal.

.3 New roofing membrane to be carried into water-stop. Water-stop to be sealed to roof deck and/or substrate to prevent water travel and infiltration under new or existing roofing.

.4 Edge of roof membrane to be sealed in a continuous heavy application of sealant. Temporary seals to be removed and cleaned up before proceeding with remaining work.

.5 When work resumes, cut out and dispose of all contaminated membrane. All sealant, contaminated membrane, insulation fillers, etc. to be removed from work area and properly disposed of offsite. Reuse of these materials in new work is strictly prohibited.

.6 If inclement weather occurs while a temporary water-stop is in place, Contractor to provide all necessary labour required to monitor situation and maintain watertight condition.

.7 If any water is allowed to penetrate under newly completed roofing, then affected area to be cut out, removed, and replaced with new materials at Contractor's own expense.

3.17 METAL FLASHINGS

.1 On Roof Areas 1.1, 2.1 and 3.1: After installation of roof membrane and membrane flashings, new perimeter metal and metal flashings to be installed as detailed in Section 07 62 00 and as indicated on drawings.

3.18 SEALANTS

.1 On Roof Areas 1.1, 2.1 and 3.1: After installation of roof membrane and membrane flashings, install sealants as per Section 07 92 00 – Sealants and as recommended by membrane manufacturer.

3.19 CLEAN-UP

.1 On Roof Areas 1.1, 2.1 and 3.1: Clean up and remove from job site on a daily basis, all rubbish and surplus materials resulting from this work.

.2 Drag a magnetic bar across work area and grounds to ensure removal of all discarded fasteners and sharp metal debris.

END OF SECTION - 07 52 16

PART 1 - GENERAL

1.1 SUMMARY

.1 Section Includes: Supply and installation of new prefinished sheet metal flashings and counter flashings to complete roof system installation.

.1 Unless specifically indicated otherwise, all references to sheet metal flashings in specifications and on drawings to refer to new prepainted steel.

.2 Coordinate all work of this section with other sections and trades as required to ensure proper installation of specified components.

1.2 RELATED SECTIONS

.1 Section 07 92 00 – Joint Sealants.

1.3 REFERENCES

.1 Reference Standards: Most stringent requirement to govern conflicts between standards.

.1 American Society for Testing and Materials (ASTM).

.1 A606M-18: Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.

.2 A653M-19a: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.

.3 A792M-10(2015): Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

.4 A924M-19: Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

.2 Canadian General Standards Board (CAN/CGSB):

.1 51.32M: Sheathing, Membrane, Breather Type.
.2 93.1M: Sheet, Aluminum Alloy, Prefinished.

.3 Canadian Standards Association (CAN/CSA):

.1 S136-16: Specification for Design of Cold Formed Steel Structural Members.
.2 S269.2-16: Access Scaffolding for Construction Purposes.

.4 Canadian Sheet Steel Building Institute (CSSBI):

.1 20M-2015: Standard for Sheet Steel Cladding for Architectural, Industrial, and Commercial Building Applications.

.5 Canadian Roofing Contractors Association (CRCA):

.1 Roofing Specifications Manual.

.6 Canadian Standards Association (CAN/CSA):

.1 B-111: Wire Nails, Spikes and Staples.

.7 Sheet Metal and Air Conditioning Contractors National Association (SMACNA):

.1 Architectural Sheet Metal Manual, Seventh Edition, 2012.

1.4 SUBMITTALS

.1 Procedures: Provide listed submittals to Section 01 33 00.

.2 Samples: Submit min. 51mm x 51mm (2" x 2") sheet metal flashing sample for each type of material, finish, and colour specified or chosen by Owner from standard manufacturer colour range.

.1 Samples to fully represent physical and chemical properties of materials to be supplied and installed.

.2 Samples to be reviewed by Owner before order and delivery of materials. Return and restocking fees for incorrect or rejected materials to be at no additional cost to Owner.

1.5 CLOSEOUT SUBMITTALS

.1 Procedures: Provide project closeout submittals to Section 01 77 00.

.2 Warranty Documentation: Signed Contractor Warranty for Workmanship covering metal work.

1.6 QUALITY ASSURANCE

.1 Installer Qualifications: Bondable contractor using skilled tradespeople with equipment adequate for project to perform work in an expeditious manner. Use only manufacturer approved installers to meet warranty requirements.

.1 Contractor preapproved by Owner and Consultant.
.2 Member of New Brunswick Roofing Contractors Association (NBRCA) in good standing.
.3 Minimum 10 years of relevant experience with similar materials.
.4 And licensed for Place of the Work.

.2 Perform Work in accordance with Contracts Documents and manufacturer's written instructions.

.3 Make no deviation from Specifications or approved Shop Drawings without prior written approval by Consultant and, if applicable, manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store, and handle materials to manufacturer's instructions and CSSBI guidelines.

.1 Review condition of materials at delivery. Remove and replace damaged products at own expense, including those identified by Observer.

.2 Do not store metals in direct contact with earth, road surface, roof deck, or other metals.

.1 Do not store materials on roof.

.3 Store materials under cover, on elevated platforms, and protect from elements in a dry, well ventilated location.

.1 Place suitable supports or pallets under metal stock upon delivery.

.2 Protect metal from scratches, dents, punctures, and moisture.

.3 Store caulking and sealants at +5ºC minimum.

.4 Handle and store products in a manner to prevent damage, oxidization, and deterioration.

.1 Do not allow metal panels to bend or sag during handling and transport.

.2 Bring to roof and work area only those materials to be installed on same day.

1.8 SAFETY AND PROTECTION

.1 Scaffolding:

.1 Where required for access, scaffolding for construction purposes to CSA S269.2.

.2 Safety:

.1 Comply with safety requirements as per current printed edition of OHSA.

.2 Wear protective gear during installation as required by job conditions or manufacturer.

.3 Solvents, Adhesives, and Membranes

.1 Bring to roof only enough solvents, adhesives, and sealants required for same day use. Do not leave adhesives on roof over night.

.2 Adhesives to be stored in their overnight containers. Keep product from freezing.

.4 Hoisting & Protection:

.1 Protect walls and roof perimeters from damage where hoisting is required.

.2 Protect roofs from damage due to traffic and material handling during project.

.5 Fire Safety:

.1 Keep charged and ready fire extinguishers on site at all times, including on roof, at access points to building interior, and wherever solvent based products are stored.

1.9 WARRANTY

.1 Contractor Warranty: Workmanship.

.1 Provide Contractor Warranty for Workmanship covering metal work on a certificate or form preapproved by New Brunswick Roofing Contractors Association (NBRCA) or specified on Contractor's Letterhead, signed, authorized, and executed for project.

.1 Warranty Period: Not less than 2 years from date of Substantial Completion.

.2 Metal work installation to be warranted free from defects related to workmanship or material deficiencies, including but not limited to water penetration, material deformation, and fading of finish.

.1 During warranty period provide all labour and materials required to promptly repair and rectify noted defects, in accordance with project Contract Documents, at no additional cost to Owner.

.2 Cost of warranties to be included in Contract.

1.10 CONSTRUCTION REVIEW AND OBSERVATION

.1 IRC Building Sciences Group, A Rimkus Company, hereafter known as "Observer", is an independent Observation agency appointed by Owner to observe performance of Work required by this section and to review construction progress.

.1 Arrange a Prestart meeting on-site with Observer no more than 3 weeks prior to commencement at project site. Obtain Observer's instructions and reference procedures to be followed on project.

.2 Provide Observer with anticipated beginning date for each phase of Work, at least 48 hours prior to commencement of each phase.

.3 Where required for warranty, arrange for Final Observation and review of installed work with both Observer and manufacturer's technical representative.

.2 When testing or observations reveal work by Contractor failing to meet contract requirements, pay for additional testing and observation work required by Observer or third-party testing agency for correction of deficient installed work, at no additional cost to Owner.

.3 Copies of Observation reports issued to Owner and Prime Contractor.

PART 2 - PRODUCTS

2.1 METAL FLASHINGS

.1 Prefinished Steel Flashings: Prefinished cap flashings, counter flashings, drip flashings, jamb flashings, and closure strips to be fabricated from steel with hot-dip galvanization to ASTM A653M, Grade 230 with Z275 zinc coating.

.1 Base Steel: Minimum 0.61 mm (24-gauge, 0.024") nominal core thickness.

.2 Finish: Silicone Modified Polyester (SMP) applied over pretreated substrate:

.1 WeatherXL SMP topcoat by Valspar Corp.,
.2 Perspectra Plus Series SMP topcoat by ArcelorMittal.

.3 Colour: Colour to be chosen by Owner from manufacturer standard colour range.

.2 Flashing Securement: Metal flashing hook strips, cleats, and clips to be fabricated from steel with hot-dip galvanization to ASTM A653M, Grade 230 with Z275 zinc coating. Securement flashings to be two gauges thicker than that of metal flashing being secured.

.1 Base Steel: Minimum 0.76 mm (22-gauge, 0.030") nominal core thickness.

.2 Colour and finish of securement strips to match prefinished metal flashings.

.3 Provide hook strips in continuous lengths, not short segments, to match metal flashings.

2.2 ACCESSORIES

.1 Dissimilar Materials: Protect material from electrolytic action when dissimilar metals are in direct contact with one another.

.1 Underlay Sheet: Smooth unsaturated quality rosin sized paper weighing not less than 0.3 Kg/m^2 (6 lb. per 100 ft^2), unless otherwise shown, to CSA A123.3M.

.2 Painting: Paint mating surfaces of aluminum and galvanized steel with bituminous or zinc chromate primers.

.3 Taping: Apply self-adhering tape or gasket with non-absorptive materials or sealants.

.2 Bituminous Paint: Gilsonite asphalt 910-02 by Bakelite to CGSB 1-GP-108 Type II.

.3 Joint Filler: Polyethylene, urethane, or neoprene extruded, closed cell foam to Section 07 92 00.

.4 Sealants: Joint and finish sealants to Section 07 92 00.

.5 Touch-up Paint: High grade enamel paint as recommended by metal manufacturer and matching colour of prefinished metal being used.

2.3 FASTENERS

.1 General: Use galvanized, copper, aluminum, stainless steel, or coated screws most compatible with materials being installed to avoid corrosion caused by galvanic reaction.

.2 Fasteners to Wood: Space fasteners at max. 610mm (24") on center and stagger.

.1 Galvanized nails, with annular thread, length to penetrate into base min. 25mm (1"),

.2 Min. No.8 coated steel screws to penetrate wood surface by min. 19mm (0.75").

.3 Exposed Fasteners:

.1 Nylon headed No.14 Colormate fasteners by Leland Industries with hex head and self tapping or drill point tips. Length to suit installation. Colour head to match prepainted metal being secured.

.2 Hex head, cadmium plated metal screws with neoprene washers as manufactured by Fabco Fastening Systems, Atlas, Perma-Grip, or IRC Group approved equal. Provide with screw head caps to match colour of materials being secured.

.4 Masonry Anchors: Rawl lead lags for screws as recommended by manufacturer.

.5 Masonry Fasteners: Tapcon, Gripcon or Rawl spike sized to penetrate concrete 38mm (1.5") minimum unless otherwise shown.

.6 Masonry Fasteners: Tapcon screws, Gripcon screws, or Rawl spikes with factory applied corrosion resistant coating.

.1 Minimum 6mm (0.25") diameter and of sufficient length to provide a minimum of 38mm (1.5") of penetration into substrate. Predrill holes into masonry to suit application.

.7 Wedges: Rolled plumber sheet lead. Secure metal flashings on inside and should be secured with No.10 galvanized screws through neoprene washers at 760 mm (30") on center.

.8 Pop Rivets: All stainless steel, blind pop rivets meeting ASME/ANSI B18.1.1.

.1 Minimum 6mm (0.25") head diameter with 3mm (0.125") shank diameter and a grip range of 4.7mm to 6.4mm (0.1875 to 0.25").

.2 Body and mandrel to be constructed from high-shear, 300 series stainless steel.

2.4 FABRICATION

.1 Form bends with straight sharp lines, angles and corners into true planes, free from twists, buckles, dents and other visual distortions.

.1 Verity all dimensions on site affecting work of this section prior to fabrication.

.2 Fabricate all possible work in shop in default lengths of 2.4m (8'-0") by brake forming, bench cutting, drilling, and shaping, ready for field installation

.1 Horizontal Flashings Wider Than 16": Cap flashings and flashings with horizontal sections having a dimension greater than 406mm (16") to be fabricated in maximum lengths of 1.2m (4'-0").

.2 Horizontal Flashings Wider Than 20": Cap flashings and flashings with horizontal sections having a dimension greater than 508mm (20") to be fabricated with 25mm (1") high lock-folded standing seams.

.3 Curved Perimeter Flashings: Cap flashings and flashings over curved perimeters and curbs to be fabricated in lengths of 0.61m (2'-0") or less to suit radius of arc.

.4 Corner Flashings: Cap flashings and flashings to be fabricated with 25mm (1") high lock-folded standing seam joints at corner miters.

.3 Fabricate sheet metal components to dimensions, profiles, shapes, and gauges shown on Shop Drawings and verified by site measurements.

.1 Profiled metal components to be cold rolled.

.2 Fabricate drip and sill flashings with minimum 2% downward slope outward to encourage drainage.

.3 End joints of adjacent lengths of metal flashing to be made using S-lock jointing to allow for thermal movement.

.4 Exposed metal flashings edges to be double-backed or hemmed min. 13mm (0.5") for appearance and stiffness. Raw edges not accepted.

PART 3 - EXECUTION

3.1 EXAMINATION & PREPARATION

.1 Examine work of other Sections upon which work of this Section depends.

.1 Prior to application of flashings, review roof perimeters, parapets, curbs, and projections.

.2 Examine installed membrane flashings for any defect of level or construction that may impact installation work before proceeding.

.1 Do not cut-off or remove installed membrane flashings turned down over exterior face of roof perimeters. Installed membrane to remain as part of complete roof installation.

.3 Report discrepancies to Observer that may affect performance of roof system and deviations from specified tolerances.

.1 Defective or improper work must be corrected before proceeding with installation of sheet metal flashings.

.4 Protect roof surfaces from damage and metal debris generated by work of this section.

3.2 MOCK-UP SAMPLE

.1 Construct full size mock-up sample of typical sheet metal cap flashing installation including typical components, flashings, hook strips, cleats, and securement to substrate.

.1 Minimum size to be 3.66m to 4.88m (12'-0" to 16'-0') in length, at location chosen with Observer. Installation must include at least one S-lock joint.

.2 All materials to be supplied and installed in accordance with Contract Documents.

.3 Mock-up to demonstrate methods of attachment, typical components, and connections.

.2 Reviewed and accepted Mock-up to represent minimum base standard for remaining work.

.1 Accepted mock-up may remain in place and form part of completed Work.

.3 Provide any additional mock-up samples as reasonably requested by Observer.

3.3 SHEET METAL INSTALLATION

.1 Sheet metal work to be installed in a uniform manner, true to line, and free of dents, oil canning, warping, and distortions.

.1 Provide metal work to cover perimeters of entire roof area and make watertight under all service and weather conditions.

.2 Install sheet metal flashings at copings, perimeters, walls, joints, curbs, roof openings, and other locations where required to protect membrane flashings, and as shown on drawings.

.1 Provide perimeter metal flashings with slope toward roof interior at minimum 4% slope.

.2 Do not form open metal joints or create pockets that fail to drain water.

.3 Provide concealed metal hook strips, locking strips, and clips where shown on drawings and as required to permanently hold flashing in place.

.1 Install concealed hook strips along all exterior perimeter faces and as detailed.

.2 Secure continuous hook strips, spaced at 152mm (6") on center and in staggered V-pattern. Keep lower fasteners within 32mm (1.25") of bottom of drip edge.

.4 Install lengths of sheet metal flashings with fasteners concealed inside S-lock joints; minimum two fasteners per joint.

.1 Space joints evenly where exposed to view.

.5 Provide inside and outside corner flashings by means of 25mm (1") high lock-folded standing seam joints at corner miters. Do not use pop rivets.

.1 Include intermediate securement clips in folded joint. Apply sealant before locking raised seams in place.

.6 On perimeter cap sheet flashings, exposed fastening not permitted on exterior face visible to public, without approval of Observer.

.1 Exposed fastening on interior face of perimeter cap flashing permitted.

.7 Space fasteners evenly and in consistent pattern. Use lead plugs and screws with rubber washers where metal flashings are installed to concrete or masonry.

.3 Provide protection for metal work from potential galvanic action.

.1 Where sheet metal flashings directly contact masonry, concrete, or a different type of metal, back-paint surfaces with bituminous paint at rate of 0.12L/m^2 (0.25 Gal/100 ft^2).

.2 Where sheet metal flashings directly contact uncovered wood or masonry surfaces, provide underlay separator sheet and overlap joints min. 51mm (2"). Turn up 76mm (3") at edges where horizontal surfaces intersect vertical planes.

.4 Clean reglets in masonry walls and make free of dust and contaminates.

.1 Where existing reglets can not be reused, saw cut new continuous reglets 10mm (0.4") wide, 25mm (1.0") deep, or suit existing site conditions.

.2 Secure top of metal flashings into reglet joints using lead wedges spaced at 229mm (9") on center, and set min. 6mm (0.25") out from face of masonry.

.3 At reglets wider than 10mm (0.4") and deeper than 19mm (0.75") provide polyethylene backer rod, 25% wider than joint width, and insert into back of reglet before sealant application.

3.4 FINISH

.1 After installation, touch-up and repair minor surface damage and scratches to finish surfaces of metal components with colour matched paint in accordance with manufacturer's instructions.

.1 Remove dirt, debris, and other foreign deposits from visible surfaces of metal work in accordance with metal manufacturer's cleaning instructions.

.2 Remove stains, caulking, and adhesives from contaminated surfaces.

.3 Post paint all exposed metal and metal edges exposed due to cutting or grinding.

.2 Finished surfaces of formed metal work to be colour matched, free of damage and dents, and free of visual impairments caused by oil canning, bending, twisting, or other distortions.

.1 Finished product with visual appearance impaired or diminished by changes in colour between sheets, dents, distortions, or oil canned surfaces will be rejected.

.2 Remove and replace damaged, defaced, contorted, or otherwise defective work.

3.5 SEALANTS

.1 Apply sealant to provide a continuous waterproof seal at all open sheet metal joints, reglets, gum joints, and where shown on drawings to Section 07 92 00.

3.6 FIELD QUALITY CONTROL

.1 Field Observation and Testing: Cooperate with Observer and afford all necessary facilities required to permit construction review and observation during performance of Work.

.1 Act immediately on instructions given by Observer.

.2 When required or reasonably directed by Observer, make assembly cut-outs and component samples at Observer identified locations. Restore assembly and make good at no additional cost to Owner.

.3 Promptly share and provide Observer with a copy of written reports and instructions given to Contractor from manufacturer and warranty holder pertaining to installation and observation work on this project.

.1 Manufacturer may copy project related communication regarding installation work directly to Observer.

3.7 CLEANING

.1 Remove daily surplus materials and debris resulting from work of this section and at completion.

.2 Lightly drag a magnetic bar, without damage to surfaces, across work area and grounds to find and remove discarded fasteners and sharp metal debris.

END OF SECTION - 07 62 00

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 02 41 19 – Selective Demolition & Removal

.2 Section 07 52 16 – SBS Modified Bitumen Membrane Roofing

.3 Section 07 62 00 – Prefinished Sheet Metal Flashing & Trim

1.2 REFERENCES

Latest edition of all listed references to apply:

.1 ASTM C920 – Elastomeric Joint Sealants

.2 CAN/CGSB-19.13 – Sealing Compound, One-component, Elastomeric, Chemical Curing

.3 Sealants: Professionals' Guide, Sealant, Waterproofing and Restoration Institute

.4 SWRI (Sealant, Waterproofing and Restoration Institute) – Sealant and Caulking Guide Specification

1.3 QUALITY OBSERVATION

.1 Observation of work will be carried out by designated Rooftop Quality Observer.

.2 Prior to mobilizing on site, prepare and install sealant samples for adhesion testing, a minimum of two (2) samples for each substrate combination, according to manufacturers written guidelines. Test sealant in contact with samples of materials to be caulked to ensure that proper adhesion will be obtained and no staining of material will result. Testing to be completed prior to mobilization on site. Do not proceed with Work until samples have been approved.

.3 Adhesion tests on new sealant will be performed at random locations at discretion of Owner's representative. Any work that is found to be sub-standard, is to be removed and replaced at no cost to Owner. Contractor is to assist with sealant adhesion tests as directed.

.4 Execute Work of this Section by Subcontractors approved by manufacturers of materials incorporated in Work; who has equipment, adequate for Project, and skilled tradesmen to perform it expeditiously; and is known to have been responsible for satisfactory installations similar to that specified during a period of at least immediate past five years.

.5 Remove sealant and re-caulk disapproved joints.

.6 Approved joints will establish minimum acceptable quality of workmanship and will serve as standard by which subsequent Work will be compared for Acceptance.

1.4 DELIVERY, STORAGE, AND HANDLING

.1 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact.

.2 Protect from freezing, moisture, water and contact with ground or floor.

1.5 ENVIRONMENTAL AND SAFETY REQUIREMENTS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to local Labour regulations.

.2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Place materials defined as hazardous or toxic waste in designated containers.

.2 Ensure emptied containers are sealed and stored safely for disposal away from children.

.3 Dispose of surplus chemical and finishing materials in accordance with federal regulations.

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

.5 Use trigger operated spray nozzles for water hoses.

.6 Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.

.7 Use least toxic sealants, adhesives, sealers, and finishes necessary to comply with requirements of this section.

.8 Close and seal tightly all partly used sealant containers and store protected in well ventilated fire-safe area at moderate temperature.

.9 Place used hazardous sealant tubes and other containers in areas designated for hazardous materials.

PART 2 - PRODUCTS

2.1 SEALANT MATERIALS

.1 Sealants and caulking compounds must:

.1 meet or exceed all applicable governmental and industrial safety and performance standards.

.2 be manufactured and transported in such a manner that all steps of process, including disposal of waste products arising therefrom, will meet requirements of all applicable governmental acts, by laws and regulations including.

.2 Sealant and caulking compounds must be accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance, and information describing proper disposal methods.

.3 Caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant to not be used in or near air handling units.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Acceptable single component neutral cure silicone sealants for skylight related work include:

.1 CWS by Dow Corning; or

.2 795 by Dow Corning

.2 Acceptable single component, moisture curing, polyurethane sealants for reglets and other roofing related flashing termination work include:

.1 Dymonic by Tremco; or

.2 CWS by Dow Corning

.3 Butyl (for concealed skylight related sealant joints): Tremco Curtainwall Sealant or approved alternate.

.4 Primers:

.1 Primers to be as recommended by sealant manufacturer.

.5 Cleaners:

.1 Acceptable cleaners:

.1 Xylol

.2 Methylethylketone (MEK)

.3 Isopropyl Alcohol

.2 Surfaces to receive silicone sealants to not be cleaned with Xylol.

.3 All substrate materials to be cleaned with compatible cleaners.

.6 Preformed Compressible and Non-Compressible back-up materials.

.1 Polyethylene:

.1 Extruded closed cell foam backer rod.

.2 Size: oversize 30 to 50 %.

.2 Bond Breaker Tape.

.1 Polyethylene bond breaker tape.

.7 Compatibility: All materials in a sealant system to be compatible with each other, with substrate and any coating or waterproofing to be installed. sealants used with elastomeric coating or waterproofing systems must be approved by coating or waterproofing manufacturer.

2.3 JOINT PRIMER

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

PART 3 - EXECUTION

3.1 PROTECTION

.1 Protect existing facades from staining or contamination.

.2 Protect public from falling debris during installation.

.3 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. At no time shall unsealed joints be left open. If protection is required, then entire drop/bay to be adequately protected.

3.2 EXAMINATION

.1 Before commencing Work, verify that joint configuration and surfaces have been provided as specified under Work of other Sections to meet intent of sealant Specification, that joint conditions will not adversely affect execution, performance or quality of completed Work and that they can be put into acceptable condition by means of preparation specified in this Section. Verify Site conditions together with manufacturer's representative of sealant to be applied.

.2 Examine existing conditions and substrates upon which work of this section is dependent. Report to Consultant in writing any defects or discrepancies. Commencement of work implies acceptance of existing conditions and assuming full responsibility for finished condition of work.

.3 Ascertain that sealers applied to sealant substrates are compatible with sealant used and that full bond between sealant and substrate is attained. Request samples of sealed or coated substrate from their fabricators for testing of compatibility and bond if necessary.

.4 Examine sealant configuration for width and depth. Depth of joint should be 1/2 joint width with a minimum depth of 6mm (0.25") and a maximum depth of 13mm (0.5") unless specified otherwise. For fillet joints, a minimum of 6mm (0.25") adhesion between sealant and substrate must be achieved on both sides of joint unless specified otherwise.

.5 Defective work resulting from application to unsatisfactory joint conditions will be considered responsibility of those performing work of this section.

3.3 SURFACE PREPARATION

.1 Prepare surfaces in accordance with manufacturer's directions.

.2 Before any sealant repairs are made, type of existing sealant to be determined. If uncertain as to type, then a sealant manufacturer technical representative to be contacted to confirm type. Only sealant compatible with existing to be installed as part of repairs. Urethane based sealants are not to be applied over existing silicone sealants.

.3 Where existing, remove sealant completely. In no case shall new sealant be applied over old. In addition:

.1 Remove existing sealants, dust, oil, grease, oxidation, mill scale, coatings and all other loose material by cutting, brushing, scrubbing, scraping and/or grinding. In no case, however, shall components be damaged during surface preparation.

.2 Clean substrates with recommended solvent cleaner. Apply solvent with a clean cloth, pad or soft paper towel. Applicator cloth or towel to not leave fiber residue on substrate surface. Surface should be wiped clean and dried with a second clean cloth to ensure removal of contaminants. If substrate surfaces is still not clean, repeat procedures as needed. Change cloths frequently to prevent depositing contaminants from cloth onto substrate surface.

.3 Use method of surface preparation suitable for substrate, as recommended by sealant manufacturer and that does not damage existing finishes.

.4 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.5 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.6 Ensure joint surfaces are dry and frost free.

.7 Remove loose particles present or resulting from routing by sweeping particles out with a dry brush, blowing out joints with oil free compressed air or by vacuuming joints prior to solvent cleaning.

3.4 PRIMING

.1 Where necessary to prevent staining or for neat appearance, mask adjacent surfaces prior to priming and caulking.

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

.3 Use only primer approved by sealant manufacturer for particular installation, applying in strict accordance with manufacturers printed recommendations.

.4 Always pour primers onto rag or brush, do not dip rag or brush into container.

.5 Prime only as much area that can be packed and caulked in a single day.

.6 Do not apply excess primer, and apply primer only to areas which it will be contacted by sealant.

3.5 BACKUP MATERIAL

.1 Apply bond breaker tape where installation of backer rod is not possible, three point adhesion needs to be eliminated or throat to width ratio needs to be created as per manufacturers recommendations.

.2 When using backing material comprised of tubular or rod stock, avoid lengthwise stretching of material. Do not twist or braid backer material.

.3 Provide a stiff blunt-surfaced wood or plastic installation tool, having shoulders designed to ride on finished surface and a protrusion of required dimensions to assure a uniform depth of backup material below sealant. Do not puncture exterior skin or surface of backer material. A screwdriver is prohibited for use on this project.

.4 Using approved tool, smoothly and uniformly place backup material to depth indicated on drawings or otherwise required, compressing backer material 25% to 50% and securing a positive fit.

.5 Install backing material to a depth to provide a caulked joint meeting depth requirement as set out in sealant manufacturer's specifications.

3.6 MIXING

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

3.7 APPLICATION

.1 Sealant:

.1 Apply sealant in accordance with manufacturer's written instructions.

.2 Mask edges of joint where irregular surface or sensitive joint border exist to provide neat joint.

.3 Apply sealant in continuous beads.

.4 Apply sealant using gun with proper size nozzle.

.5 Ensure that new sealant is adhered to substrates a minimum of 6 to 10 mm at each side of joint.

.6 Use sufficient pressure to fill voids and joints solid.

.7 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.

.8 Tool exposed surfaces before skinning begins to give slightly concave shape. Tooling to be performed by proper metal or wood tool. Finger tooling joints will not be accepted.

.9 Remove excess compound promptly as work progresses and upon completion.

.2 Curing:

.1 Cure sealants in accordance with sealant manufacturer's instructions.

.2 Do not cover up sealants until proper curing has taken place.

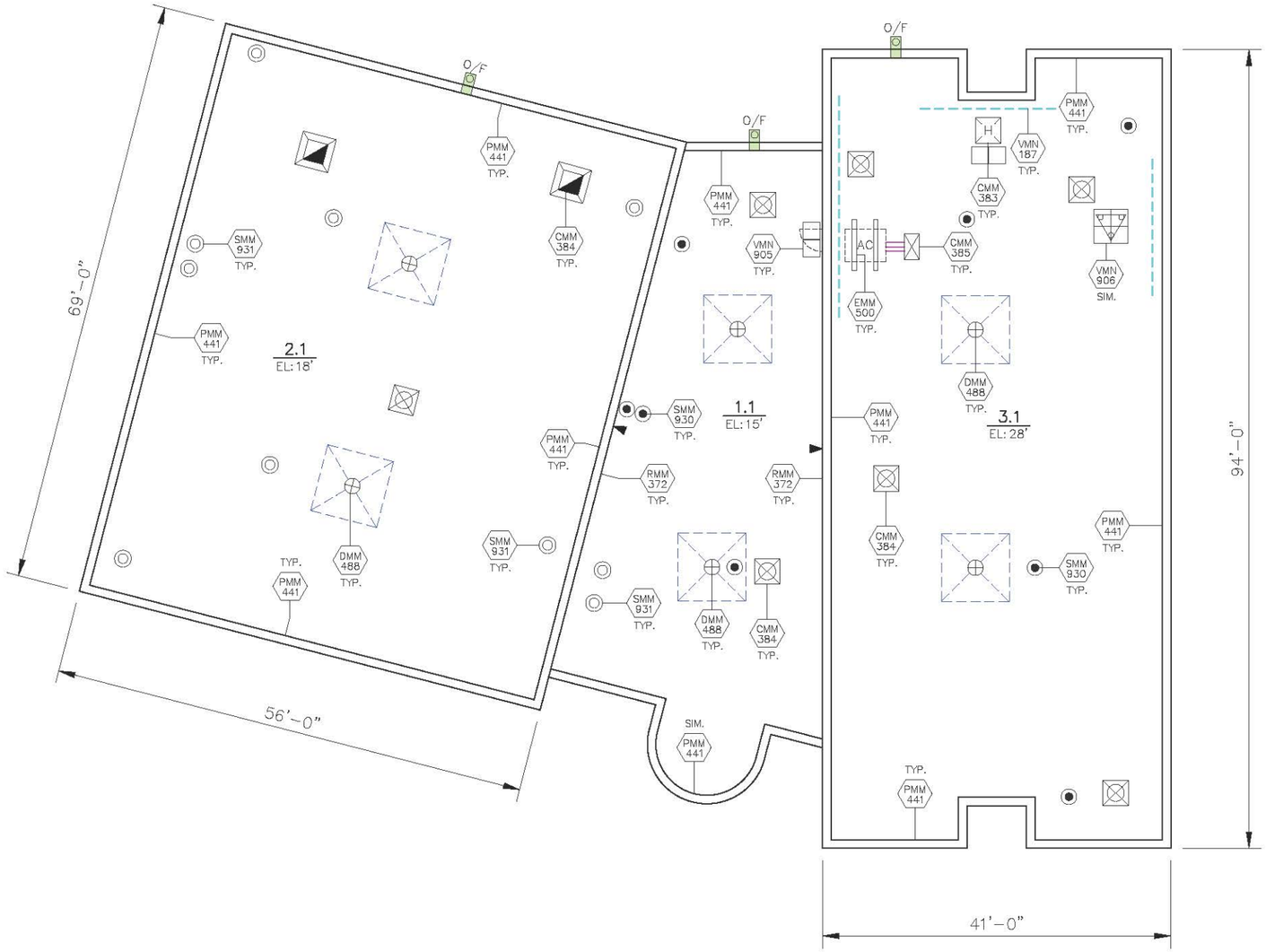
3.8 CLEAN-UP

.1 Clean adjacent surfaces immediately and leave work neat and clean.

.2 Remove excess and droppings, using recommended cleaners as work progresses.

.3 Remove masking tape after initial set of sealant.

END OF SECTION - 07 92 00



EXISTING ROOF COMPOSITION(S):

ROOF AREA(S) 1.1

METAL DECK
0.5" GYPSUM BOARD
2 PLY #15 FELT
7.0" FIBREGLASS INSULATION
2 PLY MOD. BIT. MEMBRANE

ROOF AREA(S) 2.1 & 3.1

METAL DECK
0.5" GYPSUM BOARD
2 PLY #15 FELT
5.0" FIBREGLASS INSULATION
2 PLY MOD. BIT. MEMBRANE

ROOF AREA(SQ.FT.)

1.1 – 1,848
2.1 – 3,864
3.1 – 3,784

TOTAL = 9,496

NEW ROOF COMPOSITION(S):

ROOF AREA(S) 1.1, 2.1 & 3.1

EXISTING METAL DECK
EXISTING 0.5" GYPSUM BOARD
EXISTING 2 PLY #15 FELT VAPOUR RETARDER
NEW 1 PLY MOD. BIT. VAPOUR RETARDER
NEW 3.0" POLYISOCYANURATE INSULATION
NEW 3.0" POLYISOCYANURATE INSULATION
NEW COVER BOARD WITH BASE SHEET
NEW 1 PLY MOD. BIT. CAP SHEET

LEGEND

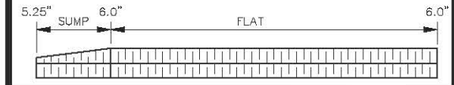
NEW BALLASTED RAILINGS
NEW OVERFLOW SCUPPER

ROOF PROJECTIONS:

ANTENNA
BREATHER
CAPPED OFF/ ABANDONED STACK
CHANGE IN ELEV.
CHIMNEY
CONDUIT LINE
CONTROL JOINT
DRAIN
EXHAUST FAN ON CURB
EXPANSION JOINT
EXPLOSION HATCH
FLAGPOLE
GAS PIPELINE
GOOSENECK VENT
GOOSENECK VENT ON OVERSIZED CURB
HATCH
HVAC UNIT
HVAC UNIT ON CURB
HVAC UNIT ON SLEEPERS
LADDER
LIGHT POST
PIPE SUPPORT
PITCH POCKET
PLUMBING OR SOIL STACK
ROOF ANCHOR
SATELLITE DISH
SCUPPER
SECURITY CAMERA
SKYLIGHT
SLOPE
SQUARE VENT
SQUARE VENT ON OVERSIZED CURB
TALLCONE OR "B" VENT
TALLCONE OR "B" VENT ON CURB
UNUSED OPENING
WALKWAY PADS

DRAINAGE:

TAPERED INSULATION LAYOUT
DIRECTION OF WATER DRAINAGE
4.5" TOTAL INSUL. THICKNESS
NEW ROOF DRAIN TO BE INSTALLED
INSULATION SUMP
INSULATION CRICKET



IRC BUILDING SCIENCES GROUP
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1.888.607.5245 WWW.IRCGROUP.COM

TITLE:	ROOF PLAN
CLIENT:	THE CITY OF SAINT JOHN
PROJECT:	FIRE STATION #5 35 ADELAIDE STREET SAINT JOHN, NB
IRC #:	23761
W.O.#:	NR20-001SP
SCALE:	1/16" = 1'-0"
DATE:	FEB. 2, 2021
DRN. BY:	J.L./F.R.A.
CHK. BY:	A.J.D./M.A.M.
PROJECT NORTH:	(TRUE NORTH)
DWG.#:	R1

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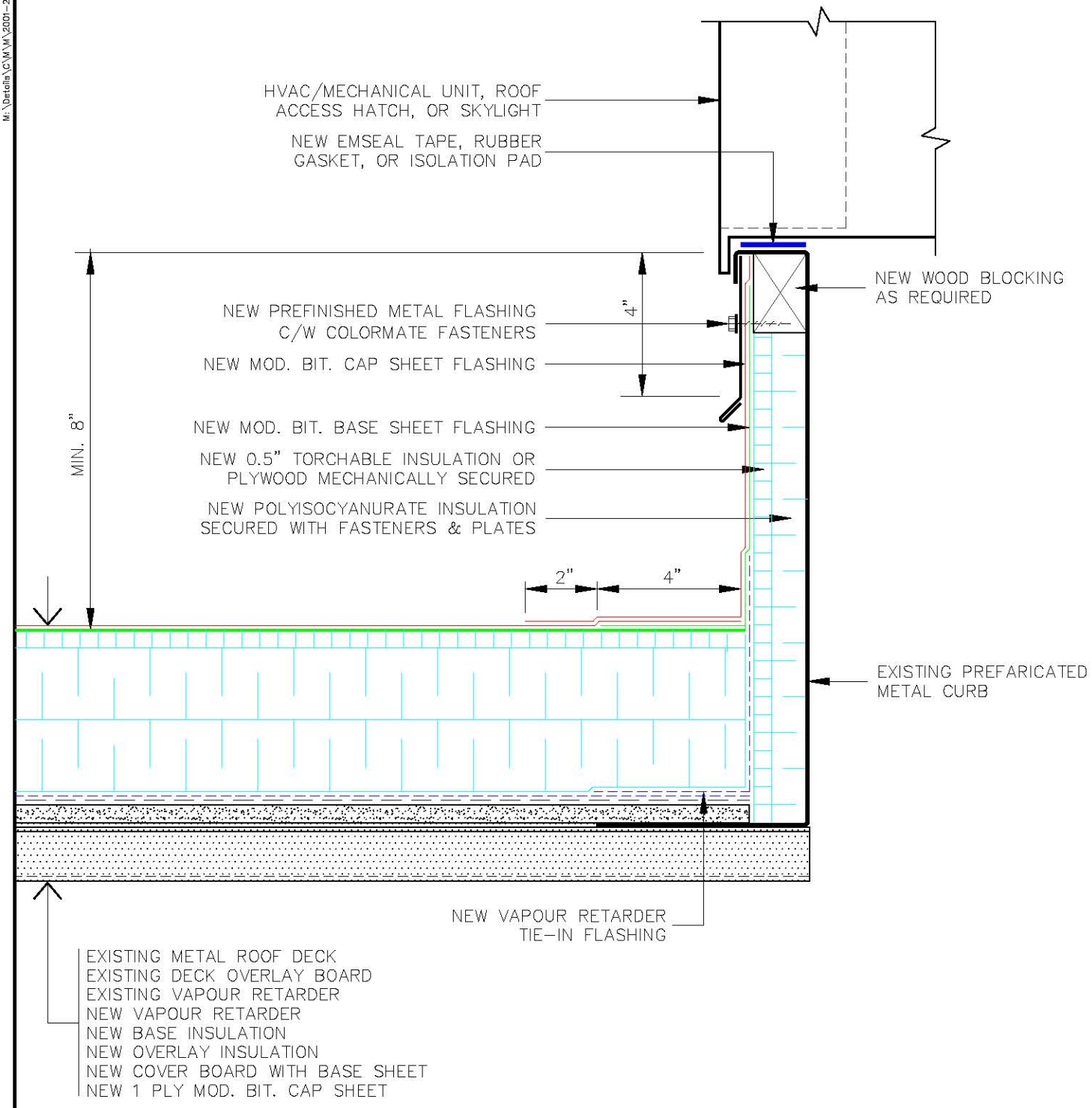

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	NOTE: NO REPRODUCTION OR USE OF THIS DRAWING IS AUTHORIZED WITHOUT EXPRESSED WRITTEN CONSENT	DRN. BY: J.L.	DWG.#: CMM383
		CHK. BY: A.J.D./M.A.M.	

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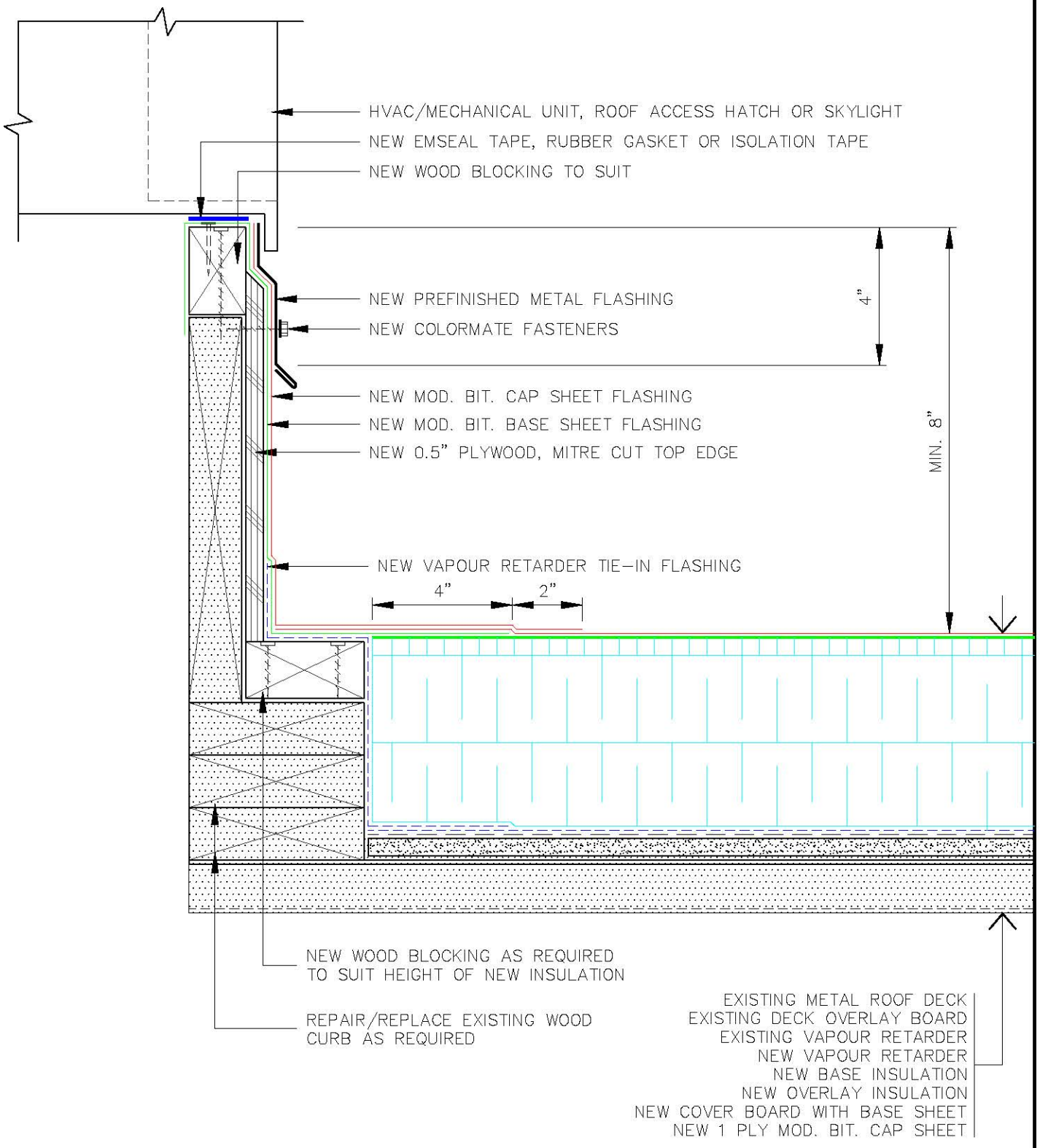

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		CHK. BY: A.J.D./M.A.M.	

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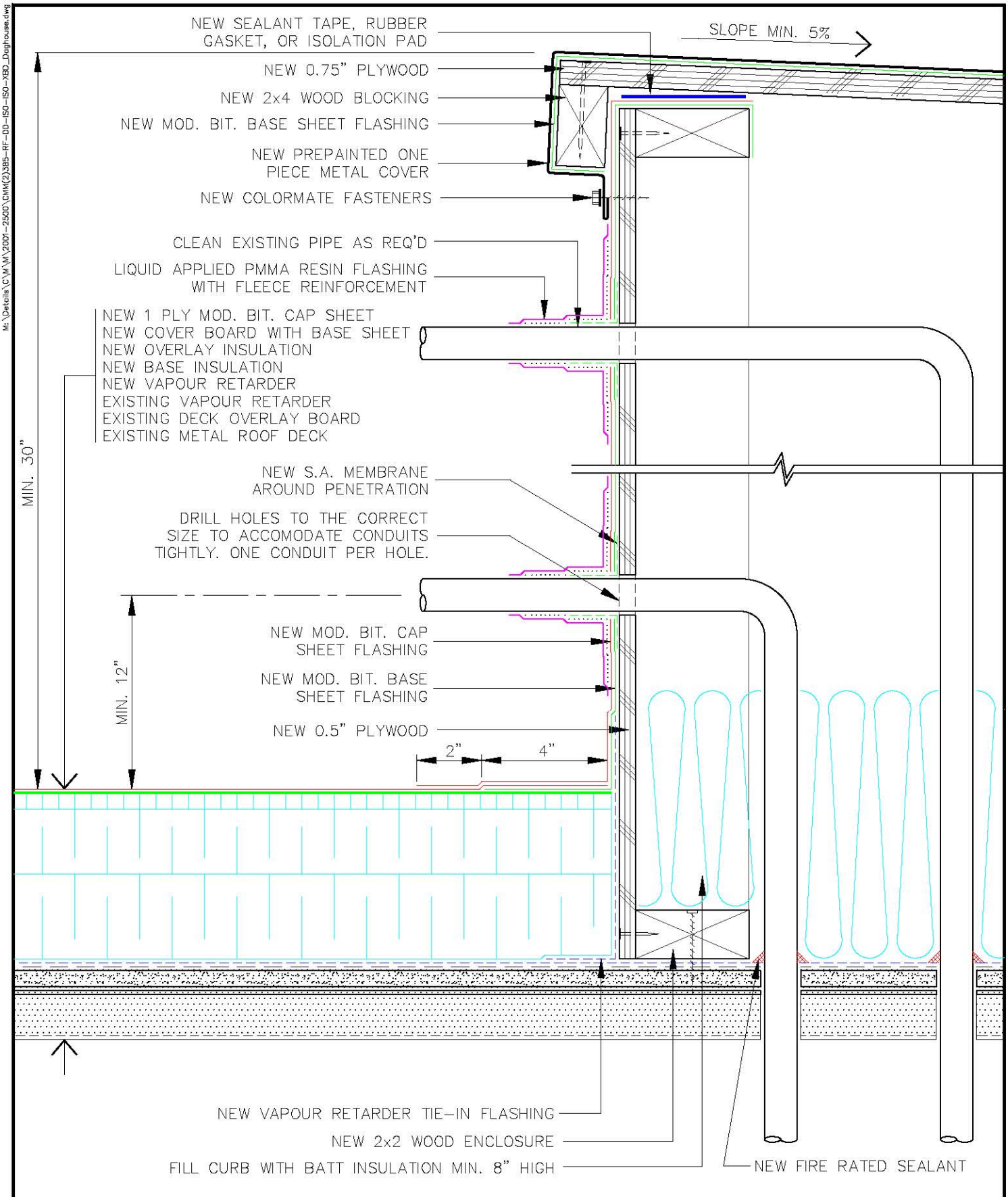

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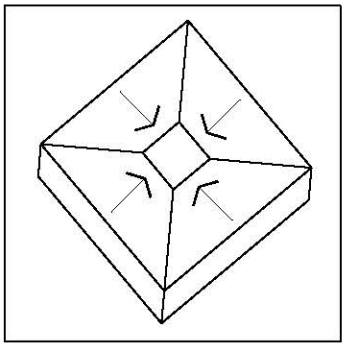

SUMP DIAGRAM

NEW MOD. BIT. CAP SHEET
NEW COVER BOARD WITH BASE SHEET
NEW OVERLAY INSULATION
NEW BASE INSULATION
NEW VAPOUR RETARDER
EXISTING VAPOUR RETARDER
EXISTING GYPSUM BOARD
EXISTING METAL DECK

CAST ALUMINUM DOME WITH HINGED ACCESS GATE

NEW THALER "RD-4C-RR-FLAT" DRAIN

STAINLESS STEEL VANDAL PROOF RETAINING SCREW

CAST ALUMINUM CLAMPING RING

BRONZE STABILIZER RING WITH WELDED STAINLESS STEEL BOLTS

SET PRIMED DRAIN FLANGE IN LAYER OF SEALANT

NEW MOD. BIT. BASE SHEET FLASHING

NEW WOOD BLOCKING TO SUIT

MIN. 4"

NEW TAPERED DRAIN SUMP INSULATION

NEW VAPOUR RETARDER TIE-IN FLASHING

FILL VOID WITH NEW MINERAL WOOL (BATT) INSULATION

NEW DRAIN STEM

NEW MECHANICAL COMPRESSION SEAL

irc GROUP

TITLE: RETRO DRAIN DETAIL

NOTE: NO REPRODUCTION OR USE OF THIS DRAWING IS AUTHORIZED WITHOUT EXPRESSED WRITTEN CONSENT

REVISED:	SCALE: 3" = 1'-0"
REV'N.#:	DATE: 29 JAN. 2021
DRN. BY: J.L.	DWG.#: DMM488
CHK. BY: A.J.D./M.A.M.	

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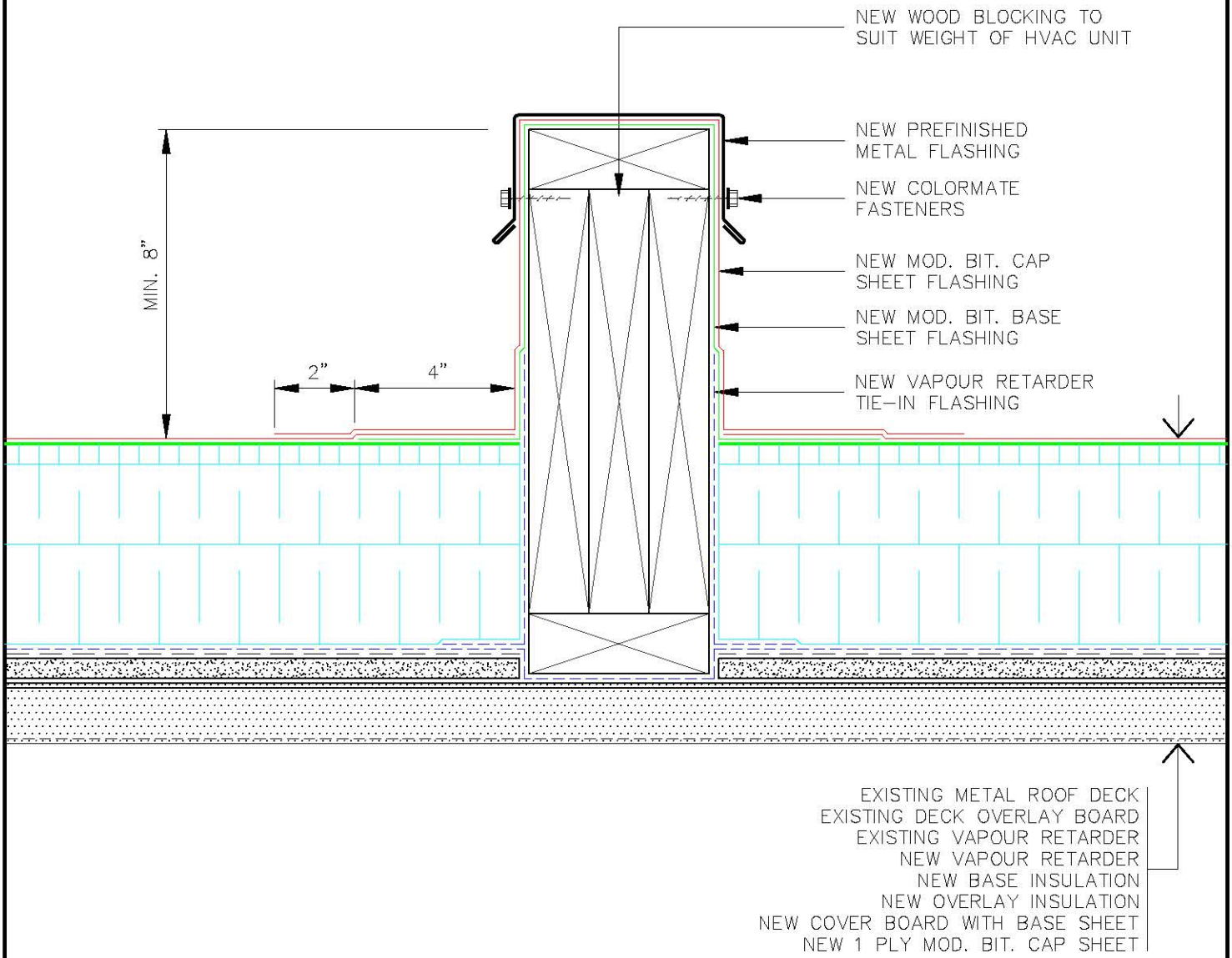

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		CHK. BY: A.J.D./M.A.M.	

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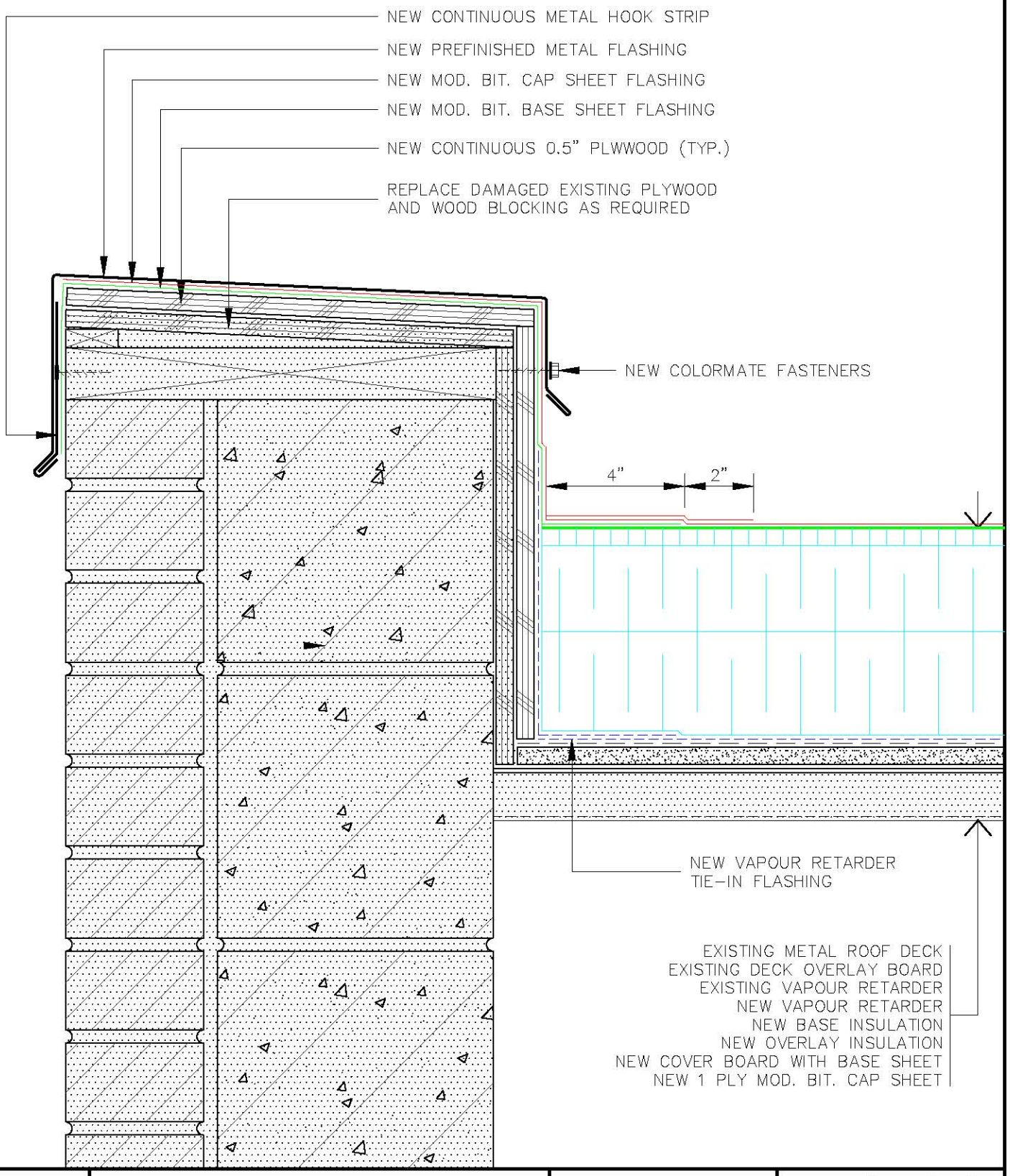


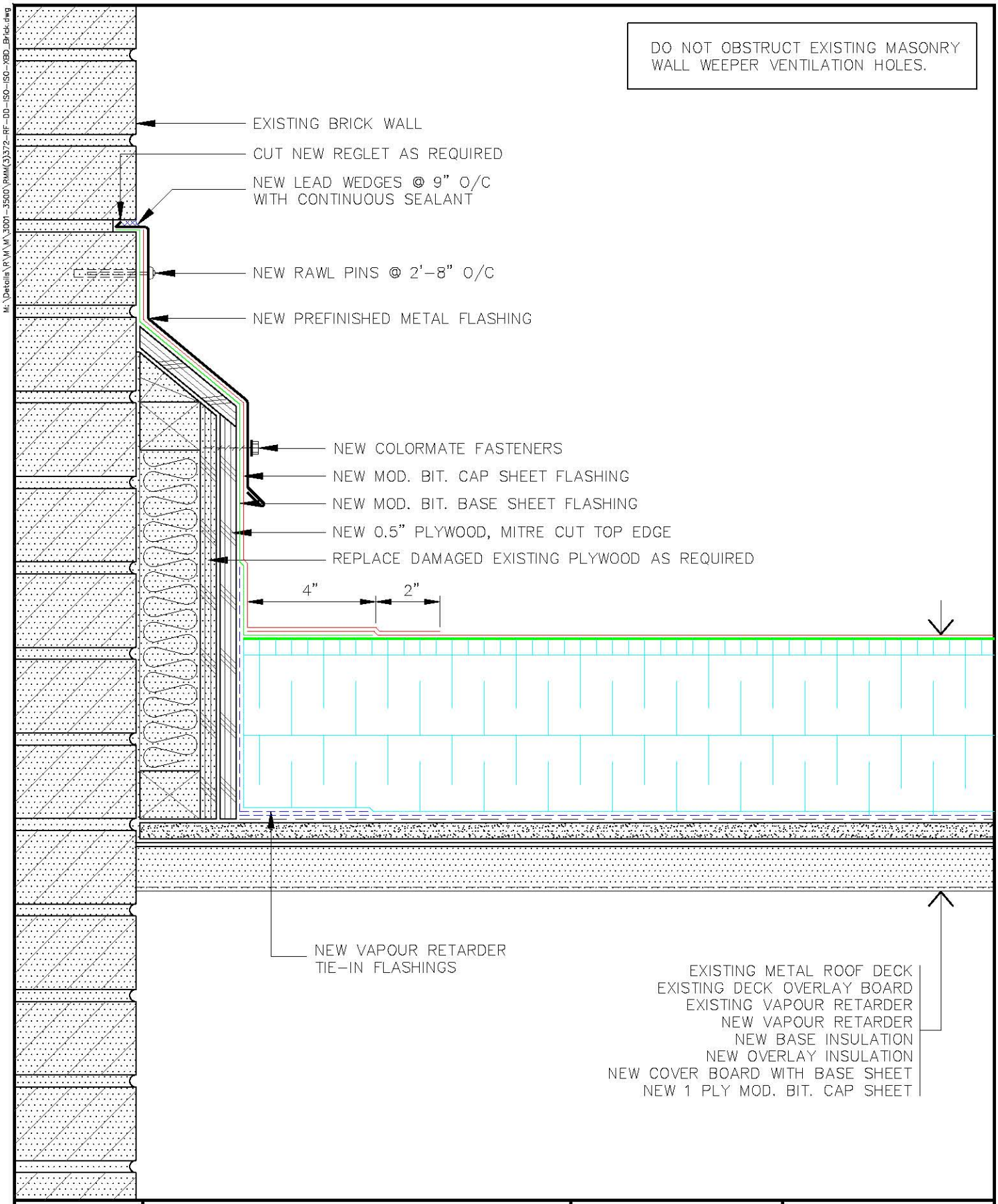
irc GROUP

TITLE: PARAPET DETAIL

REVISED:	SCALE: 3" = 1'-0"
REV'N.#:	DATE: 1 FEB. 21
DRN. BY: J.L.	DWG.#: PMM441
CHK. BY: A.J.D./M.A.M.	

M:\Details\R\M\M\3001-3500\RMM(3)372-RF-DD-ISO-ISO-XBD_Brick.dwg

DO NOT OBSTRUCT EXISTING MASONRY WALL WEEPER VENTILATION HOLES.



irc GROUP

TITLE: MASONRY REGLET FLASHING DETAIL

REVISED:

REV'N.#:

DRN. BY: J.L.

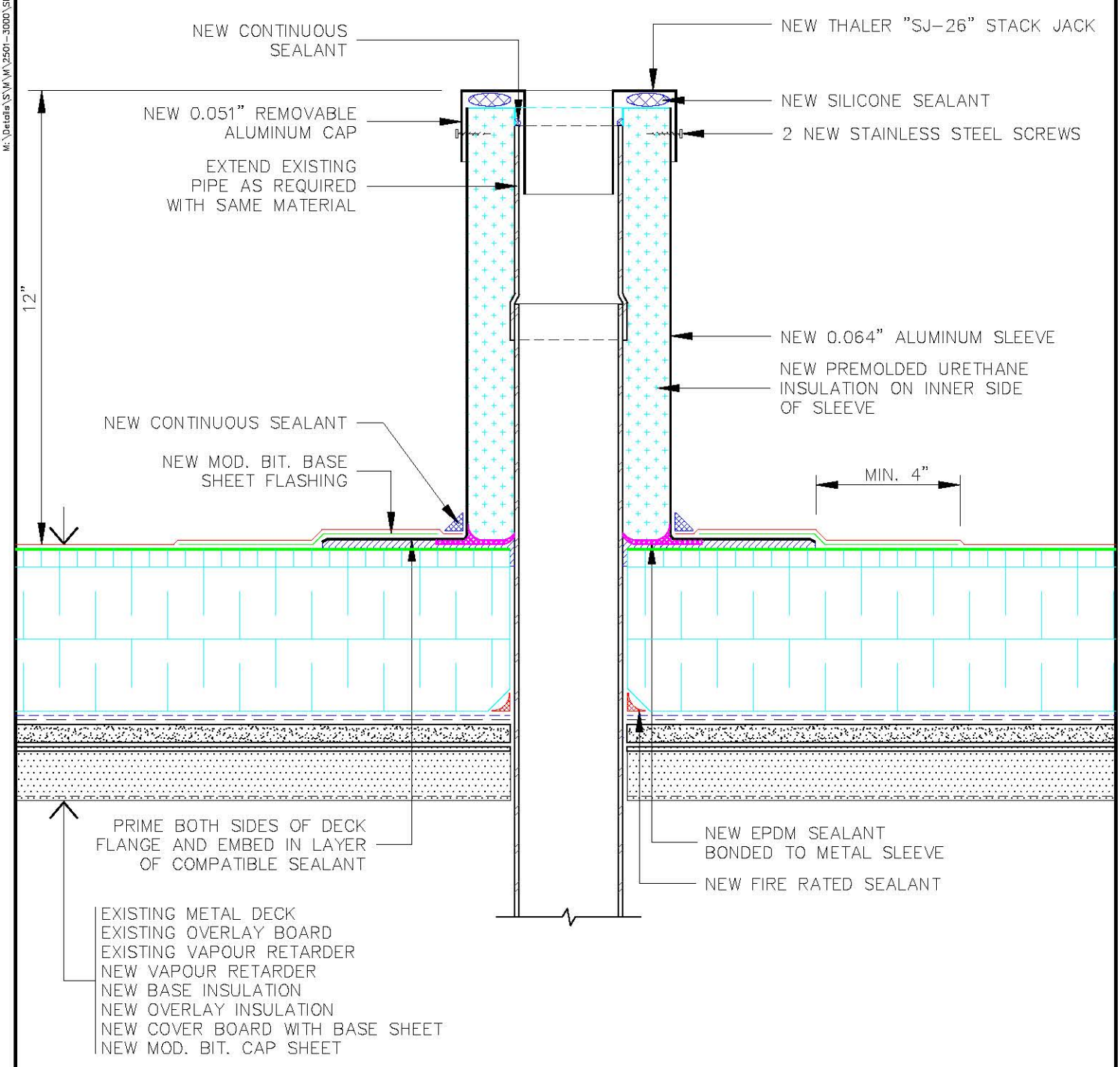
CHK. BY: A.J.D./M.A.M.

SCALE: 3" = 1'-0"

DATE: 29 JAN. 2021

DWG.#: RMM372

M:\Details\S\M\M\2501-3000\SMM(2)930-RF-DD-ISO-ISO-XBD-SJ-26.dwg



irc GROUP

TITLE: PLUMBING STACK DETAIL

REVISED:

REV'N.#:

DRN. BY: J.L.

CHK. BY: A.J.D./M.A.M.

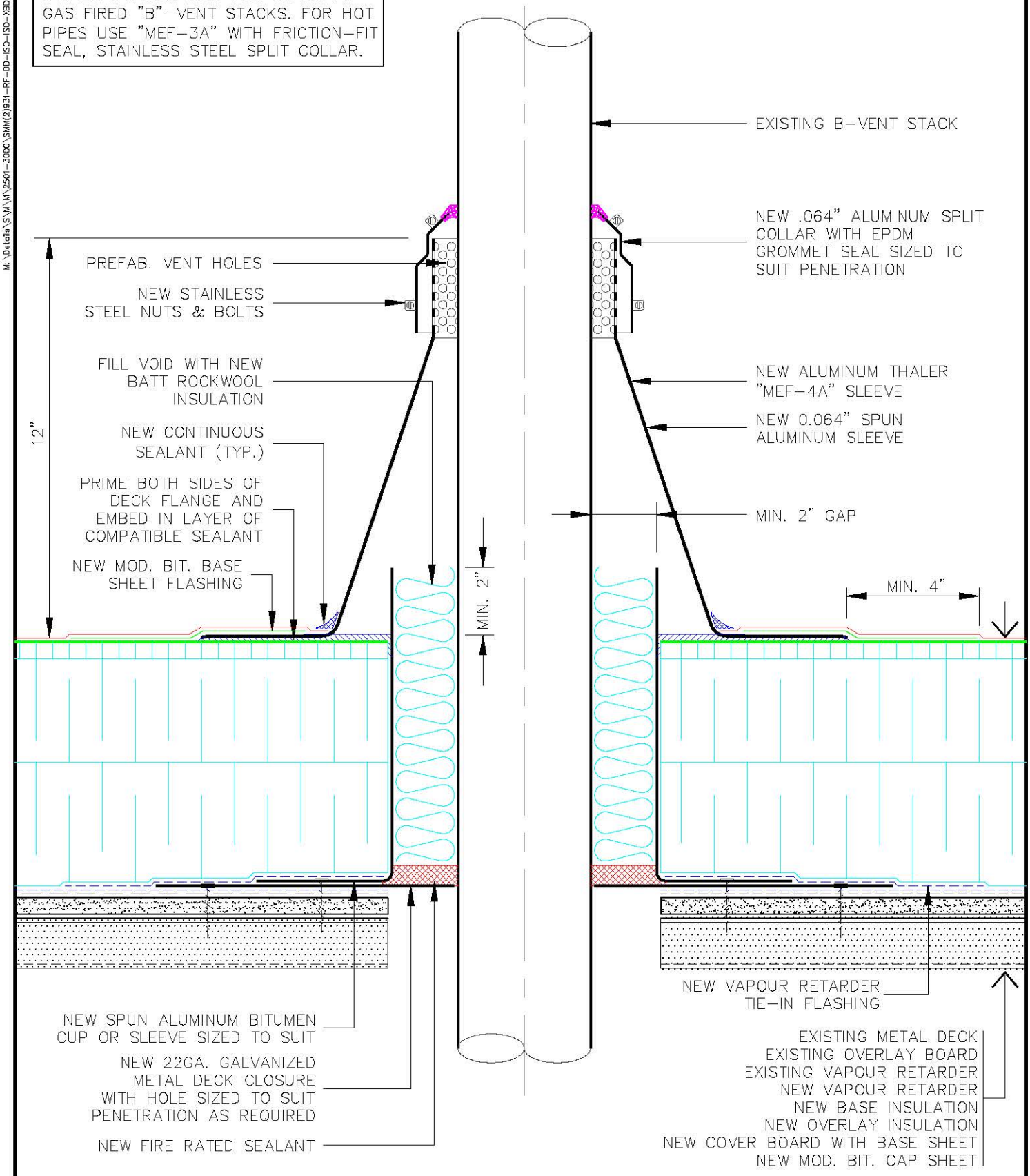
SCALE: 3" = 1'-0"

DATE: 29 JAN. 2021

DWG.#: SMM930

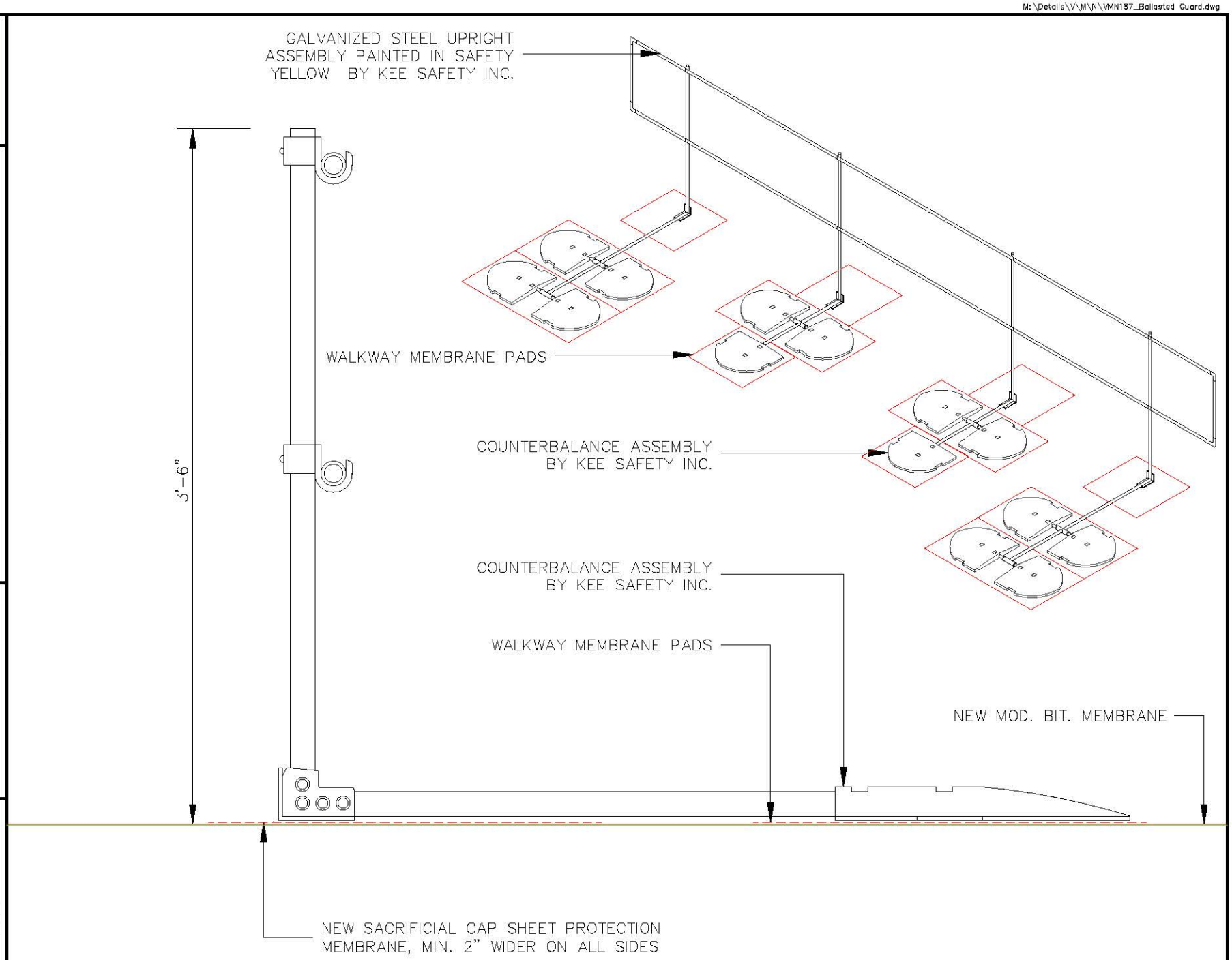
M:\Details\S\M\M\2501-3000\SMM(2)931-RF-DD-ISD-ISD-XBD-Bvent.dwg

DETAIL SHOWS INTENT OF ROOFING SYSTEM INSTALLATION FOR STANDARD GAS FIRED "B"-VENT STACKS. FOR HOT PIPES USE "MEF-3A" WITH FRICTION-FIT SEAL, STAINLESS STEEL SPLIT COLLAR.



irc GROUP	TITLE: B-VENT FLASHING DETAIL	REVISED:	SCALE: 3" = 1'-0"
		REV'N.#:	DATE: 29 JAN. 2021
	NOTE: NO REPRODUCTION OR USE OF THIS DRAWING IS AUTHORIZED WITHOUT EXPRESSED WRITTEN CONSENT	DRN. BY: E.K./J.L.	DWG.#: SMM931
		CHK. BY: A.J.D./M.A.M.	

M:\Details\V\M\N\VMN187_Ballasted Guard.dwg



irc GROUP

TITLE: BALLASTED GUARDRAIL DETAIL

REVISED:

REV'N.#:

DRN. BY: J.L./G.C.

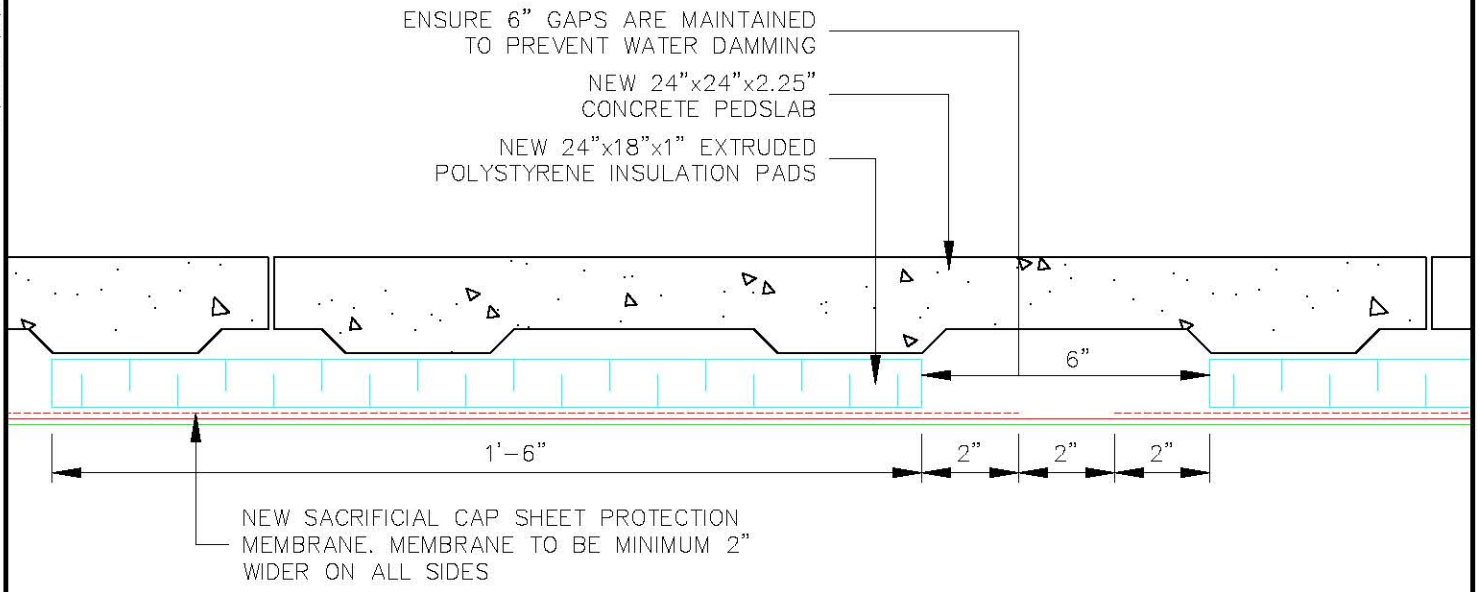
CHK. BY: A.J.D./M.A.M.

SCALE: N.T.S.

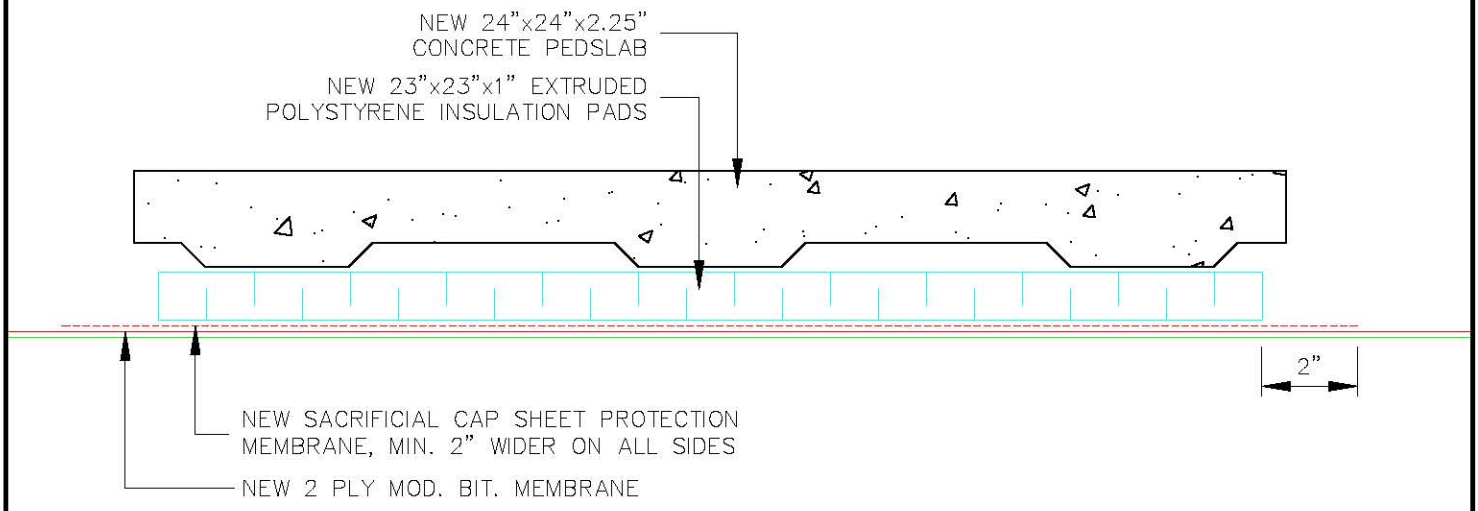
DATE: 1 FEB. 2021

DWG.#: VMN187

F:\New folder\an\VMN905_Paver Walkway.dwg



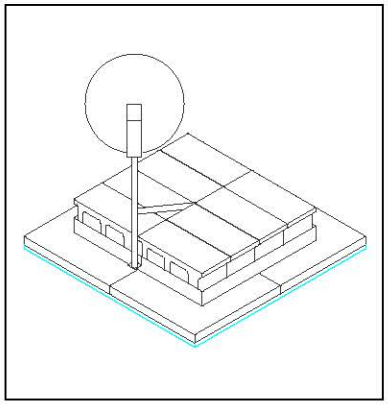
PAVER WALKWAY



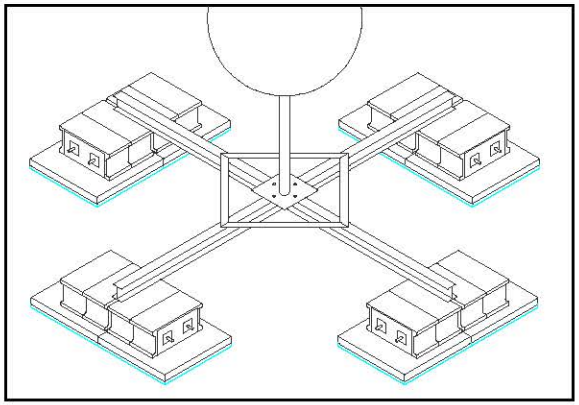
SINGLE PAVER

irc GROUP	TITLE: WALKWAY/PAVER DETAIL	REVISED:	SCALE: 3" = 1'-0"
		REV'N.#:	DATE: 1 FEB. 2021
	NOTE: NO REPRODUCTION OR USE OF THIS DRAWING IS AUTHORIZED WITHOUT EXPRESSED WRITTEN CONSENT	DRN. BY: T.K.C./G.C.	DWG.#: VMN905
		CHK. BY: A.J.D./T.K.C.	

F:\New folder\on\VMN906_Satellite support.dwg



TYPICAL INSTALLATION



TYPICAL INSTALLATION

IRC GROUP

TITLE: SATELLITE SUPPORT DETAIL

REVISED:

REV'N.#:

DRN. BY: S.M.M./G.C.

CHK. BY: A.J.D./T.K.C.

SCALE: 3" = 1'-0"

DATE: 1 FEB. 2021

DWG.#: VMN906

City of Saint John

CONTRACT SPECIFICATIONS

DIVISION 4

FORM OF TENDER

MARCH **2021**

City of Saint John

TABLE OF CONTENTS

DIVISION 4 – FORM OF TENDER

4.1 TENDER IDENTIFICATION

Tender No: 2021-082701T

Title of Work: ROOF REHABILITATION FIRE STATION 5

4.2 TENDERER'S RESPONSIBILITIES AND AGREEMENT

TO THE CITY OF SAINT JOHN, NEW BRUNSWICK:

The undersigned hereby agrees that failure to complete all required parts of the Form of Tender shall be subject to the reserved rights of the City and shall be grounds for rejection of the Tender in accordance with Section 2.11.

The undersigned Tenderer has carefully examined the site of the Work described herein, has become familiar with local conditions and the character and extent of the Work, has carefully examined every part of the proposed Contract, and thoroughly understands its stipulations, requirements and provisions and has carefully examined all of the following documents which together comprise the Tender Documents:

1. Project Description (Division 1)
2. Instructions to Tenderers and Tendering Procedures (Division 2)
3. The Particular Specifications (Division 3)
4. The Form of Tender (Division 4)
5. The Form of Agreement (Division 5)
6. The General Specifications (Divisions 6 through 31)
7. The Plans and Drawings
8. Addenda Issued

together, the "Tender Documents".

The undersigned Tenderer has determined the quality and quantity of materials required, has investigated the location and determined the source of supply of materials required, has investigated labour conditions, and has arranged for the continuous execution of the Work herein described.

The undersigned Tenderer hereby agrees to be bound by the award of the contract, and if awarded the Contract, to sign the Form of Agreement (Division 5) within five (5) working days following the City's Notice of Selection.

In the event the City accepts its Tender, the undersigned Tenderer hereby agrees to Substantially Complete the Work no later than July 31, 2021.

The undersigned Tenderer agrees that he has received all Addenda and the Tender Price includes the provisions set out in the Addenda.

4.2 TENDERER'S RESPONSIBILITIES AND AGREEMENT (Cont'd)

The undersigned Tenderer further agrees to provide all necessary permits, approvals, labour, material, plant, equipment, tools, incidentals, products, water, light, heat, power, transportation, facilities, services and other means of the specified requirements which are necessary to complete the work in accordance with the contract and agrees to accept, therefore, in payment in full, the total sum of

_____
_____
_____

in Canadian Funds, which price excludes HST (the "Tender Price").

By submitting a Tender, the Tenderer absolutely waives any right, cause of action or claim for any compensation of any kind whatsoever as a result of participating in this Request for Tender Call or by reason of the City's failure to accept the Tender submitted by the Tenderer, and the Tenderer shall be deemed to have agreed to waive such right, cause of action or claim.

Place of Signing: Signed, sealed and delivered at _____

Date of Signing: This _____ day of _____, in the year _____

Name and Title: By_____

Legal Name of Tenderer: _____ *PLACE*

Signature of Tenderer or Authorized Agent: _____ *SEAL*

Signature of Witness: _____ *HERE*

Address of Tenderer: _____
_____

4.3 BONDING AND INSURANCE COMMITMENTS

Failure of the Tenderer to complete Sections 4.3.01, 4.3.02 and 4.3.03 may be grounds for rejection of the Tender.

4.3.01 Tender (Bid) Bond or Certified Cheque

A certified cheque or Tender (Bid) Bond accompanies this Tender, as indicated below:

(a) Certified Cheque

Provided is a certified cheque payable to The City of Saint John in the amount of

_____

Signature of Tenderer or Authorized Agent: _____

(b) Tender (Bid) Bond

Provided is a Tender (Bid) Bond payable to The City of Saint John in the amount of

_____

The Tender (Bid) Bond has been negotiated for, procured from and the premium paid to a New Brunswick resident agent of an insurance company licensed to do business in New Brunswick.

Signature of Tenderer or Authorized Agent: _____

4.3.02 Performance Guarantees

One of the following acceptable forms of Performance Guarantees will accompany the Contract, as indicated below:

(a) Performance Bond

The Performance Bond and the Labour and Material Payment Bond, each at fifty percent (50%) of the Tender Price covering the faithful performance of the full Contract, will be negotiated for, procured from and the premium paid to an insurance company licensed to do business in the Province of New Brunswick.

A surety consent letter or Agreement to Bond must accompany the Tender submission.

Signature of Tenderer or Authorized Agent: _____

4.3.02 Performance Guarantees (Cont'd)

(b) Certified Cheque

In lieu of the performance bond and the labour and material payment bond, we shall supply a certified cheque in the amount of twenty percent (20%) of the Tender Price.

Signature of Tenderer or Authorized Agent: _____

4.3.03 Insurance

The undersigned Tenderer has reviewed the insurance requirements in the Contract. The following provision for contract insurances will be utilized, as indicated below:

The insurance required in the contract will be negotiated for, procured from and the premium paid to an insurance company licensed to do business in the Province of New Brunswick.

Signature of Tenderer or Authorized Agent: _____

4.4 STATEMENTS

A Tender which does not include completed statements at Sections 4.4.01 to 4.4.07 hereunder and the duly completed Schedule of Quantities and Unit Prices at Appendix 4A may be Disqualified.

4.4.01 Reference Regarding Tenderer's Financial Status

Name of Reference: _____

Address of Reference: _____

_____

4.4.02 Particulars of Tenderer's Recent Contracts

The Tenderer shall provide hereunder particulars of at least three (3), and if possible, five (5) contracts which the Tenderer has successfully carried to completion within the last three (3) years, or is now carrying to completion.

Tenderers shall be actually engaged in performing the type and standard of work specified, and the projects referenced below shall be work of a similar character to the Work now being tendered and shall be of comparable or greater size.

Tenderers who have not performed work for The City of Saint John within the last three (3) years shall submit additional information with the Form of Tender that would demonstrate the Tenderer's ability to perform the type and standard of work specified and the Tenderer's financial, technical and project management reliability.

4.4.02 Particulars of Tenderer's Recent Contracts (Cont'd)

Contract 1: Brief description of contract: _____

_____

_____

Owner, contact name and telephone number: _____

_____

Contractor's supervisor: _____

Year completed: _____ Contract Value: _____

Contract 2: Brief description of contract: _____

_____

_____

Owner, contact name and telephone number: _____

_____

Contractor's supervisor: _____

Year completed: _____ Contract Value: _____

Contract 3: Brief description of contract: _____

_____

_____

Owner, contact name and telephone number: _____

_____

Contractor's supervisor: _____

Year completed: _____ Contract Value: _____

4.4.02 Particulars of Tenderer's Recent Contracts (Cont'd)

Contract 4: Brief description of contract: _____

_____

_____

Owner, contact name and telephone number: _____

_____

Contractor's supervisor: _____

Year completed: _____ Contract Value: _____

Contract 5: Brief description of contract: _____

_____

_____

Owner, contact name and telephone number: _____

_____

Contractor's supervisor: _____

Year completed: _____ Contract Value: _____

Contract 6: Brief description of contract: _____

_____

_____

Owner, contact name and telephone number: _____

_____

Contractor's supervisor: _____

Year completed: _____ Contract Value: _____

4.4.03 Particulars of Current Construction Work by Tenderer

If none of the projects described in 4.4.02 were in progress in Canada during the twelve (12) months immediately preceding this Tender, the Tenderer shall provide below particulars of a contract which the Tenderer satisfactorily carried out in Canada during that period.

Brief description of contract: _____

_____

_____

Owner, contact name
and telephone number: _____

_____

Date of commencement: _____

Date of (anticipated) completion: _____

Contract value: _____

Contractor's supervisor: _____

4.4.04 Tenderer's Senior Supervisory Staff

The Tenderer shall identify their senior supervisory staff in the spaces below.

Tenderers who have not performed work for the City within the last three (3) years shall submit with their Form of Tender a completed resume for each staff member listed hereunder outlining their experience, education, designations/certificates and continued training/education.)

Name	Position	Qualifications	# Years Experience

4.4.05 Tenderer's Plant

The Tenderer shall list below the construction plant (type of machinery, equipment, trucks, etc.) the Tenderer proposes to use, other plant under the Tenderers control, and the plant the Tenderer proposes to hire, to complete the work within the time allowed.

Type	Make	Model # & Year	Gas/ Diesel	Net Engine Horsepower	Bucket Size Excavator GVW

4.4.06 Tenderer's Other Resources

The Tenderer shall list below the batch plant, gravel pits or quarries, and the like that the Tenderer proposes to use to complete the work within the time allowed.

4.4.07 Sub-Contractors and Suppliers

Tenderers shall state the name and address of each proposed sub-contractor or supplier.

The listing of more than one sub-contractor or supplier for any one sub-trade or failure to submit a complete list of sub-contractors and suppliers may be grounds for rejection of the Tender. After the City has provided the selected Tenderer with written notification of the City's acceptance of its Tender, the selected Tenderer shall not substitute other sub-contractors or suppliers in place of those named below without the written approval of the Engineer.

Sub-Trade or Supplier	Name of Sub-Contractor/Supplier	Address

4.5 SCHEDULE OF QUANTITIES AND UNIT PRICES

The tenderer shall complete and attach as Appendix 4A the required *Schedule of Quantities and Unit Prices* for the Work tendered, in the format specified by the Engineer.

4.6 CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying Tender to The City of Saint John for:

Tender No.: 2021-082701T

Title of Work: ROOF REHABILITATION FIRE STATION 5

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of _____ that:

(Corporate Name of Tenderer)

4.6 CERTIFICATE OF INDEPENDENT TENDER DETERMINATION (Cont'd)

1. I have read and I understand the contents of this Certificate;

2. I understand that the accompanying Tender will be disqualified if this Certificate is found not to be true and complete in every respect;

3. I am authorized by the Tenderer to sign this Certificate, and to submit the accompanying Tender, on behalf of the Tenderer;

4. Each person whose signature appears on the accompanying Tender has been authorized by the Tenderer to determine the terms of, and to sign, the Tender, on behalf of the Tenderer;

5. For the purposes of this Certificate and the accompanying Tender, I understand that the word "competitor" shall include any individual or organization, other than the Tenderer, whether or not affiliated with the Tenderer, who:

(a) may submit a Tender in response to this Request for Tender;

(b) could potentially submit a Tender in response to this Request for Tender, based on their qualifications, abilities or experience;

6. The Tenderer discloses that (check one of the following only, as applicable):

☐ the Tenderer has arrived at the accompanying Tender independently from, and without consultation, communication, agreement or arrangement with, any competitor; or

☐ the Tenderer has entered into consultations, communications, agreements or arrangements with one or more competitors regarding this Request for Tender, and the Tenderer discloses, in the attached document(s), complete details thereof, including the names of the competitors and the nature of, and reasons for, such consultations, communications, agreements or arrangements.

7. In particular, without limiting the generality of paragraphs (6)(a) or (6)(b) above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

(a) prices;

(b) methods, factors or formulas used to calculate prices;

(c) the intention or decision to submit, or not to submit, a Tender; or

(d) the submission of a Tender which does not meet the specifications of the Request for Tender;

except as specifically disclosed pursuant to paragraph (6)(b) above;

4.6 CERTIFICATE OF INDEPENDENT TENDER DETERMINATION (Cont'd)

8. In addition, there has been no consultation, communication, agreement or arrangement with any competitor regarding the quality, quantity, specifications or delivery particulars of the products or services to which this Request for Tender relates, except as specifically authorized by The City of Saint John or as specifically disclosed pursuant to paragraph (6)(b) above;

9. The terms of the accompanying Tender have not been, and will not be, knowingly disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official Tender Opening, or of the awarding of the Contract, whichever comes first, unless otherwise required by law or as specifically disclosed pursuant to paragraph (6)(b) above.

Name of Tenderer or Authorized Agent: _____

Signature of Tenderer or Authorized Agent: _____

Position Title: _____

Date: _____

Address of Tenderer: _____

_____

ATTACHMENT: TENDERER'S CHECKLIST

(The onus is entirely on the Tenderer to understand all the requirements of the tendering process and the Tender Documents. This checklist is provided for information only and is not required to be submitted with the Form of Tender.)

BEFORE SUBMITTING YOUR TENDER, CHECK THE FOLLOWING POINTS:

- ☐ Has your Tender been signed and witnessed?
- ☐ Have you sealed the *Form of Tender* with your corporate seal?
- ☐ Have you enclosed your Tender (Bid) Bond or certified cheque?
- ☐ Have you enclosed the surety consent letter?
- ☐ Have you completed all sections of the *Form of Tender*?
- ☐ Have you completed all schedules and prices in the *Form of Tender*?
- ☐ Have you written each unit price or lump sum price out in words, including the words "dollars" and "cents"?
- ☐ Have you included signed copies of all addenda signature pages?
- ☐ Have you listed your Subcontractors and suppliers?
- ☐ Have you listed your experience in similar work?
- ☐ Have you listed your senior staff?
- ☐ Have you listed the Tenderer's plant?
- ☐ Have you attached required appendices and required supplemental information?
- ☐ Are the documents complete?
- ☐ Is everything legible?

Schedule Of Quantites - Fire Station No.5, Saint John, NB
2021 Roof Rehabilitation Program

Item No.	Lump Sum Pricing	Estimated Quantity	Unit Rate	Total Bid
1.1	Roof Replacement Work Specified for Roof Area 1.1, 2.1, and 3.1	Lump Sum	N/A	$
2.1	Subtotal			$
2.2	Harmonized Sales Tax (HST)			$
2.3	Total Stipulated Price			$

Item No.	Separate Pricing	Subtotal	HST	Total Bid
3.1	Supply and Install New Ballasted Guard Railings as specified	$	$	$

Item No.	Unit Pricing	Subtotal		HST	Total Bid
4.1	New under-deck interior dust protection, per 464.5m²	$	/unit	$	$
4.2	Repair of wet/deteriorated existing vapour retarder & gypsum deck board	$	/ft²	$	$
4.3	New rust inhibiting primer and two coats of paint to prepared metal deck	$	/ft²	$	$
4.4	New metal decking to match existing in size and profile	$	/ft²	$	$
4.5	New 8' of freestanding, self-ballasted guard rail at HVAC close to roof edge	$	/unit	$	$
4.6	New plywood sheathing to replace and match existing damaged plywood	$	/ft²	$	$
4.7	New wood blocking to replace and match damaged existing wood blocking.	$	/bd ft	$	$

City of Saint John

CONTRACT SPECIFICATIONS

DIVISION 5

FORM OF AGREEMENT

MARCH **2021**

City of Saint John

TABLE OF CONTENTS

DIVISION 5 – FORM OF AGREEMENT

5.1 AGREEMENT BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT made in triplicate between **THE CITY OF SAINT JOHN** herein (and in the Specifications) called the "Owner" or the “City”

AND

_____

herein (and in the Specifications) called the "Contractor".

WITNESSETH: That the Owner and the Contractor agree as follows:

a) The Contractor shall provide all the materials and perform all the work shown on the drawings and described in the Contract Specifications titled:

Contract No: 2021-082701T

Title: ROOF REHABILITATION FIRE STATION 5

b) The Contractor shall do and fulfill everything indicated by this Agreement; and

c) The Contractor shall Substantially Complete the Work no later than JULY 31ST, 2021.

5.2 CONTRACT DOCUMENTS

5.2.01 General Specifications

General Specifications, City of Saint John, New Brunswick,
with all applicable divisions, as updated and as listed in the Table of Contents of the Contract Specifications.

5.2.02 Contract Specifications

Contract specifications for

Contract No: 2021-082701T

Title: ROOF REHABILITATION FIRE STATION 5

City of Saint John, New Brunswick,

5.2.02 Drawings

Sheet No.	Title
R1	Roof plan
CMM383	Prefabricated Curb
CMM384	Built-Up Curb Detail
CMM385	New Doghouse Detail
DMM488	Retro Drain Detail
EMM500	New Sleeper Detail
PMM441	Parapet Detail
RMM372	Masonry Reglet Flashing Detail
SMM930	Plumbing Stack Detail
SMM931	B-Vent Flashing Detail
VMN187	Ballasted Guardrail Detail
VMN905	Walkway/Paver Detail
VMN906	Satellite Support Detail

5.3 ADDENDA

The Contractor agrees that he has received addenda ___ to ___ inclusive, and that the tender price includes the provisions set out in the addenda.

5.4 CONTRACT PRICE

The Owner shall pay to the Contractor, in lawful money of Canada for the performance of the Contract, the amounts determined for each of the items of work completed at the unit prices as listed in the Schedule of Quantities and Unit Prices, submitted with the tender, which is to be attached with this Agreement, for the total tender price of:

_____

_____

(Excluding Taxes)

If the Engineer orders in writing the performance of any work not covered by the drawings or included in the specifications that cannot be classified as coming under any of the contract units and for which a unit price can be agreed upon, then such additional work shall be paid for as described under the General Administration of Contract, Division 6.

5.5 PAYMENT

The Owner shall pay on account of thereof upon the Engineer's Certificate, as invoiced by the Contractor and approved by the Engineer, in the manner described in the Specifications.

5.6 AGREEMENT DOCUMENTS

The General Administration of Contract, Division 6 and the aforesaid Specifications and Drawings are all to be read into and form part of this Agreement and the whole shall constitute the Contract between the parties and it shall inure to the benefit of and be binding upon them and their successors, executors, administrators, and subject to the General Administration of Contract, their assigns.

5.7 EXECUTION OF AGREEMENT

In Witness Whereof the parties hereto have executed this Agreement.

	) SIGNED, SEALED AND DELIVERED
	)
	) this _____ day of _____, _____
	)
	) by _____
	) (Contractor)
	)
_____	) _____
(Witness)	) (Signature)
	)
_____	) _____
(Name and Title)	) (Name and Title)
	)
	) _____
	) (Signature)
	)
	) _____
	) (Name and Title)
	)
	)
	) *PLACE SEAL HERE*

	)
	)
	) SIGNED, SEALED AND DELIVERED
	)
	) this _____ day of _____, _____
	)
	) by THE CITY OF SAINT JOHN.
	)
	)
	) _____
	) MAYOR
	)
	) _____
	) COMMON CLERK
	)
	)
	)
	) *PLACE SEAL HERE*

5.8 AFFIDAVIT OF CORPORATE EXECUTION

CANADA
PROVINCE OF NEW BRUNSWICK
CITY OF SAINT JOHN
I, _____, of the _____
in the County of _____, and Province of New Brunswick
MAKE OATH AND SAY:

(1) THAT I am the _____ of _____, and _____ is the _____ of the said Company, as such I am/we are duly authorized officer(s) of the said Company to execute the foregoing instrument.

(2) THAT the signature _____ subscribed to the within instrument is my signature and in my own proper handwriting and that the signature _____ so subscribed is his signature made thereto by him in my presence.

(3) THAT the Seal affixed to the said instrument purporting to be the Corporate Seal of the said _____ is the Corporate Seal of the said Company and was affixed to the said instrument by me and by order of the Board of Directors of the Company.

SWORN TO BEFORE ME at the_____)
)
of _____)
)
in the Province of _____)
)
this _____ day of _____ A.D., _____.)
)
_____) _____
COMMISSIONER OF OATHS) CONTRACTOR
)

Note: The blank spaces are to be filled in with the name or names of the signing officer(s).

5.9 CHECKLIST FOR INSURANCE REQUIREMENTS

The insurance coverage required by the City is set out in General Administration of Contract, Division 6, of the General Specifications. An Insurance Certificate is to be deposited with the City.

The certificate of insurance should contain at least the following information:

- ❑ Be addressed to the City of Saint John.
- ❑ Be signed by an authorized representative on behalf of the insurance company.
- ❑ Contain a Wrap-up (Project Specific) Liability policy with inclusive limits of at least five million dollars ($5,000,000.00).
- ❑ Show that the City of Saint John, the Contractor and Sub-Contractors, the Engineer and the Architect, are added as Additional Insured with respect to the operations of the Contractor.
- ❑ Confirm coverage for bodily injury and property damage and set forth the amount.
- ❑ Confirm that there is coverage for Contractual Liability with respect to this Contract.
- ❑ Confirm that the policy contains a cross liability clause.
- ❑ Confirm that there is Contingent Employer's Liability Coverage.
- ❑ Confirm that there is coverage for Broad Form Property Damage.
- ❑ Confirm that there is Completed Operations coverage with respect to this contract and that such coverage shall continue to be in force for the duration of the guarantee period (maintenance period) which is a period of twelve (12) months from the date of issuance of the Certificate of Final Completion.
- ❑ Confirm that there is coverage for Non-Owned Automobiles or licensed vehicles.
- ❑ Confirm that there is coverage for Owned Automobiles or licensed vehicles.
- ❑ Confirm that the indicated policies will not be cancelled, substantially amended, or allowed to lapse without the City first being given a thirty (30) day written notice.