



Engineers

## **MAQUINNA ELEMENTARY SCHOOL**

### **2026 TARGETED ROOF REPLACEMENT**

3881 Bruce Street, Port Alberni, BC

### **BID DOCUMENTS, TECHNICAL SPECIFICATIONS, AND DRAWINGS**

Prepared for:

Pacific Rim School District  
4690 Roger Street  
Port Alberni BC V9Y 3Z4

Prepared by:

Read Jones Christoffersen Ltd. | EGBC Permit to Practice No. 1002503  
1515 Douglas Street, Suite 330  
Victoria BC V8W 2G4

RJC No. NAN.141875.0002

April 1, 2026 - Issued for Bid

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**END OF SECTION**

## 1.0 Drawings

The drawings listed below will be included in the General Contractor/Owner agreement and will become part of the contract.

<b>Drawing No.</b>	<b>Drawing Title</b>	<b>Date</b>
R-0.0	Cover Sheet	April 1, 2026
R-1.1	General Notes and Location Plan	April 1, 2026
R-1.2	Site Plan	April 1, 2026
R-1.3	Wind Uplift Plan	April 1, 2026
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R-2.1	Roof Plan	April 1, 2026
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R-3.2	Roof Details	April 1, 2026
R-3.3	Typical Flashing Details	April 1, 2026
R-3.4	Separate Price Item Details	April 1, 2026

**END OF SECTION**

## 1.0 Instructions

- .1 Before submitting a bid, Bidders shall:
  - .1 Examine and read the Bid Documents thoroughly.
  - .2 Examine the site and ascertain the extent and nature of all conditions, limitations, or building regulations affecting the performance of the Work. The site is open and available for review by the Bidders during normal business hours. Coordinate site access through the Consultant.
  - .3 Confirm all utility services in the vicinity of the Work that will require protection and maintenance during the course of the Work.
  - .4 Consider the effect of regulatory requirements applicable to the Work.
  - .5 Study and correlate Bidder's observations with the Bid Documents. All dimensions are to be confirmed by on-site measurement by the Bidder.
  - .6 Immediately notify Consultant of all perceived omissions and discovered conflicts, errors, and discrepancies in the Bid Documents.
  - .7 Be satisfied that Bidder understands the Bid Documents and is competent to undertake and complete the Work.
- .2 Bid shall include cost of all permits required (excluding the building permit), royalties, freight, government duties, and taxes where applicable.
- .3 The Owner reserves the right to add or delete items to be performed under this Contract before and after the Contract is awarded without any penalty. Revisions to the Contract Price resulting from these deletions are to be solely based on the unit prices (or lump sum prices) quoted by the Bidder for those items.
- .4 The Bidder shall not engage in collusion of any sort and, in particular, shall ensure that no person or other legal entity other than the Bidder has an interest in the Bidder's bid. The bidder shall prepare the bid without any knowledge of, comparison of figures with, or arrangement with any other person or firm preparing a bid for the same work.

- .5 It is the Bidder's responsibility to provide all labour, material, equipment and supervision to complete the repairs outlined in these Bid Documents taking into account all site conditions, schedule and noise restrictions, work area restrictions, protection requirements, accessibility restrictions, etc. No extras will be entertained for inconveniences after award of the Contract.
- .6 If the Bidder is a joint venture, each party to the venture must execute the bid under seal in the manner appropriate to such party.

## 2.0 Site

- .1 The Work is to be performed at Maquinna Elementary School located at 3881 Bruce St, Port Alberni.

## 3.0 Contract Form

- .1 The form of Contract between the accepted Bidder and Owner will be the Standard Construction Document CCDC 2 - 2020 Stipulated Price Contract, as amended by Section 00 73 00 – Supplementary Conditions.

## 4.0 Owner

- .1 Owner: Pacific Rim School District  
4690 Roger Street  
Port Alberni BC V9Y 3Z4
- .2 Owner's Representative: Alex Taylor  
Telephone: (250) 720-5478  
Email: ataylor@sd70.bc.ca

## 5.0 Consultant

- .1 Consultant: Read Jones Christoffersen Ltd.  
1515 Douglas Street, Suite 330  
Victoria BC V8W 2G4
- .2 Consultant's Representative: Mark Childs  
Telephone: (778) 841-0194  
Email: mchilds@rjc.ca

## 6.0 Bid Meeting

- .1 An optional bid meeting will be held on site at **10:00AM on April 8, 2026** for the benefit of all bidders. Bidders should meet at the entrance to Maquinna Elementary School (3881 Bruce St, Port Alberni).

## 7.0 Examination of Site

- .1 The onus shall be on the Bidders to investigate the project site and inform themselves before bidding of all physical and labour conditions and administrative practices prevailing at the project site.
- .2 The Bidder shall not claim at any time after the submission of their bid any misunderstanding of the terms and conditions of the Contract relating to the site conditions.
- .3 The Bidder shall make allowances as required for the installation of temporary exhaust, heating, and ventilators into and out of the work area. No extra for this item will be entertained after bids have closed.

## 8.0 Bid Submission

- .1 Completed Bid Forms with the required bid bond, consents of surety to provide project bonding, and all supplementary bid submission material shall be submitted through BC Bid no later than **2:00PM on April 22, 2026.**
- .2 Bids will be opened in private at the office of the Consultant.
- .3 Fill out the provided Bid Form in ink or by typing and have Bid Form signed in longhand by a duly authorized company official and sealed with the Bidder's corporate seal.
- .4 The Bid Form shall not be altered and all spaces for information shall be completed.
- .5 Telephone or facsimile bid proposals or bid modifications will not be considered.
- .6 The Consultant may, after bid closing time and before Contract award, require any Bidder to submit, in a form prescribed by or acceptable to the Consultant, supplementary information about any aspect of the Bidder's bid that, in the Consultant's opinion, is necessary for bid evaluation purposes.

## 9.0 Bonding Requirements

- .1 Any Reference to "Contract Price", with respect to any or all bonding requirements, refers to the largest Total Stipulated Contract Price of the alternatives.

- .2 Provide a bid bond bid deposit made payable to the Owner for 10% of the Contract Price.
- .3 Provide a consent of surety to provide the Owner with with a Performance Bond equal to 50% of the Contract Price and a Labour and Material Payment Bond equal to 50% of the Contract Price with the bid submission.
- .4 The cost of bonds is to be included in the bid lump sum prices.
- .5 All Bonds shall be issued by a properly licensed surety company registered and duly authorized to transact the business of suretyship in the Province of British Columbia.
- .6 Bonds must be original hard copies or electronically verifiable and enforceable (e-Bond). Scans of original bonds will be rejected and result in the associated bid being disqualified. For more information regarding e-bonds, Bidders should consult with their surety company or visit the Surety Association of Canada at the following link:  
<https://suretycanada.com/SAC/Surety-Bonds/E-Bonding/SAC/Surety-Bonds/E-Bonding.aspx?hkey=01cd2088-9918-454e-bb0e-a309fa495bef>

## 10.0 Sufficiency of Bid

- .1 The submission of a bid shall constitute an incontrovertible representation by the Bidder that:
  - .1 The Bidder has complied with all bid requirements.
  - .2 The Bidder is qualified and experienced to perform the Work in accordance with the Bid Documents.
  - .3 The bid is based upon performing the Work in accordance with the Bid Documents, without exception.
  - .4 The price or prices stated in the bid cover all the Bidder's obligations under the Contract and all matters and things necessary for the performance of the Work in accordance with the Bid Documents.

## 11.0 Bid Irregularities

- .1 The Owner may accept or waive a minor and inconsequential irregularity, or where practicable to do so, the Owner may, as a condition of bid acceptance, request a Bidder to correct a minor and inconsequential irregularity with no change in bid price.

- .2 The determination of what is or is not a minor and inconsequential irregularity, the determination of whether to accept, waive, or require correction of an irregularity, and the final determination of the validity of a bid shall be at the Owner's sole discretion.
- .3 Discrepancies between words and figures will be resolved in favour of words.

## **12.0 Bid Withdrawal and Acceptance**

- .1 The Owner reserves the right to reject any or all bids as the interests of the Owner may require, without stating reasons for rejection.
- .2 The lowest or any bid will not necessarily be accepted.
- .3 A Bidder who has already submitted a bid may submit a further bid at any time up to the official closing time. The last bid that is received shall supersede and invalidate all previously submitted bids by that Bidder for this Contract.
- .4 A bid may be withdrawn at any time before the bid closing time, provided the request is in the form of a signed letter on company letterhead received in hard copy at the office of the Consultant before the bid closing time.
- .5 Withdrawn bids may be resubmitted in accordance with these bidding requirements providing the resubmitted bid is received at the office of the Consultant before the bid closing time.
- .6 A bid may not be withdrawn at or after bid closing time and shall be open to acceptance by the Owner until whichever of the following occurs first:
  - .1 Another Bidder has entered into a Contract with the Owner for performance of the Work.
  - .2 30 calendar days after the bid closing time.
  - .3 Bid is released or rejected.
- .7 The 60-day acceptance period commences at midnight on the date of bid closing and terminates at midnight of the 60th day thereafter. If the 60th day falls on a statutory holiday, the statutory holiday will be deleted from the computation.
- .8 The 60-day acceptance period may be extended at the Consultant's request and subject to the Bidder's written agreement to the extension.

.9 In the case of an error in addition, the correct sum of the amounts shown for each bid item shall be deemed to be the total bid price regardless of the total amount submitted by the Bidder.

.10 Evaluation of Bid:

In evaluating the bids, the Owner may consider any criteria, with such consideration to be exercised by the Owner in its sole discretion, including the following:

- .1 Bid Contract Price as determined from the base bid or alternate bid.
- .2 Owner's budget for the Work.
- .3 Contract Time.
- .4 Bidder's ability to effectively manage and perform the Work and work with other Subcontractors.
- .5 Bidder's understanding of the Work.
- .6 Bidder's Unit Prices, Allowances, and Separate Prices, if applicable.
- .7 Bidder's ability to present cost saving opportunities that may be appropriate and acceptable to the Consultant and Owner.
- .8 Bidder's experience, competence, and past performance in undertaking similar work, as well as that of its Subcontractors.
- .9 Bidder's financial strength and capability.
- .10 Experience, qualifications, and abilities of Bidder's supervisory personnel.
- .11 Aesthetic changes resulting from Bidder's proposed approach to the Work.
- .12 Other criteria that the Owner, in its sole discretion, may consider appropriate to its evaluation.

.11 Acceptance of Bid

- .1 The lowest or any bid need not be accepted by the Owner. The Owner reserves the right to accept or reject any or all bids at their sole discretion on any basis at any time without further explanation or to accept any bids considered advantageous to the Owner.
- .2 The Bidder acknowledges and agrees that the Owner will not be responsible for any costs, expenses, losses, damages, or liabilities incurred by the Bidder as a result of or arising out of participation in this bid process, submission of a bid, or due to the Owner's acceptance or non-acceptance of the bid.
- .3 The Owner may also elect not to proceed with the Project.

**13.0 Notification of Intent Not to Submit a Bid**

- .1 Prospective Bidders who have received Bid Documents but do not intend to submit a bid are requested to notify the Consultant at least 72 hours prior to bid closing.

**14.0 Addenda**

- .1 Direct all questions in writing to the Consultant.
- .2 Answers to queries are only binding when confirmed by written addenda.
- .3 Clarifications requested by Bidders must be submitted in writing to the Consultant no less than five calendar days before the date set for receipt of the bids. Any reply will be in the form of an addendum, a copy of which will be forwarded to known Bidders before the date set for receipt of the bids.
- .4 Addenda may be issued by the Consultant during the bid period. Any addenda will be delivered by the Consultant via e-mail to all parties recorded by the Consultant as having received the Bid Documents.
- .5 All addenda become part of the Bid and Contract Documents and the costs arising from any addenda are to be included in the bid price.
- .6 Each Bidder shall ascertain before bid submission that all addenda issued by the Consultant have been received and the Bidder shall indicate in the Bid Form the addendum number(s) of all addenda received.

## **15.0 Construction Schedule**

- .1 Schedule requirements are outlined in Section 01 11 00 - Summary of Work.

## **16.0 Alternative Materials or Equipment**

- .1 A base bid submission is to include only approved and/or specified products and methods of construction.
- .2 Alternative materials or equipment will be considered provided requests for approval have been submitted to the Consultant per Section 01 25 13.
- .3 If a Bidder wants to submit substitutes to the material, equipment, or workmanship specified or indicated, they may include the substitutes as an unsolicited alternative, and this shall be stated as such in the Alternate Prices section of the Bid Form.

## **17.0 Alternate Bids**

- .1 A Bidder may, at the Bidder's discretion, submit an alternate bid ("Alternate Bid") that varies in some manner from the Bid Documents.
- .2 Alternate Bids may only be submitted in addition to, and not in substitution of, a bid that complies with the requirements of the specifications and drawings (the "Base Bid").
- .3 Products or systems identified in an Alternate Bid that vary from the products or systems described in the Bid Documents do not require pre-approval by the Consultant or Owner. An Alternate Bid should contain sufficient description and identification of any such varying products or systems to permit evaluation and review by the Consultant and the Owner.

## **18.0 Qualifications**

- .1 Bidders shall be actively engaged and experienced in the type of work required by these Bid Documents and the Bidder shall provide, on request, a statement of similar work performed by those persons.

## **19.0 Damages Due to Delay in Work Schedule**

- .1 If the area of the work is not available for occupancy by the Owner after the date for Substantial Performance of the Work outlined in the Agreement and as modified by Change Order, the Contractor will be responsible for all damages resulting from the delay in the work schedule, including the Owner's costs and expenses associated with extended work schedule.

**END OF SECTION**

DATE: \_\_\_\_\_

SUBMITTED BY: \_\_\_\_\_  
(Company Name)

OF: \_\_\_\_\_  
(address) (telephone)

To: School District 70 – Pacific Rim  
c/o Read Jones Christoffersen Ltd.  
1515 Douglas Street, Suite 330  
Victoria BC V8W 2G4

Having examined the Project site, and having carefully examined the General Conditions of the General Contract CCDC 2 - 2020 as amended by Section 00 73 00 - Supplementary Conditions, the Specifications, and the Drawings, including Addenda \_\_\_\_ to \_\_\_\_ issued as supplements thereto, and having examined and complied with Section 00 21 00 - Instructions to Bidders, we hereby offer to perform the Work set forth in the aforesaid documents for the Contract Price, which includes any applicable taxes in force at this date.

Contract Price	\$ _____
Contingency Allowance	\$ <b>40,000</b>
Goods and Services Tax (5%)	\$ _____
Total Contract Price	\$ _____

NOTES:

- .1 Lump Sum Prices are included in the Contract Price.
- .2 Lump Sum Prices include the Contractor's labour, material, equipment, material costs, overhead and profit, and all taxes and duties, and shall represent the cost to the Owner for such charges (does not include GST). In the event one or all Items 1.2 to 1.6 are deleted from the Contract, the price noted below represents the credit to the Contract.

.3 Schedule requirements are outlined in Section 01 11 00. The Contractor shall review the schedule requirements with the understanding that Contract time is of the essence.

**1.0 Lump Sum Price Items**

ITEM	SPEC NO.	DESCRIPTION	LUMP SUM PRICE
1.1	Div. 01	General Requirements	\$ _____
1.2	Div. 01	Bonds	
	.1	Performance Bond	\$ _____
	.2	Labour and Material Payment Bond	\$ _____
1.3	Div. 01	Access and Staging	\$ _____
1.4	Div. 07	Replacement of Roofs 2, 3, and 9 with New SBS Modified Bitumen Assembly	\$ _____
1.5	Div. 07	Parapet Re-Framing	\$ _____
1.6	Div. 07	Metal Flashing and Trim	\$ _____

**2.0 Allowances**

- .1 Hourly rates, including the Contractor's overhead and profit.
  - .1 The following hourly rates will be used to vary the Contract Price in the event of changes in the Contract.
  - .2 The final Contract Price will be determined using the total of Lump Sum Contract Price items and Unit Price items established above plus actual Time and Materials required agreed upon by the Contractor and Consultant for work carried out under Section 01 21 00.
    - .1 Superintendent \$ \_\_\_\_\_ /hr
    - .2 Foreperson \$ \_\_\_\_\_ /hr
    - .3 Ticketed Roofer \$ \_\_\_\_\_ /hr

- .4 Apprentice Roofer \$ \_\_\_\_\_ /hr
- .5 Labourer \$ \_\_\_\_\_ /hr
- .6 Others (List): \_\_\_\_\_ \$ \_\_\_\_\_ /hr
- .3 Hourly rates are not applicable for electrical or mechanical contractors. These will be established during construction.

### 3.0 Schedule

- .1 We agree that work must be completed in the most efficient manner. We confirm that the following minimum crew size will be present at the Place of Work during the hours of work throughout the duration of the project schedule:
- Minimum Crew Size: \_\_\_\_\_ Workers
- Failure to maintain the above-noted crew size may be considered material breach of the Contract at the Consultant's discretion.
- .2 Schedule is of the essence. Failure to meet the milestone dates identified in the Contract, including (but not limited to) Ready-for-Takeover and Total Performance (once identified), may be considered material breach of the Contract at the Consultant's discretion.
- .3 Available Start Date: \_\_\_\_\_, 20 \_\_\_\_.
- .4 Ready-for-Takeover Date: \_\_\_\_\_
- .5 Bidders are to be advised that the **project cutoff date is March 31, 2027**. All work and invoicing must be completed prior to this date.

### 4.0 Submittals

We enclose the following with our Bid:

- .1 Our Bid Security in the amount of ten percent (10%) of the Total Contract Price and Consent of Surety to provide Bonds in accordance with Section 01 78 36.

## 5.0 Subcontractors

- .1 The following Subcontractors are proposed for this project. "Own Forces" indicates Work to be specifically undertaken by the General Contractor.

Description	Subcontractor
Demolition	
Access/Scaffolding	
Carpentry	
Metal Flashing and Trim	

- .2 We reserve the right to substitute another subcontractor in the event that a subcontractor should withdraw its bid or become bankrupt. All subcontractor substitutions are subject to the Owner's approval.
- .3 Any such substitution, in order to be considered for approval, is contingent on the submission of conclusive evidence of withdrawal, bankruptcy, or unsatisfactory performance.
- .4 We are responsible for all costs incurred as a result of substituting one subcontractor for another.

## 6.0 Acceptance

- .1 This Bid is open to acceptance for a period of 30 days from the date of bid closing and is promised in consideration of the attached Bid Security. Failure to enter into a contract after contract award shall result in forfeiture up to the amount of the Bid Security.
- .2 We agree to execute a contract on the Standard Construction Document CCDC 2 - 2020, as amended by Section 00 73 00, the Specifications, and the Drawings, within seven days of written notification of contract award.
- .3 Submission of this Bid implies acceptance of the existing conditions at the site.

- .4 We understand that the lowest or any Bid will not necessarily be accepted, and that selected items may be deleted from the Project as represented in the Bid Form. The Owner may also elect not to proceed with the Project.
- .5 The Owner reserves the right to waive minor defects or irregularities in the bid.

Bidder:

\_\_\_\_\_  
*(Company Name)*

Signature

\_\_\_\_\_  
*(Authorized Officer)*

Signature

\_\_\_\_\_  
*(Authorized Officer)*

*(Seal)*

Date

\_\_\_\_\_

**END OF SECTION**

**1.0 Separate Price Items**

- .1 The following Separate Prices may be used to vary the Estimated Contract Price at any time during term of Contract.
- .2 Separate Prices shall include the Contractor's labour, equipment, material, and supervision costs, overhead and profit, all taxes and duties, and shall represent the cost to the Owner for such charges (excluding GST).
- .3 Separate Prices are not included in the Contract Price on Page 1 of the Bid Form.

ITEM	SPEC NO.	DESCRIPTION	UNIT	SEPARATE PRICE
1.1	Div. 07	<b><u>Roofs 5 and 6 Replacement</u></b>  Replace the low-slope SBS-modified bitumen membrane roof assemblies at Roofs 5 and 6 (denoted on R-1.2 of the Drawings) as detailed on R-3.4 of the Drawings. Separate Price Item shall include the costs to provide a 10-Year RCABC Guarantee as per Specification Section 01 78 36.	Lump Sum	\$ _____
1.2	Div. 07	<b><u>Roof 7 Replacement</u></b>  Replace the low-slope SBS-modified bitumen membrane roof assemblies at Roof 7 (denoted on R-1.2 of the Drawings) as detailed on R-3.4 of the Drawings. Separate Price Item shall include the costs to provide a 10-Year RCABC Guarantee as per Specification Section 01 78 36.	Lump Sum	\$ _____

Bidder: \_\_\_\_\_  
 (Company Name)

Signature \_\_\_\_\_  
 (Authorized Officer)

Signature \_\_\_\_\_  
 (Authorized Officer)

(Seal)

Date \_\_\_\_\_

**END OF SECTION**

## **1.0 Contract Form**

The form of the contract between the accepted Bidder and the Owner will be the Standard Construction Document CCDC 2 – 2020, Stipulated Price Contract, revised to include amendments as set out in Section 00 73 00 – Supplementary Conditions.

**END OF SECTION**

## 1.0 AGREEMENT SUPPLEMENT

The Agreement for the Standard Construction Document CCDC 2 – 2020, Stipulated Price Contract is amended as follows:

### 1.1 Article A-5 Payment

- .1 Paragraph 5.2.1: Insert chartered lending institution as “The Bank of Nova Scotia”.

### 1.2 Article A-7 Language of the Contract

- .1 Paragraph 7.1: Strike out “French” to select English as the prevailing language.

## 2.0 SUPPLEMENTARY DEFINITIONS

Definitions used in the Standard Construction Document CCDC 2 - 2020, Stipulated Price Contract, are hereby amended as follows and wherever the Definitions are referred to in the *Contract Documents*, it shall be understood that such reference means as amended by these Supplementary Definitions.

- .1 Consultant: Add the following sentence to the end of the definition:  
“The term *Consultant* means the *Consultant* or the *Consultant's* authorized representative.”
- .2 Contract Time: Delete the following words:  
“the time from commencement of the *Work* to the date of *Ready-for-Takeover*”
- .3 Contractor: Add the following sentence to the end of the definition:  
“The term *Contractor* shall be defined as the *Contractor* or the *Contractor's* authorized representative, but does not include the *Consultant*.”
- .4 Dictionary: Add the following new definition:  
“In case of dispute, The Concise Oxford English Dictionary (current edition) shall prevail, except for those definitions given in CCDC 2 - 2020 and in various other places in the *Contract Documents*.”

- .5 Owner: Add the following sentence to the end of the definition:

“The term *Owner* shall be defined as the *Owner* or the *Owner’s* authorized representative, but does not include the *Consultant*.”

- .6 Provide: Add the following new definition:

“*Provide* means to supply and install.”

- .7 Substantial Performance of the Work: Add the following sentence to the end of the definition:

“If such legislation is not in force or does not contain such definition at the *Place of the Work*, *Substantial Performance of the Work* shall have been reached when the *Work* is ready for use or is being used for the purpose intended and is so verified by the *Consultant*.”

- .8 Total Performance: Add the following new definition:

“With the exception of warranty obligations, *Total Performance* of the *Work* shall be achieved when the *Contractor* has fulfilled the requirements of the *Contract* in their entirety, including issuance of the Occupancy / Closeout Permit by the Authority having Jurisdiction if applicable; and is so verified by the *Consultant* through issuance of the final Certificate for Payment in accordance with GC 5.5.”

### 3.0 SUPPLEMENTARY CONDITIONS

The General Conditions of Standard Construction Document CCDC 2 - 2020, Stipulated Price Contract, are hereby amended as follows and wherever the General Conditions are referred to in the *Contract Documents*, it shall be understood that such reference means as amended by these Supplementary Conditions.

#### 3.1 GC 1.1 Contract Documents

- .1 Paragraph 1.1.4: Delete the words:

“shall not proceed with the work affected”,

and replace with the words:

“shall take all reasonable measures so as not to delay the work affected”.

- .2 Paragraph 1.1.12: Add the following new paragraph:

"The *Owner* will provide the *Contractor*, without charge, one PDF copy of the *Contract Documents* to perform the *Work*. Hard copies of the *Contract Documents* or parts thereof required by the *Contractor* shall be provided at the *Contractor's* expense."

### 3.2 GC 2.2 Role of the Consultant

- .1 Paragraph 2.2.1: Delete entirely and replace with the following:

"The *Consultant* will provide administration of the *Contract* as described in the *Contract Documents* during construction until issuance of Final Certificate for Payment, and subject to GC 2.1 - Authority of the *Consultant*."

- .2 Paragraph 2.2.3: Delete entirely.

### 3.3 GC 2.3 Review and Inspection of the Work

- .1 Paragraph 2.3.8: Add the following new paragraph:

"Where standards of performance are specified and the *Work* is not compliant, such deficiency shall be corrected as directed by the *Consultant*. Any subsequent testing (including re-testing by the *Owner*) to verify performance shall be done at the *Contractor's* expense."

### 3.4 GC 3.4 Construction Schedule

- .1 Paragraph 3.4.1.1: Delete the words: "prior to the first application for payment",

and replace with the words: "within one week of *Contract* award".

### 3.5 GC 3.6 Subcontractors and Suppliers

- .1 Paragraph 3.6.7: Add the following new paragraph:

"*Specifications* are arranged in Divisions and Sections for convenience. They shall be read as a whole. This arrangement places no responsibility upon the *Owner* or *Consultant* to settle disputes between *Subcontractors* and *Suppliers* or between the *Contractor* and *Subcontractors* and *Suppliers*."

### **3.6 GC 3.7 Labour and Products**

- .1 Paragraph 3.7.2: Delete the words: “The *Contractor*”,  
and replace with the words: “Unless otherwise specified, the *Contractor*”.

### **3.7 GC 3.8 Shop Drawings**

- .1 Paragraph 3.8.7: Delete the words:  
"in accordance with the schedule agreed upon, or in the absence of such  
schedule, with reasonable promptness so as to cause no delay in the  
performance of the *Work*",  
and replace with the words:  
"to *Contractor* within 10 working days of receipt”.

### **3.8 GC 3.9 Documents at the Site**

- .1 Add the following section:  
“GC 3.9 DOCUMENTS AT THE SITE  
3.9.1 The *Contractor* shall keep one copy of current *Contract Documents*,  
submittals, reports, and records of meetings at the *Place of the  
Work*, in good order and available to the *Owner* and the  
*Consultant*.”

### **3.9 GC 4.1 Cash Allowances**

- .1 Paragraph 4.1.7: Delete the words: “and the *Consultant* shall jointly”  
and replace with the words: “, in consultation with the *Consultant*, shall”.

### **3.10 GC 5.2 Applications for Payment**

- .1 Paragraph 5.2.3: Delete the words:  
"and *Products* delivered to the *Place of the Work*",  
and insert the following sentence to the end of the paragraph:  
"Payment will not be made for *Products* delivered to the *Place of the Work*  
but not yet incorporated into the *Work*."

- .2 Paragraph 5.2.5: Delete entirely and replace with the following:

“The schedule of values shall be made out in such form as specified in the *Contract* and supported by such evidence and possible modification as the *Consultant* may reasonably require until accepted by the *Consultant*.”

- .3 Paragraph 5.2.9: Add the following new paragraph:

“Upon establishing that the *Work*, or a portion of the *Work*, has been Completed (as per the governing Builder’s Lien Legislation), the *Contractor’s* applications for payment for those portions of the *Work* deemed Complete, shall reflect the balance of the *Contract* price less:

- .1 the aggregate amount, if any, determined in accordance with GC 5.4.1 multiplied by two, and
- .2 the amount, if any, determined in accordance with GC 5.6 - Deferred Work.

Until all deficient and incomplete work for which amounts are withheld pursuant to subparagraphs .1 and .2 of this Paragraph 5.2.9 are rectified and completed to the satisfaction of the *Consultant*, the *Owner* may withhold the full amounts set out in Subparagraphs .1 and .2 of this Paragraph 5.2.9 respectively.”

- .4 Paragraph 5.2.10: Add the following new paragraph:

“The *Contractor* shall complete the deficient and incomplete work in a timely manner in accordance with the *Contract*. Acceptance of the *Work* or occupancy of the *Project* or any portion thereof shall not relieve the *Contractor* from the obligation of correcting deficiencies which are not identified at the time of establishing the list of deficient and incomplete items of work.”

- .5 Paragraph 5.2.11: Add the following new paragraph:

“Unless all independent material testing results of *Products* supplied to the site have been received, or if the deficiency review process has not yet commenced, the maximum percent of work completed that can be claimed by the *Contractor* and certified by the *Consultant* for any item of work is 90%.”

### 3.11 GC 5.3 Payment

- .1 Paragraph 5.3.1: Delete the words “and the Owner”.

- .2 Paragraph 5.3.1.1:
- .1 Add the following words after “receipt of the application for payment”:
- “that is complete and in conformance with the *Contract*”.
- .2 Add the following words after “or part thereof,”:
- “the *Consultant* in consultation with”.
- .3 Add the following sentences to the end of the paragraph:
- "In addition to statutory lien holdback, Certificates for Payment may provide for retention of amounts, as determined by the *Consultant*, to account for deficient or incomplete work, until the items in question are addressed and determined to be in general conformance with the *Contract*."
- .3 Paragraph 5.3.1.2: Delete the words: “by the *Owner* and the *Consultant* of the application for payment”,
- and replace with the words: “of the Certificate for Payment by the *Consultant*”.
- .4 Paragraph 5.3.2: Add the following new paragraph:
- “The *Owner*, in consultation with the *Consultant* and as verified through a Certificate for Payment, may withhold total or partial payments at any point after *Contract* award to cover third party liability claims related to the *Contractor’s* operations or actions. The withheld payment amounts shall be used by the *Owner* to cover third party liability claims when there is a dispute between the *Owner* and the *Contractor* regarding responsibility for the claim. These funds are intended to ensure that third parties receive compensation promptly.
- .1 Payments to the third parties are to be released immediately and unresolved disputes between the *Owner* and the *Contractor* shall be addressed in accordance with the *Contract*.
- .2 Receipts for payments to cover third party liability claims for damages shall be provided to the *Contractor* as requested or required in accordance with the *Contract*.”

### 3.12 GC 5.4 Substantial Performance of the Work and Payment of Holdback

- .1 Paragraph 5.4.1: Delete entirely and replace with the following:

“When the *Contractor* considers the *Work* to be substantially performed and in accordance with applicable lien legislation requirements, the *Contractor* shall submit to the *Consultant* and the *Owner* a written application for *Substantial Performance of the Work*, including a declaration stating that the *Contractor* has attained *Substantial Performance of the Work*, a comprehensive list of items to be completed or corrected, and a request for the *Consultant* to review the claim. The *Consultant* will review the *Work* to certify or verify the application’s validity and, in accordance with applicable lien legislation, or in the absence of such legislation, no later than 10 calendar days after receipt of the *Contractor’s* application:

- .1 advise the *Contractor* in writing that the *Work* or the designated portion of the *Work* is not substantially performed and give reasons why, or
- .2 Issue or request the required documents for *Substantial Performance of the Work* in accordance with applicable lien legislation, or in the absence of such legislation, issue the Certificate of Completion.”

- .2 Paragraph 5.4.7: Add the following new paragraph:

“No later than five calendar days following the issuance of the Certificate of Completion, the *Contractor*, in consultation with the *Consultant*, shall verify the date for *Ready-for-Takeover*.”

### 3.13 GC 5.5 Final Payment

- .1 Paragraphs 5.5.2, 5.5.3, and 5.5.4: Delete entirely.

- .2 Paragraphs 5.5.2 and 5.5.3: Add the following new paragraphs:

5.5.2 All parties are to process in accordance with Part 5 – PAYMENT.

5.5.3 The *Consultant* will not consider the application for final payment valid until all applicable materials installed are tested and the *Contractor* has fulfilled the project closeout requirements that include, but are not limited to, GC 5.4 and Part 12 – Owner Takeover.”

### 3.14 GC 6.1 Owner's Right to Make Changes

- .1 Paragraph 6.1.2: Add the following to the paragraph:

"The valuation for the change shall include the following maximum adjustments for overhead and profit based on the actual costs:

- .1 For Subcontractors - 10% for overhead and 5% for profit on the cost of their work.
- .2 For Contractor - 2.5% for overhead and 2.5% for profit on the cost of the Subcontractors' work.
- .3 For Contractor - 10% for overhead and 5% for profit on the cost of their work.

Profit to be based on the value of work including overhead."

### 3.15 GC 6.2 Change Order

- .1 Paragraph 6.2.1: Delete entirely and replace with the following:

"When a change in the *Work* is proposed or required, the *Consultant* will provide the *Contractor* with a written description of the proposed change in the *Work*. The *Contractor* shall prepare and submit to the *Consultant*, in a form required by the *Consultant* to permit evaluation, the adjustment in *Contract Price*, if any, and adjustment in *Contract Time*, if any, for the proposed change in the *Work*. Time is of the essence with respect to changes and the *Contractor* shall submit requested *Change Order* documents within a reasonable timeframe commensurate with the requirements of the *Change Order*, and as required to not cause a delay in the *Contract* schedule."

- .2 Paragraph 6.2.2: Delete the words: "be effective immediately and shall be recorded in a *Change Order*",

and replace with the words: "be recorded in a *Change Order* and shall take effect when the *Change Order* is fully signed by the required parties".

- .3 Paragraph 6.2.3: Add the following new paragraph:

"The *Contractor* shall ensure that all adjustments in *Contract Price* and *Contract Time* associated with bonding are included in all *Change Orders* and *Change Directives*. The *Contractor* remains responsible to ensure bonding of the work is not jeopardized. Upon request by either the *Owner* or the *Consultant*, the *Contractor* shall provide proof that the Surety Company is being notified and kept apprised of the status of the *Contract*

and any changes. The *Contractor* shall also provide, upon request by the *Owner* or *Consultant*, written confirmation from the Surety Company of any increases to bonding costs.”

### 3.16 GC 6.3 Change Directive

- .1 Paragraph 6.3.6.2: Delete entirely and replace with the following:

“If an *Owner* requested change results in a net decrease in the *Contractor’s* cost, the *Contract Price* shall be decreased by the amount of the net decrease on the *Contractor’s* costs, excluding the typical adjustment for the *Contractor’s* percentage fee. If a *Contractor* requested change results in a net decrease in the *Contractor’s* cost and is not required to maintain the primary design performance or intent of the *Project* as interpreted by the *Consultant*, the *Contract Price* shall be decreased by the amount of the net decrease in the *Contractor’s* cost, including the adjustment for the *Contractor’s* percentage fee.”

### 3.17 GC 6.5 Delays

- .1 Paragraph 6.5.2: Delete the words:

"attain *Ready-for-Takeover* by the date stipulated in Article A-1 of the Agreement – THE WORK",

and replace with the words:

"maintain the schedule in accordance with the *Contract*".

- .2 Paragraph 6.5.3: Revise as follows:

.1 In Sentence .4, insert the phrase, “, except lack of funds or breakdown of Construction Equipment, or” after the word “control”.

.2 In Sentence .4, replace “one” with “ones”.

.3 Starting at “then the *Contract Time* shall be extended...”, reduce indent so the clause applies to Items 6.5.3.1 through 6.5.3.4.

- .3 Paragraph 6.5.6: Add the following new paragraph:

“If the area of the *Work* outlined in these *Specifications* is not available to the *Owner* for its intended use after the *Ready-for-Takeover* or *Total Performance* dates, and the *Owner* claims the *Contractor* has caused the delay, the *Contractor* may be responsible for damages resulting from the delay in the work schedule. (For example, an *Owner’s* cost and reduced

revenues associated with an extended work schedule). This potential impact to the *Contractor* shall be subject to the provisions of the *Contract*, including but not limited to, SC 2.2.8, Part 8 Dispute Resolution, etc.”

### **3.18 GC 6.6 Claims for a Change in Contract Price**

- .1 Paragraph 6.6.1: Delete entirely and replace with:

“If the *Contractor* intends to make a claim for an increase to the *Contract Price*, or if the *Owner* intends to make a claim against the *Contractor* for a credit to the *Contract Price*, the party intending to make the claim shall provide *Notice in Writing* of intent to claim to the other party and the *Consultant* no later than 10 working days after discovery of the condition or event giving rise to the claim. Should either party fail to submit proper notice within the required time frame, the responding party, in conjunction with the *Consultant*, reserves the right to reject the claim.”

### **3.19 GC 7.1 Owner’s Right to Perform the Work, Terminate the Contractor’s Right to Continue with the Work or Terminate the Contract**

- .1 Paragraph 7.1.2: After the words “with the requirements of the *Contract*”, add the words “, including the *Contract* schedule,”.

### **3.20 GC 7.2 Contractor’s Right to Suspend the Work or Terminate the Contract**

- .1 Paragraph 7.2.3.1: Delete entirely.
- .2 Paragraph 7.2.4: Replace the words “5 *Working Days*” with “10 *Working Days*”.
- .3 Paragraph 7.2.6: Add the following new paragraph:

"Withholding of payments to the *Contractor* shall remain in effect and may be implemented despite the requirements of GC 7.2. As deemed required by the *Consultant*, amounts may be retained for the *Contractor*’s failure to pay all just claims and invoices in accordance with the *Contract*. Furthermore, at the discretion of the *Consultant*, registration or notice of a project-related lien against the *Owner*’s property may also result in funds being retained pursuant to provincial lien legislation at the *Place of the Work*."

### **3.21 GC 8.3 Negotiation, Mediation, and Arbitration**

- .1 Paragraph 8.3.8.1(1): Delete entirely and replace with the following:  
“*Total Performance*,”

### 3.22 GC 10.2 Laws, Notices, Permits, and Fees

- .1 Paragraph 10.2.2: Delete the words "building permit," from the first line.
- .2 Paragraph 10.2.3: Insert the words "(including building permit)" after the word "permits" in the first line.

### 3.23 GC 10.4 Workers' Compensation

- .1 Paragraph 10.4.2: Add the following new paragraph:

"The *Contractor* shall indemnify and hold harmless the *Owner* from and against all claims, demands, actions, suits, or proceedings by any employee of the *Contractor* or *Subcontractors* with respect to workers' compensation insurance. This indemnity shall survive completion of the *Work* or termination of the *Contract* for any reason."

### 3.24 GC 12.1 Ready-for-Takeover

- .1 Paragraph 12.1.5: Delete entirely and replace with the following:

"No later than five calendar days following confirmation that *Ready-for-Takeover* has been attained, the *Contractor*, in consultation with the *Consultant*, shall establish a reasonable *Total Performance* date, which may be the same date as *Ready-for-Takeover*."

### 3.25 GC 12.2 Early Occupancy by the Owner

- .1 Paragraph 12.2.4: Delete the words "complete the *Work* in a timely manner", and replace with the words "achieve *Total Performance* in accordance with the *Contract*."

### 3.26 GC 12.3 Warranty

- .1 Paragraph 12.3.1: Replace the words "one year" with the words "as specified, or where not specified elsewhere, one year".
- .2 Paragraph 12.3.3: Delete the words "through the Consultant,".
- .3 Paragraphs 12.3.3, 12.3.4, and 12.3.6: Replace the words "one year" with the word "specified".
- .4 Paragraph 12.3.6: Delete the following sentences:

"The *Contractor's* responsibility with respect to extended warranties shall be limited to obtaining any such extended warranties from the warrantor.

The obligations under such extended warranties are solely the responsibilities of the warrantor.”

### 3.27 GC 13.1 Indemnification

- .1 Paragraph 13.1.1: Delete entirely and replace with the following:

“Without restricting the parties’ obligation to indemnify respecting toxic and hazardous substances, patent fees and defect in title claims as described in paragraphs 13.1.4 and 13.1.5, the *Owner* and the *Contractor* agree to the following:

- .1 The *Contractor* and the *Owner* shall each indemnify and hold harmless the other, and their respective agents and employees, from and against all claims, demands, losses, costs, or damages of third parties, arising or alleged to arise directly, indirectly, or incidentally by reason of the operations and activities of the party from whom indemnification is sought in the execution of the *Contract*.
- .2 Claims must be made by *Notice in Writing* within 6 years from the *Ready-for-Takeover* date or within a shorter period in accordance with any limitation statute in effect for the *Place of the Work*.
- .3 The parties expressly waive the right to indemnity for claims other than those provided for in this *Contract*.”
- .2 Paragraph 13.1.2.2: Replace the value “\$2,000,000” with the value “\$5,000,000”.
- .3 Paragraph 13.1.7: Add the following new paragraph:

“The *Contractor* shall indemnify and hold harmless the *Consultant* and their respective agents and employees from and against all claims, demands, losses, costs, or damages of third parties, arising or alleged to arise directly, indirectly, or incidentally by reason of the operations and activities of the party from whom indemnification is sought in the execution of the *Contract*. This indemnification shall survive completion of the *Work* or termination of this *Contract* for any reason.”

### 3.28 GC 13.2 Waiver of Claims

- .1 Paragraph 13.2.5.4: Replace the words “*Notice is Writing*” with the words “*Notice in Writing*”.

#### **4.0 CCDC 41 – CCDC INSURANCE REQUIREMENTS**

CCDC 41 – CCDC Insurance Requirements is hereby amended as follows:

- .1 Paragraph 1.: Revise as follows:
  - .1 Delete “\$10,000,000” and replace with “\$5,000,000”.
  - .2 Delete “\$10,000” and replace with “\$5,000”.

**END OF SECTION**

## **1.0 GENERAL**

Work under this Contract includes targeted roof replacements at Maquinna Elementary School in the City of Port Alberni in the Province of British Columbia.

### **1.1 Description of Existing Structure**

- .1 Maquinna Elementary School consists of multiple single-storey wood framed buildings, primarily protected by low-slope 2-ply SBS-modified bitumen membrane roofs, with select areas featuring metal skirt roofs. The scope of work includes the targeted removal of the existing roofing down to the structural wood deck and replacement with new SBS modified bitumen roofing assemblies at Roofs 2, 3, and 9 (refer to the Drawings for specifics on the areas of work).

### **1.2 Description of Work**

- .1 It is the Contractor's responsibility to provide all labour, material, equipment and supervision to complete the repairs outlined in this specification taking into account all site conditions, noise restriction, work area restrictions, protection requirements, accessibility restrictions, etc. No extras will be entertained for inconveniences after the award of this Contract.
- .2 In particular, the work includes but is not necessarily limited to the following:
  - .1 The installation and maintenance of hoarding, dust protection, and construction signage around each phase of work as described in Section 01 56 00.
  - .2 The installation and maintenance of ventilation and exhaust systems into and out of work area as described in Section 01 56 00.
  - .3 Targeted replacement of the existing roofing assemblies with a new 2-ply SBS-modified bitumen membrane assembly in locations described in the Drawings.
  - .4 Installation of new metal flashings at building envelope transitions and terminations as shown on the Drawings.
  - .5 Installation of polyisocyanurate slope package to promote drainage as shown on the Drawings.

- .6 Flush all existing internal roof drains within the areas of work to unobstructed, free flowing condition. Prior to demolition, install protection to prevent against clogging of roof drains. Ensure roof drains remain clear throughout the construction period.
- .7 Provision of close-out documents as specified, including warranties, maintenance manual, etc.
- .8 Repair all areas damaged by construction activity; specifically, the Contractor shall repair all damage resulting from the Construction to the satisfaction of the Consultant including repainting of surfaces that have been damaged in accordance with these Specifications.
- .9 Final cleaning of structure, fixtures, piping, etc., and the disposal all waste products and/ or debris generated by the construction activity as well as any material present in the work area prior to the commencement of the Work. The areas requiring cleaning shall consist of all areas affected by the Work.

### **1.3 Work Sequence**

- .1 Contractor to confirm date of mobilization.

### **1.4 Construction Schedule**

- .1 In conjunction with and in a form acceptable to the Consultant and Owner, provide within 5 working days after award of contract a detailed schedule indicating the following parameters.
  - .1 Start date and completion date for each phase of the work.
  - .2 Daily and weekly schedule for labour and equipment, hours of operation, and crew sizes.
- .2 The construction schedule shall reflect completion of all work under the Contract within the specified time and in accordance with these Specifications.
- .3 If the Contractor desires to make a major change in the method of operation after commencing construction, or if the schedule fails to reflect the actual progress, the Contractor shall submit to the Consultant a revised construction schedule in advance of beginning revised operation.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Contractor's Use of Site**

- .1 The building is to remain open throughout the course of the Work. Contractor has complete and sole use and access to designated work areas, 24 hours a day, 7 days a week, unless otherwise stipulated by the Owner during the course of the Work.
- .2 Coordinate work schedule with the Owner to minimize disruption of the site and building . No work shall be performed until approved by Owner.
- .3 It is Contractor's responsibility to ensure the building remains operational at all times and to perform work as required to keep exits and entrances available to building users at all times.
- .4 It is Contractor's responsibility to control traffic and to redirect if necessary to allow access to building areas outside of work area. Any required traffic rerouting and work sequence shall be closely coordinated with the Owner.
- .5 Provide signage of professional quality, barriers, and hoarding as necessary to protect the public from construction and Contractor operations, to secure the work area, and to route traffic through or around designated work areas. These signage requirements are in addition to any standard signs required to control and reroute traffic or maintain public safety.
- .6 Hoarding and dust protection is to be provided around each area of work in accordance with Section 01 56 00.
- .7 Completely enclose and ventilate work areas (fresh air in and exhaust out) without allowing dust to escape from the work area. Exhaust system must filter dust out of the air before it is released into the atmosphere. All exhaust systems must be filtered and directed to the outside through ducting, which is to be installed in a manner acceptable to the Owner and Consultant. Clean and replace filters regularly.
- .8 Implement temporary measures to maintain interior air quality, temperature, and ventilation during performance of the Work.
- .9 Use of power plant and percussive equipment to be in accordance with all local by-laws and ordinances.

- .10 Confine construction equipment, temporary work, storage of products, waste products and debris, and operations of employees and subcontractors to limits indicated by laws, ordinances, permits, or Contract Documents and do not unreasonably encumber the Place of the Work.
- .11 Do not overload roof areas with equipment or stored materials. Review all equipment weights and loading procedures with Consultant prior to commencing work.
- .12 Do not close, obstruct, or store materials in roadways, sidewalks, or passageways without prior approval from the Owner. Do not interfere with safe passage to and from building and adjacent public sidewalks and roads.
- .13 Maintain access to stairwells and elevator shafts. Under no circumstances shall these areas be obstructed unless otherwise approved by Owner.
- .14 Maintain access to parking operation office, storage, and mechanical rooms at all times.
- .15 Move stored products or equipment that interfere with operation of the building, Owner, or residents.
- .16 Obtain and pay for all necessary approvals to locate equipment or materials on city property, excluding the building permit.
- .17 Protect existing light standards, walls, plants, finishes, windows, doors, etc.
- .18 Protect all utilities, gas mains, electrical conduit, etc. that must remain in service throughout the construction period.
- .19 During transportation of materials or equipment through occupied areas, protect the public, property, and finishes from damage. All damage caused by the Contractor is to be repaired or rectified at Contractor's expense.
- .20 Make allowance in price to cover all costs of temporary removal and replacement or relocation of existing electrical wiring and mechanical hardware required for completion of the Work.
- .21 Propane powered equipment is not permitted within interior areas.
- .22 Temporary heat and ventilation used during construction – including the cost of installation, fuel, operation, maintenance, and removal of equipment – shall be paid for by the Contractor. Use of direct-fire heaters discharging waste products into work areas is not permitted.

- .23 Maintain free access routes for ambulance, fire emergency vehicles, garbage trucks, etc.

## **1.2 Hours of Work**

- .1 Use of all equipment to be restricted in accordance with local and municipal noise by-laws and regulations.
- .2 All noise generating Work shall conform to the City of Port Alberni noise bylaws and shall be approved by the Owner.
- .3 Contractor may request access to areas with quiet work proceeding around the clock seven days a week, if desired. Access to be approved by the Owner.

## **1.3 Effect on Building and Site**

- .1 Schedule operations to minimize interruption of the normal use of the site and building, and to comply with laws, by-laws, ordinances, rules, and regulations relating to the Work.
- .2 Locate all existing utilities prior to construction and protect them during construction.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Section Includes**

- .1 Contingency Allowances
- .2 Determination of Actual Costs
- .3 Adjustment of Contract Price

### **1.2 Allowances**

- .1 Allowances include for the following:
  - .1 Supply and Install Products
- .2 Unless otherwise specified, amounts for each allowance include:
  - .1 Actual product cost
  - .2 Applicable taxes and tariffs
  - .3 Freight, handling, unloading, and storage
  - .4 Contractor services
  - .5 Labour for installation and finishing
  - .6 Construction machinery and equipment
  - .7 Authorized expenditures
- .3 Value Added Taxes do not form a part of the allowances.
- .4 Contractor's overhead and profit to be included as follows:
  - .1 Overhead and profit for contingency allowance, as noted in Section 00 73 00, under Article 2.16.
- .5 Additional expenditures not identified as part of the allowances will be submitted for review by the Owner and where deemed applicable authorized in writing by the Owner.
- .6 Notification in writing by the Owner is required prior to the Contractor executing work outlined under each allowance.

- .7 The Owner will provide the Contractor with applicable documentation, equipment, and products within the time specified or, where such time is not specified, in sufficient time to permit the construction schedule to be maintained.

### **1.3 Contingency Allowance**

- .1 Include in Stipulated Sum, a contingency allowance of \$40,000 for project incidentals. Includes unforeseen work related to the Project.

### **1.4 Determination of Actual Costs**

- .1 Invoices, bills of sale, and notes payable for actual cost of items and services covered in an allowance amount shall be submitted by the Contractor for verification by the Owner.
- .2 Trade discounts and refunds shall be credited to Owner.
- .3 Where applicable, the valuation for a change shall be in accordance to Section 00 73 00 – Supplementary Conditions.

### **1.5 Adjustment of Contract Price**

- .1 When actual costs are determined for each allowance, the Contract Price will be valued accordingly by a Change Order.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Substitution of Materials Prior to Bid Closing**

- .1 Substitution of specified products or systems is permitted only when alternatives have been approved by the Consultant, in writing, prior to bid closing.
- .2 Inform the Consultant in writing when specified products or systems are not anticipated to be available at the Place of the Work during construction. The Consultant will advise Bidders of alternatives.
- .3 If specified products or systems are not available and the Consultant was not notified prior to bid submission, the Consultant will choose a suitable substitute product at the time of construction.

### **1.2 Request for Approval of Alternatives**

- .1 A Bidder or Supplier of a product or system may apply for approval of their product or system as an alternative up to five calendar days prior to bid closing. The Consultant will advise applicants of the status of their request prior to bid closing.
- .2 Provide the Consultant with sufficient information to review the alternative. This information may include:
  - .1 Project name and number
  - .2 Specification sections affected by the proposed alternative
  - .3 Product technical data sheets
  - .4 Supplier installation instructions and requirements
  - .5 Supplier warranty and warranty requirements
  - .6 Product application sample at specified material thickness and finish on sample substrate
  - .7 Installation history, including:
    - .1 Installation locations, dates, project sizes, project values
    - .2 Description of project and product usage
    - .3 Owner and consultant
  - .8 Test data

### **1.3 Approval of Alternatives**

- .1 The Consultant reserves the right to reject any requests for approval of alternatives.
- .2 The Consultant will outline approved alternatives by addenda issued prior to bid closing. The addenda will indicate the alternative Product or system, where and how it may be used, and limitations. If an addendum is not issued, the bid is to be based on use of the specified Product or system.
- .3 The Contractor assumes full responsibility and bears all associated costs where an alternative Product or system is incorporated into the Work. Claims for increases to the Contract Price or for changes to the Date for Substantial Performance of the Work due to changes in the Work that are necessitated by the use of an alternative will not be considered. All associated costs are to be included in the bid.
- .4 The Contractor is to reimburse the Owner for their additional costs associated with incorporating alternatives into the Work. This may include additional consulting costs billed to the Owner to accommodate changes to the Contract Documents necessitated by the change.
- .5 Contractor cost savings arising from approval of alternatives are to be reflected in the Contract Price.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Project Coordination**

- .1 The Contractor is responsible for coordination of trades. Lines of demarcation between Contractor and trades or trade and trade are solely the responsibility of the Contractor.
- .2 Contractor is responsible for coordination with the Owner for on-site activity as it affects the operation of the building.

### **1.2 Notification for Field Review**

- .1 Notify the Consultant at least 24 hours in advance for field review. No work shall be covered or concealed until reviewed by the Consultant unless informed that a field review will not be performed. Such review does not absolve the Contractor from their responsibility to perform the work in accordance with the Contract Documents.
- .2 The Contractor shall notify the designated testing company for material sampling and testing.
- .3 Provide the Consultant with safe access to any part of the Work requiring field review.
- .4 The Owner may be present during field review at the Owner's discretion.

### **1.3 Superintendence**

- .1 Provide a full time Superintendent who is to be on-site on a continuous basis during the execution of the work. Superintendent shall have a mobile phone at all times during working hours to allow for communication with the Consultant or Owner.
- .2 Superintendent shall have facility with the English language both written and verbal.
- .3 Superintendent shall be satisfactory to the Owner and the Consultant and shall not be changed without the Consultant or Owner's consent.
- .4 Superintendence shall be deemed unsatisfactory and changes or additions to superintendence may be demanded when control, organization, or coordination of the Work is not satisfactory, quality of the Work does not meet requirements of the Contract Documents, directions given in accordance with the Contract Documents are not followed, or progress is behind schedule.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Work Included**

- .1 Administration of Project Meetings
- .2 Pre-Construction Meetings
- .3 Progress Meetings

### **1.2 Administration of Project Meetings**

- .1 Consultant will preside at meetings.
  - .1 A representative of the Consultant will record the minutes, include significant proceedings and decisions, and identify "action by" parties.
  - .2 Consultant will reproduce and distribute copies of the minutes to meeting participants, affected parties not in attendance, the Owner, and the Contractor.
- .2 Consultant will:
  - .1 Schedule and administer project meetings unless otherwise noted.
  - .2 Prepare agenda for meetings.
  - .3 Distribute written notice of each unscheduled meeting three days in advance of meeting date to the Contractor and Owner. Contractor is to notify relevant Subcontractors.
- .3 Representatives of Contractor, Subcontractors, and suppliers attending meetings shall be qualified and authorized to act on behalf of the party each represents.

### **1.3 Pre-Construction Meeting**

- .1 After award of Contract, a meeting of all parties in the Contract shall be held to discuss and resolve administrative procedures and responsibilities.
- .2 Representatives of the Owner, Consultant, Contractor, major Subcontractors, and construction review personnel will attend.
- .3 Consultant will establish a time and location of the meeting and notify concerned parties at least five days before the meeting.

- .4 Agenda to include the following:
  - .1 Appointment of official representatives of participants of the Work.
  - .2 Schedule of Work, progress scheduling.
  - .3 Shop drawings (if required) and schedule of shop drawing submissions.
  - .4 Requirements of temporary facilities, site signage, hoarding, dust protection, offices, storage sheds, utilities, fences.
  - .5 Delivery schedule of critical equipment.
  - .6 Site security.
  - .7 Contemplated change orders, procedures, approvals required.
  - .8 Take over procedures, acceptance, warranties.
  - .9 Monthly progress claims, administrative procedures, holdbacks.
  - .10 Appointment of inspection and testing agencies or firms.
  - .11 Insurance, transcript of policies.

#### **1.4 Progress Meetings**

- .1 During the course of Work, the Consultant or Contractor will schedule progress meetings every two weeks. Further progress meetings may be scheduled by the Consultant, Contractor, or Owner as required to expedite the Work.
- .2 Consultant, Contractor, major Subcontractors involved in the Work, and Owner, when required, are to attend.
- .3 Agenda to include the following:
  - .1 Review, approval of minutes of previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems that impede construction schedule, conflicts.
  - .4 Progress, schedule during succeeding work period.

- .5 Corrective measures and procedures to regain projected schedule.
- .6 Revisions to construction schedule.
- .7 Review of off-site fabrication delivery schedules.
- .8 Review submittal schedules; expedite as required.
- .9 Maintenance of quality standards.
- .10 Pending changes and substitutions, Notices of Proposed Change, Change Orders.
- .11 Review proposed changes effect on construction schedule and on completion date.
- .12 Other business.

**END OF SECTION**

## **1.0 GENERAL**

- .1 This Section specifies general requirements and procedures for shop drawing, product data, sample, and mock-up submissions for Consultant's review. Additional specific submission requirements may be specified in other Sections.
- .2 Do not proceed with Work until relevant submissions are reviewed by Consultant.
- .3 Present shop drawings, product data, samples, and mock-ups in SI metric units. Where items or information is not produced in SI metric, converted values are acceptable.
- .4 Contractor's responsibility for errors or omissions in any submission is not relieved by Consultant's review of the submission.
- .5 Notify Consultant, in writing at time of submission, of any deviations from the requirements of Contract Documents that form part of submissions. Also indicate the reasons for the deviations.
- .6 Contractor's responsibility for deviations from the requirements of the Contract Documents in submissions is not relieved by Consultant's review of the submissions unless Consultant provides written acceptance of the identified deviations.
- .7 Make any changes in submissions that Consultant may require consistent with the Contract Documents and resubmit where directed by Consultant.
- .8 Notify Consultant in writing of any revision other than those requested by Consultant when resubmitting.

### **1.1 Submission Requirements**

- .1 Coordinate each submission with requirements of work and Contract Documents. Individual submissions will not be reviewed until all related information is available.
- .2 Submit electronic copies of product data, manufacturer's catalogue sheets, brochures, literature, performance charts, and diagrams.
- .3 Comply with the following requirements in regards to submission of product data:
  - .1 Delete information not applicable to project.

- .2 Supplement standard information to provide details applicable to project.
- .3 Provide certification of compliance to applicable codes.
- .4 Provide manufacturer's certification as to current production.
- .4 Allow 10 working days for Consultant's review of each submission.
- .5 Accompany submissions with an electronic transmittal letter that contains:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data, and sample.
  - .5 Other pertinent data.
- .6 Submission shall include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions and clearances.
    - .3 Setting or erection details.

- .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.
- .6 After Consultant's review, distribute electronic copies to relevant affected subcontractors.

## 1.2 Shop Drawings

- .1 Provide electronic copies of shop drawings pertaining to installations and fabrications required by the Contract for Consultant review prior to commencing work. Provide full-size hard copy submissions if requested by Consultant. Unless noted otherwise, submit shop drawings for the following:
  - .1 Tapered insulation
- .2 As part of RJC's field services, RJC will review shop drawings pertaining to work shown on RJC's drawings by means of an appropriate rational sampling procedure and will comment on the accuracy with which the Contractor prepared the shop drawings.
- .3 Review of shop drawings is for the sole purpose of ascertaining conformance with the general design concept and is not an approval of the detail design inherent in the shop drawings. Design responsibility remains with the Contractor submitting the shop drawings.
- .4 Review of shop drawings does not relieve Contractor of their responsibility for errors and omissions in shop drawings or for meeting all requirements of the Contract Documents.
- .5 Contractor is solely responsible for information pertaining to fabrication process, techniques of construction and installation, and coordination of subcontractors.
- .6 Cross-reference shop drawing information to applicable portions of Contract Documents.

- .7 Shop drawings that require approval of any legally constituted authority having jurisdiction shall be provided by the Contractor to such authority for approval.

### **1.3 Product Data**

- .1 Product Data: Manufacturer's catalogue sheets, brochures, literature, performance charts, and diagrams, used to illustrate standard manufactured products.
- .2 Submit electronic copies of product data.
- .3 Delete information not applicable to project.
- .4 Supplement standard information to provide details applicable to project.
- .5 Cross-reference product data information to applicable portions of Contract Documents.

### **1.4 Samples**

- .1 Samples: Examples of materials, equipment, quality, finishes, workmanship.
- .2 Where colour, pattern, or texture is criterion, submit full range of samples.
- .3 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be reviewed.

### **1.5 Mock-Ups**

- .1 Mock-Ups: Field-erected examples of work complete with specified materials and workmanship.
- .2 Erect mock-ups at locations acceptable to Consultant.
- .3 Reviewed and accepted mock-ups will become standards of workmanship and material against which installed work will be reviewed.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Temporary Utilities**

- .1 Provide and pay for where specified, locate where directed, and maintain temporary facilities for the Work and for all Subcontractors, and remove them upon completion of the Work.
- .2 Where specified to provide utilities, make all arrangements with the public utilities, obtain all necessary permits, provide or pay for connections, and pay all respective fees.

### **1.2 Electrical Power**

- .1 Discuss available power with the Owner prior to bidding.
- .2 The Contractor shall pay for any alternations to the electrical system that may be needed to accommodate the Contractor's equipment. Coordinate any required alterations with the Owner's Representative. Reinststate the system to its original condition upon completion of the Work.
- .3 The Owner shall pay for electrical consumption from building sources made available by the Owner.

### **1.3 Water Supply**

- .1 Contractor shall pay for the cost of any temporary water connections or alterations that are required to perform the Work. Reinststate the system to its original condition upon completion of the Work.
- .2 The Owner shall pay for water consumption from building sources made available by the Owner.

### **1.4 Temporary Lighting**

- .1 Provide and maintain temporary lighting for safe demolition and working conditions conforming to British Columbia Occupational Health and Safety Regulations.
- .2 Temporary lighting requirements discussed herein shall also apply to all subcontractors.

### **1.5 Temporary Fire Protection**

- .1 Provide and maintain temporary fire protection equipment during performance of the Work as required by governing codes, regulations, and by-laws.

### **1.6 Temporary First Aid Facilities**

- .1 Provide well-stocked and maintained first aid kits within the site office that are adequate to meet the requirements and hazards of the Work.
- .2 Maintain safety data sheets (SDS) for all material being used at the project site. Ensure the SDS are readily available to the Consultant, Owner, and Contractor's forces.

### **1.7 Temporary Sanitary Facilities**

- .1 Provide temporary sanitary facilities at the time of initial mobilization and maintain them throughout the course of the work.
  - .1 Sanitary facility is to include an odourless flushing chemical type temporary toilet that is properly enclosed, weatherproof, and serviced periodically as required.
- .2 The building toilets and facilities shall not be used by the Contractor's forces unless approved by Owner

### **1.8 Temporary Field Offices and Sheds**

- .1 Provide or construct work sheds for storage of tools, equipment, and materials that may be damaged by weather.
- .2 Provide and maintain a field office for the Contractor's personnel that is equipped with lights, power, and tables for drawing examinations.
- .3 Maintain sheds in a clean and orderly condition to the Consultant's satisfaction.
- .4 Provide suitable hardware and locks on doors to sheds to reasonably secure them and keep locked when unsupervised.
- .5 Field sheds shall be weather tight and have floors elevated above grade.
- .6 Relocate sheds as required by the progress of the Work. Remove sheds from the Site when directed or when they are no longer required.

## **1.9 Temporary Barriers and Enclosures**

- .1 Provide hoarding, fencing, barriers, barricades, and plant protection as required by the authorities and specified herein to protect persons and property, public and private. Refer to Section 01 56 00 for signage and hoarding requirements.
- .2 Maintain barriers in sound, clean, and where required painted condition throughout the Work.
- .3 Keep site clear of unauthorized signs.
- .4 Provide barriers with required warning lights and signs.
- .5 Hoarding, fencing, barriers, and barricades are to be constructed and supported in such a manner that no sharp projections that can cause personnel injury are created.
- .6 Remove hazards requiring barriers as soon as possible.
- .7 Remove barriers at time of turn-over of the Work to the Owner.
- .8 Exterior enclosures shall be constructed to protect the work area from environmental conditions (i.e. weather tight) that may affect schedule.

## **1.10 Temporary Heating and Ventilation**

- .1 Provide and maintain supplementary heating as required to maintain sufficient application and curing temperatures.
- .2 Provide and maintain supplementary ventilation as required. Ventilation requirements shall conform to Occupational Health and Safety Standards. Do not modify the base building systems without the coordination and approval of the Owner.
- .3 Temporary heating and ventilation used during construction -- including the cost of installation, fuel, operation, maintenance, and removal of equipment -- shall be paid for by the Contractor. The use of direct-fired heaters discharging waste products into enclosed work areas will not be permitted.

## **1.11 Security**

- .1 Take all necessary precautions to guard site, premises, materials, and the public at all times other than when supervised work is in progress.

### **1.12 Protection of Work During Close-Down**

- .1 Should the project be closed down for any cause, assume all responsibility for its proper protection during such period.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Work Included**

- .1 Protection of the Work, work in progress, property, and persons by all Sections.

### **1.2 Walk-Through Inspection of Site**

- .1 The Contractor is to perform a thorough inspection of the site prior to the start of work and provide a written notice to the Consultant that details all damaged property, as well as all items that appear to be of poor working order or appearance (i.e. sign, fixtures, dirt, etc.)
- .2 Upon receiving this notice, the Consultant and Owner will review the validity of the items listed.
- .3 If written notice is not given within five days of commencement of Work, it will be assumed that the Contractor has reviewed the site and has accepted the condition of the property as being free of damage.
- .4 Any damages not listed as part of the written notice of clause 1.2.2 above found after the completion of the work will be the sole responsibility of the Contractor to rectify. These rectifications shall be completed in a timely and satisfactory manner.
- .5 The project will not be considered substantially performed if the cost to correct these outstanding deficiencies is greater than the limits outlined in the Construction Lien Act.

### **1.3 The Work, Work In Progress, Property, and Persons**

- .1 Protect the Work during construction from damage by weather.
- .2 Provide protection as required to protect work in progress and other property from damage and to provide suitable conditions for the progress of finishing work.
- .3 Provide means for protecting occupied areas below the Work from water leakage between removal and reinstallation of the waterproof membrane.
- .4 Take reasonable and required measures, including those required by authorities having jurisdiction, to protect the public and those employed on the Work from bodily harm.

- .5 Comply with requirements of British Columbia Occupational Health and Safety Regulations for construction projects.
- .6 Contractor shall be prepared to provide respirators, dust protection, ear protection for those employed by the Consultant and Owner at the site.
- .7 Direct all Subcontractors to protect their own work, existing property, adjacent public and private property, and work of other Sections from damage while working.

#### **1.4 Construction Signage**

- .1 Contractor shall provide all required signage necessary to protect the public from the construction, control the traffic flow through the work areas and to inform patrons that construction activity is in process.
- .2 Additional signs may be required at the discretion of Owner or Consultant as construction progresses. No extras will be entertained for signage requirements after tenders close.
- .3 Typical signage that may be required are as follows:
  - .1 No parking, directional arrows, etc.
  - .2 Keep Out: Work in Progress
  - .3 Caution: Work Overhead
- .4 Signage will be required at all access gates and entrances to the work area. This signage shall consist of the standard "Danger Do Not Enter" sign with an additional signs (special order) indicating that the area is temporarily under construction and we are sorry for the inconvenience.
- .5 All signage is to be securely fastened directly to fencing or hoarding. Signs and posts are to be installed in such a manner that projections that may cause public injury are not created.

#### **1.5 Construction Barriers and Enclosures**

- .1 All work areas are to be completely enclosed by hoarding and dust protection and only accessible to the Contractor, Owner, and Consultant.
- .2 Contractor shall supply and construct hoarding, barriers, and enclosures as indicated in these specifications, drawings, and as directed by the Consultant or Owner as the construction progresses.

- .3 No extras shall be entertained for hoarding, barriers, and enclosures after bid close unless the scope of work is significantly changed.
- .4 Work areas are to be completely enclosed to keep dust generated by construction activity from escaping into other areas of site or interior areas.
- .5 Contractor shall be responsible to ventilate work area as required (fresh air in and exhaust out) without allowing any dust to escape from the work area. Exhaust system must filter dust out of the air before it is released into the atmosphere. All exhaust systems must be filtered and directed to exhaust vents or outside of the building through ducting, which is to be suspended from the slab soffit. Filters are to be cleaned and replaced regularly, and as directed by Consultant.
- .6 The Contractor is responsible for any damage to mechanical equipment, motors, fire alarm system/devices, etc. resulting from dust contamination.
- .7 Areas that are to be protected but still require access will be hoarded using temporary vestibules. Pressurization to be adjusted by Contractor by providing necessary fans to prevent dust from entering these areas.
- .8 The Contractor shall be responsible to maintain the condition of hoarding and for additional painting of hoarding required to cover graffiti.
- .9 All seams in poly-weave tarping and hoarding are to be taped together to provide dust tight enclosure.
- .10 Anchor holes are to be repaired after construction hoarding has been removed. Contractor to repair all finishes and painted surfaces damaged by fastening materials used as part of hoarding and protection systems.
- .11 Restrict access for unauthorized personnel by placing barricades or posting guards around areas of the Work. Unauthorized personnel shall mean the public and anyone not directly concerned with the execution, supervision, or inspection.
- .12 Exterior locations (areas exposed to weather) are to be protected against weather conditions that may hinder the performance of work in these areas.

## **1.6 Existing Buildings, Curbs, Roads, Lanes, and Landscaping**

- .1 Protect existing buildings, structures, curbs, roads, lanes, and hard and soft landscaping. If, during work, any existing items are damaged, repair or replace them.

- .2 Provide pavement, curb, and sidewalk protection for public thoroughfares and the Work in progress as required by the authorities, and to protect public property and the Work.

### **1.7 Control of Construction Generated Dust, Debris, Fumes, Etc.**

- .1 Dust, dirt, construction debris, water, and fumes from the work areas must not be permitted to enter areas of the building or rooms in or adjacent to work areas.
- .2 Protection shall be provided for all entrance and exit ways, floors, walls, standing fixtures, air intakes, exhaust fan openings, floor drains, elevators, and equipment rooms against dust, spillage, overspray of materials, and damage during the construction period. The required protection shall consist of but not be limited to the following:
  - .1 Filter cloth in all floor drains within the work area.
  - .2 Filter cloth over all intake and exhaust louvers and openings.
  - .3 Poly-weave tarping over doorways and around the exterior perimeter of work area to prevent the escape of dust and debris from the work area.
  - .4 Protect sprinkler heads with polyethylene or filter cloth to prevent dust build up.
- .3 Provide for protection of vehicles in or near parking structure and payment for cleaning or damage to vehicles.

### **1.8 Protection of Existing Exposed Facilities**

- .1 Protect existing lighting system from damage, or remove and re-install upon completion of repairs.
- .2 If Contractor wishes to use existing lighting system as an alternate to installing temporary light, Contractor shall assume all responsibility for damages incurred.
- .3 Protect exposed conduit, fixtures, attached devices, sprinkler fire system plumbing, mechanical system components, louvres, and ducts against the accumulation of dust, debris, and damage. The Contractor will be responsible to correct any damages to these systems at their own expense. Contractor to promptly report any damage to the Owner and the Consultant.

- .4 Protect existing parking garage control equipment, overhead doors, etc. from damage.
- .5 Inspect materials, equipment, and components to be re-used or turned over to the Owner. Note their condition and advise Consultant in writing of any defects or conditions that would affect their removal and re-use, prior to removal.
- .6 Prior to commencing Work, contact the Owner to locate all protective or alarm systems and sensors. All services shall be protected against damage or interruption. All claims resulting from damage shall be the responsibility of the Contractor.
- .7 Contractor must notify the Owner of any fault or alarm to the main fire alarm panel immediately. When Contractor's activities result in charges to service the fire alarm panel or alarm system, the Contractor shall bear all costs.
- .8 Any damage to existing surfaces or finishes to remain caused by the construction shall be repaired by the Contractor at no cost to the Owner.

### **1.9 Overloading**

- .1 Load no part of the structure during construction with a load greater than its designed capacity.
- .2 Submit equipment weights and construction procedures to the Consultant for review prior to commencing the Work.
- .3 Make every temporary support as strong as the designed permanent support.
- .4 Place no load on concrete slabs until they have cured and have achieved sufficient strength to bear the load safely.

### **1.10 Fire Protection**

- .1 Take necessary precautions to eliminate fire hazards and to prevent damage to the Work, building materials, equipment, and other property, both public and private, having to do with the Work. Inspect the Work at least once a week for this purpose.

- .2 Store and locate products and equipment packed in cardboard cartons, wood crates, and other combustible containers in orderly and accessible manner. Place approved types of firefighting equipment in vicinity of products packed in this type of crate or carton until permanent fire protection and equipment are available.
- .3 Do not store flammable products, such as paint or fuel, on site except in Owner-approved locations, if available.
- .4 Tarpaulins to be fire-resistant.
- .5 Open fires and burning of rubbish or debris are not permitted on site.

### **1.11 Overhead Protection**

- .1 The Contractor shall erect and maintain pedestrian walkway including roof and side covers, complete with electrical lighting, to protect the public and property from injury or damage.
- .2 Minimum extent of overhead protection shall be at trafficable areas adjacent to roof edges within the area of work.
- .3 Minimum unobstructed overhead height of 2.4 m. Minimum unobstructed width of at least 2 m greater than the combined width of access doors and side lights at entrances. Minimum length shall provide protection for a clear distance of 10 m horizontally from the nearest roof edge within the area of work.
- .4 Overhead protection shall be capable of supporting any load likely to be applied to it, and capable of supporting a load of at least 2.4 kN/m<sup>2</sup>.
- .5 All overhead protection and enclosures to be marked with safety signage.
- .6 All overhead enclosures and protection to be maintained daily, keeping them clean, orderly, and graffiti free.
- .7 Remove temporary facilities from site promptly when directed by Owner.

### **1.12 Site Enclosures**

- .1 The Contractor shall erect and maintain site enclosures to completely enclose the Work area, to protect the public and property from injury or damage.

- .2 Minimum site enclosure construction shall consist of:
  - .1 6' high full fabric chain link fence enclosure.
- .3 All enclosures are to be marked with safety signage.
- .4 All enclosures and protection are to be maintained daily, keeping them clean, orderly, and graffiti free.
- .5 Remove temporary facilities from site promptly when directed by Owner.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Manufacturer's Instructions**

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods. Supply copies of these instructions to Consultant prior to commencing work.
- .2 Notify Consultant in writing of any conflict between the Contract Documents and manufacturer's instructions.

### **1.2 Delivery, Storage, and Handling**

- .1 Deliver, store, and maintain packaged materials with manufacturer's seals and labels intact.
- .2 Immediately remove rejected materials from the Place of the Work.
- .3 Storage and handling of materials shall conform to British Columbia Occupational Health and Safety Regulations and manufacturer's instructions.
- .4 Toxic or hazardous materials shall be secured in a locked storage area.
- .5 All containers to be labeled in accordance with WHMIS regulations.
- .6 All containers to be labeled with material expiration dates. Materials older than the expiry date shall not be used on the Work and shall be removed immediately from the site.
- .7 Provide Owner and Consultant with electronic copies of all Safety Data Sheets (SDS) and maintain hard copies on site.

### **1.3 Materials**

- .1 Use new products unless otherwise specified.
- .2 Provide electronic copies of maintenance instructions and material literature for finished surfaces prior to Substantial Performance.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Description of Work Included**

- .1 Provide all labour, material, equipment, and services necessary to clean the area of the Work, including all surfaces, fixtures, equipment, finishes, landscaping, etc., and dispose of all waste products and debris in the work area as indicated in the Contract Documents.
- .2 Provide all labour, material, equipment, and services necessary to clean outside the area of the work if dust, debris, and waste products generated by the Work have affected these areas.

### **1.2 General Requirements**

- .1 Conduct cleaning and disposal operations in compliance with local, provincial, and federal regulations and laws, as well as Owner requirements.
- .2 Prevent the accumulation of waste that creates hazardous conditions.
- .3 Provide adequate ventilation during use of volatile or noxious substances. Obtain approval for ventilation exhaust locations with the Owner prior to installation.
- .4 Coordinate requirements for ventilation and waste disposal operations with the Owner and Consultant.

### **1.3 References**

- .1 Waste Control Regulation - British Columbia Environmental Management Act (EMA)

### **1.4 Materials and Equipment**

- .1 Use only cleaning materials and equipment that are approved by the manufacturer of the surface to be cleaned, and use the cleaning materials in conformance with manufacturer recommendations.

### **1.5 Prior to Construction**

- .1 The Contractor shall examine the Place of the Work prior to mobilization to determine conditions with respect to dust, debris, rubbish, and waste material.

- .2 It is the Contractor's responsibility to clean Work areas and all areas affected by the Work free of all debris generated by the construction activity and existing dust, debris, rubbish, etc.
- .3 No extras will be entertained for site cleaning after Contract award.

### **1.6 Waste Removal and Cleaning During Construction**

- .1 Contractor to perform all required cleaning during the Work.
- .2 Maintain the Place of the Work and areas affected by the Work free from accumulations of dust, debris, rubbish, and waste materials generated by the Work.
- .3 Provide sufficient on-site containers for collection and disposal of dust, debris, rubbish, and waste material.
- .4 Store volatile waste in covered containers. All waste that is volatile or creates a hazardous condition must be removed from the premises daily.
- .5 Disposal is to be performed in strict accordance with the product Safety Data Sheet (SDS) and local, provincial, and federal regulation.
- .6 Enclose work areas and prevent dust and debris generated by construction from affecting other areas, including areas required for construction access. Any dust and debris that escapes from the Work area is to be cleaned in a timely fashion and, at latest, prior to the end of the work day/ shift.
- .7 If the Consultant deems that cleaning has not been performed in a timely fashion, the Owner may seek to resolve the conditions in accordance with the Contract General Conditions.
- .8 Flush and clean the drainage system, including buried or hidden drain lines, all the way to sump pits and catch basins to maintain operation of the drainage system throughout the Work.
- .9 Cover drains affected by or required for the Work with filter fabric to prevent debris from entering the drainage system.
- .10 Do not dispose of project waste and material in the drainage system.

## **1.7 Drainage System – Cleanliness and Damage**

- .1 Flush clean all the drainage systems – including catch basins, maintenance holes, drains, sump pits, weeping tile, piping, etc. – within the area of Work. Remove and dispose of silt and debris by manual or suction means without washing it down or through the drainage system.
- .2 Maintain the drainage systems in this cleaned state throughout the Work.
- .3 Do not discharge water from construction directly into any of the site sewer or storm water management systems. The water is to be treated with proper filtering, stilling basins, and tankage to prevent silt and debris from entering the systems.
- .4 Damage caused to the existing water supply systems, storm water management systems, sewer systems, and surrounding areas by the Contractor's operations are to be made good to the full satisfaction of the Owner at Contractor cost.

## **1.8 Final Cleaning**

- .1 Thoroughly clean all areas affected by the Work free of all dust, debris, construction material, waste, and rubbish immediately prior to final review and turn-over of the Work area to the Owner.
- .2 Remove all grease, dust, dirt, stains, labels, fingerprints, over-spray, and other foreign materials immediately prior to final review and turn-over of the Work area to the Owner.
- .3 Flush and clean free of all silt and debris and provide CCTV inspection of all drainage lines for the Consultant to review to demonstrate the condition of the drainage lines and effectiveness of the cleaning.
- .4 Prior to Substantial Performance of the Work being considered, the Contractor shall remove their surplus products, tools, and Construction Equipment not required for the performance of the remaining Work. Leave the area of Work clean and suitable for occupancy.
- .5 The Contractor shall remove their remaining products, tools, and Construction Equipment prior to final completion of the Work.

- .6 All vertical and horizontal surfaces, systems, fixtures, equipment, etc. shall be cleaned of all dust, grease, or spray accumulations. Power wash exterior surfaces and parking areas affected by the Work. Ensure moisture sensitive equipment (i.e. fire detection sensors and pull stations, CO detectors, exposed electrical, etc.) is removed or protected against moisture ingress and damage prior to, and during, washing.
- .7 Return all interior areas and rooms to the Owner in a dust-free condition.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 Take Over Procedure

#### .1 Contractor's Review

- .1 The Contractor and their Subcontractors shall conduct a review of the work and correct all noted deficiencies.
- .2 The Contractor shall notify the Consultant, in writing, of satisfactory completion of the "Contractor's Review" after the correction of all noted deficiencies and shall request a "Consultant's Review".

#### .2 Consultant's Review

- .1 The review team shall consist of the Consultant and the Contractor. The Owner or their representative shall attend at their option.
- .2 The Consultant will prepare a list of deficiencies noted during the "Consultant's Review" and will issue the list to the Contractor.
- .3 The Consultant will determine the value of work associated with any outstanding deficiencies noted during the Consultant's Review. Payment of these retained funds will be withheld until the deficiencies have been rectified to the satisfaction of the Consultant and Owner.
- .4 The Contractor shall correct all deficiencies indicated on the list in a timely and satisfactory manner.

#### .3 Final Review

- .1 The Contractor shall request a "Final Review" when the Contractor is satisfied that all deficiencies have been corrected. The request shall be made in writing.
- .2 The "Final Review" shall be conducted by the Consultant and the Contractor. The Owner or their representative will attend at their discretion.

#### .4 Certificate of **Completion**

- .1 The Contractor must submit a request in writing to the Consultant for a Certificate of Completion.

- .2 The Contractor shall comply with the following during Contract close-out:
  - .1 The requirements of the BC Builders Lien Act.
  - .2 The requirements of the Workers Compensation Act.
  - .3 All other contractual requirements.
  
- .5 Total Performance
  - .1 Immediately following the issuance of the Certificate of **Completion**, the Consultant, in consultation with the Contractor, will establish a reasonable date for the "Total Performance of the Work".
  - .2 The Contractor shall supply all guaranties and review certificates in accordance with the requirements of the Contract Documents prior to the date established for "Total Performance of the Work".
  
- .6 Release of Holdback
  - .1 The lien holdback amounts will be released pursuant to the BC Builders Lien Act.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Manual**

- .1 An organized compilation of maintenance and renewal data including detailed technical information, documents, and records describing maintenance of individual products or systems as specified in individual sections of Divisions 02 through 32. Also including identification of, and contact information for, specific individual trades and suppliers for work as specified in individual sections of Divisions 02 to 32.

### **1.2 General**

- .1 Assemble, coordinate, bind, and index required maintenance and renewal data into Maintenance and Renewal Manual.
- .2 Submit a review copy of the completed Maintenance and Renewal Manual to the Consultant two weeks prior to application for Certificate of Substantial Performance. Attach draft or example copies of specific warranties/guaranties if required.
  - .1 A Deficiency Holdback of \$5,000 (prior to factoring) may be enforced for non-delivery of the completed maintenance manual as noted above.
- .3 Submit electronic and two hard copies in English.
- .4 Organize data into same numerical order as Contract specifications.
- .5 Material: Label each section with tabs protected with celluloid covers fastened to dividing sheets.
- .6 Type lists and notes. Handwritten summaries will not be accepted.
- .7 Drawings, diagrams, and manufacturers' literature must be legible. Provide direct print offs, in colour where applicable, from manufacturers' websites. Copies of re-faxes shall not be accepted.

### **1.3 Contents**

- .1 Cover sheet containing:
  - .1 Date submitted.
  - .2 Project title, location, and project number.

- .2 Maintenance and Renewal Manual, including but not limited to the following:
  - .1 General Introduction – explain nature of operations and maintenance items, as well as items that constitute renewals.
  - .2 Contacts – Include a summary sheet of contact names, telephone, fax, e-mail, and mailing addresses for all applicable parties. Include such parties as:
    - .1 General Contractor
    - .2 Specific trades
    - .3 Specific manufacturers
    - .4 Related consultants
    - .5 Etc.
  - .3 Maintenance Plan – include, in tabular form, a maintenance plan identifying specific components, recommended actions, and time frames. Include such items as:
    - .1 Membranes
    - .2 Insulation
    - .3 Flashings
    - .4 Etc.
  - .4 Materials and Components Summary – include, in tabular form, a summary outlining the specific materials involved in the envelope's construction. Include the product, product manufacturer, trade involved in its application or installation, warranty, and technical data sheet supplied by the manufacturer. Include such items as:
    - .1 Membranes
    - .2 Insulation
    - .3 Flashings
    - .4 Etc.
  - .5 Inspection Form – include a sample inspection form. In tabular form, identify the purpose of the inspection and how, when, and where the inspections should take place. Provide space for recording of weather conditions, general observations, and remarks.

- .6 Shop Drawings – attach record copies of all final applicable shop drawings.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Bonds**

- .1 Bonding costs, including expense of getting bonds executed, shall be borne by Contractor.
- .2 Provide Owner with the following surety bonds within 14 days after Contract Award:
  - .1 A Performance Bond to secure due and proper performance of Contractor's obligations under Contract in an amount equal to 50% of Contract Price.
    - .1 Performance bonding period commences on date of contract execution and ends two years from date of Substantial Performance.
  - .2 A Labour & Material Payment Bond in an amount equal to 50% of Contract Price to secure:
    - .1 Due and proper payment of those having direct contracts with Contractor for labour, material, and/or services.
    - .2 Full reimbursement to Owner for all liability and payments to those having direct contracts with Contractor for labour, material, and/ or services in connection with the Contract.
- .3 If a lien claim is filed against the title of lands on which the work or any part thereof is performed in relation to the Contract by an entity other than Contractor, provide a Lien Bond to remove registered lien claims and/or certificates of action.
- .4 Bonds are to be in favour of Owner in a form satisfactory to Owner.
- .5 Bonds are to name Owner as Obligee. Obligors are Contractor and a Guarantee Surety Company unobjectionable to Owner and not insolvent, bankrupt, nor in receivership or winding-up proceedings.
- .6 Guarantee Surety Company is to be a properly licensed surety company registered and duly authorized to transact business of suretyship in Province of British Columbia.

## **1.2 Warranty / Guaranty Period**

- .1 Provide a three (3) year minimum warranty for all Work of the Contract, including a guaranty secured by Performance Bond for the first 2 years, commencing on the date of substantial performance.
- .2 Extended and/or product warranties beyond the minimum period are outlined below.

## **1.3 RCABC Guarantee**

1. Conform to latest Guarantee Standards of Roofing Contractors Association of British Columbia (RCABC) as published in the RCABC Roofing Practices Manual for a Ten (10) Year Guarantee, unless modified by contract documents to exceed those minimums. RCABC Inspection:
  - .1 RCABC inspections to be provided by © Read Jones Christoffersen Ltd.
  - .2 Inspection costs are to be included in Contractor's Bid.
2. Provide the standard Roofing Contractors Association of British Columbia (RCABC) Ten Year Guarantee.
3. If the drawings and specifications differ from the manufacturer's printed instruction to such a degree that the specified warranties may be affected, inform the Consultant and obtain written direction. In most cases, the more stringent requirement shall apply.

## **1.4 Sealant Warranty**

- .1 Total Warranty period of five (5) years as follows:
  - .1 Warranty is to be a Joint Warranty by Contractor and Manufacturer. Submit a Joint Warranty Certificate to the Consultant that is signed by the Contractor and Manufacturer.

## **1.5 Remedial Work Under Guaranty/Warranty**

- .1 Perform any warranty repair work required during the warranty period at no extra cost.

- .2 Owner will notify Contractor within 30 days of discovery of any suspected warrantable defect in the Work. Immediately take necessary steps to protect area against further damage and take corrective action to bring defect into conformance with Contract Documents and rectify any damage incurred. Schedule repair work with Owner and make every attempt to correct defects within three weeks of notice.
- .3 In event of a valid warranty claim resulting in corrective work, Contractor and Owner shall contact Consultant to determine what level of involvement, including but not limited to field review, may be necessary. Should Consultant determine that field reviews are required during warranty repair work, Contractor shall be responsible for Consultant fees.
- .4 Remedy is at no cost to Owner and includes all labour, material, equipment, supervision, and field review necessary to correct defective areas of the Work and any damages incurred to obtain access to defective areas.
- .5 Reimburse Owner for resulting assessment costs, including fees associated with Consultant involvement, incurred to define extent of defect and for testing costs incurred to confirm acceptability of repairs.
- .6 Warranty periods for areas requiring repair are to be extended by amount of time elapsed between issuance of notice and completion of remedial work. Warranty/ guaranty period will re-commence upon completion of remedial work.
- .7 Warranties are not to be deemed to restrict liability of Contractor arising out of applicable law.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 Record Drawings

- .1 Consultant will provide Contractor two sets of clean white prints for project record drawing purposes.
- .2 The Contractor shall maintain accurate project record drawings on one set of white prints throughout the course of the Work that indicate deviations from the Contract Documents in red ink.
- .3 Record following information:
  - .1 Field changes of dimensions and details.
  - .2 Modifications made via Change Order, Change Directive, or Supplemental Instruction.
  - .3 Deviation from electrical and mechanical installations shown on Drawings.
  - .4 Other significant deviations that are concealed in construction and cannot be identified by visual inspection.
  - .5 Type, approximate size, and location of structural repairs, delaminations, etc.
  - .6 Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
- .4 At completion of the Work and prior to final review, neatly transfer "as-built" records to the second set of white prints using a fine red marker. Neatly print lettering and numbers to match original size. Lines shall be neat and accurate.
- .5 Add "AS-BUILT RECORD" at each drawing title block.
- .6 Contractor shall submit both sets of "as-built" record drawings to the Consultant prior to submission of the final progress payment application.
- .7 Project record drawings shall be available for reference purposes and review by the Consultant at all times. Provide reproducible prints to the Consultant or Owner upon request.

- .8 If the Project is completed without significant deviations from the Contract Documents, a written declaration may be submitted to the Consultant in lieu of as-built project record drawings.

## **1.2 Operation and Maintenance Manuals**

- .1 Submit electronic copies of manufacturers' printed operation and maintenance manuals where outlined in the technical specifications.
- .2 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance as requested within the related Specification sections.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 Section Includes

- .1 Provide the necessary labour and materials to remove and replace the complete roofing system and sheet metal flashings, down to the structural deck.

### 1.2 Reference Standards

- .1 All referenced Standards are latest editions referenced by the Building Code in the Place of the Work, or latest editions if not referenced by Code.
- .2 British Columbia Building Code
- .3 Roofing Contractors Association of BC (RCABC) Roofing Practices Manual.
- .4 RoofStar Guarantee Standards and Accepted Materials listed in the RPM.
- .5 Roofing Contractors Association of British Columbia (RCABC) Roofing Practices Manual
- .6 CGSB 37-GP-56M Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing (Withdrawn)
- .7 ASTM D6162/D6162M Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements
- .8 ASTM D6163/D6163M Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
- .9 ASTM D6164/D6164M Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements
- .10 CAN/CGSB-51.33 Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction (Withdrawn)
- .11 CSA B111 Wire Nails, Spikes and Staples (Withdrawn)

- |     |                |  |
|-----|----------------|--|
| .12 | CAN/ULC-S770   | Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams |
| .13 | CAN/ULC-S704.1 | Standard for Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced                              |
| .14 | ASTM D41/D41M  | Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing                     |
| .15 | ASTM E108      | Standard Test Methods for Fire Tests of Roof Coverings   |

### 1.3 Submittals

- .1 Submit Shop Drawings of layout and heights for sloped/tapered insulation indicating roof perimeters, window sills, penetrations, curbs, slopes, ridges, valleys, low points in existing roof deck that may form areas of ponding, crickets, sumps, and roof drain locations. Identify conflicts between insulation heights and existing installed features.
- .2 Submit insurance confirming hot work and torching coverage.
- .3 Submit product data on material characteristics, performance criteria, limitations, etc. for each product to be used.
- .4 Submit certificate that installer is certified by membrane manufacturer for the methods specified.
- .5 Submit written inspection report, if requested by Consultant, from the membrane manufacturer stating that materials used on site meet the specified criteria and are compatible with each other. Submit report to the Consultant within 48 hours of visit.

### 1.4 Quality Assurance

- .1 Conform to latest Guarantee Standards of Roofing Contractors Association of British Columbia (RCABC) as published in the RCABC Roofing Practices Manual (RPM), unless modified by contract documents to exceed those minimums.
- .2 Contractor must be a member in good standing with the RCABC.
- .3 Foreperson shall have minimum 10 years of experience in roofing industry.

- .4 Use only Red Seal trades people for roofing installation.
- .5 Do work in accordance with applicable standard in RCABC RPM, except where specified otherwise.

### **1.5 Mock-Up**

- .1 Construct a minimum 10 sq. m mock-up of roof system in location acceptable to Consultant showing typical lap joint, drain, upturns, roof edge detailing, and penetration detailing prior to installation of roofing system.
- .2 Arrange for Consultant's review during construction of the mock-up a minimum of 48 hours in advance.
- .3 Mock-up may remain as part of the Work if accepted by Consultant.
- .4 Do not commence roof installation until Consultant has reviewed mock-up.
- .5 Upon acceptance, mock-up shall serve as a minimum standard of quality for the balance of the Work of this Section.

### **1.6 Notification and Testing**

- .1 Notify Consultant at least 48 hours before commencement of any roofing work.
- .2 Consultant reserves the right to have cut tests made to establish quality of work. Such tests shall be made in the presence of the Contractor. Cost of tests and subsequent repairs shall be borne by the Contractor.
- .3 The review and testing service does not relieve the Contractor of their responsibility for quality control of production and for errors made by them.

### **1.7 Environmental and Safety Conditions**

- .1 Comply with requirements of WHMIS regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.
- .2 Roofing application shall not be carried out when materials are damp or when ambient temperatures are less than manufacturer's specifications.
- .3 Be responsible for the safe disposal of all debris from the job site and in compliance with the Environmental Protection Act.

- .4 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of products including special conditions governing use.
- .5 Provide a minimum two-hour fire watch, including infrared thermography when torches are used; it shall include checking the roof's underside for smouldering (whenever possible), as well as the top side. Walk the day's entire production area to check for smoke and hot spots.

## **1.8 Delivery, Storage, and Handling**

- .1 Deliver and store all materials in their original packaging bearing the manufacturer's name, grade, weight, and applicable standards.
- .2 Ensure shelf life of all materials has not elapsed.
- .3 Store material in accordance with manufacturer's directions.
- .4 Remove from site any material damaged or exposed to wet weather.
- .5 Do not overload structure or adjacent structures, including suspended slabs.
- .6 Store rolls on ends with selvage edge up, one pallet high only.
- .7 Ensure all rolled base sheet membranes are maintained at a temperature between 10°C and 40°C prior to use.
- .8 Store solvent based liquids, adhesives, and primers away from excessive heat and open flames and at temperatures between 15°C and 26°C.

## **1.9 Warranty**

- .1 Refer to Section 01 78 36.

## **2.0 PRODUCTS**

### **2.1 Primers**

- .1 Asphalt Primer: To CGSB 37-GP-9Ma, as recommended by manufacturer.
- .2 Solvent-based primer for self-adhesive membranes. Acceptable Products:
  - .1 TA-119 by Siplast
  - .2 Elastocol Stick by Soprema

- .3 Primer for Reinforced Liquid Flashing Membrane: Translucent cloudy two-component polymethyl methacrylate-based (PMMA) primer.  
Acceptable products:

- .1 ALSAN RS 276 PRIMER by Soprema
- .2 Pro Primer W by Siplast

## 2.2 Vapour Retarder

- .1 At self-adhered vapour retarder:

- .1 Adhered bituminous membrane consisting of minimum 0.8 mm SBS modified bitumen with silicone release film. Acceptable products:

- .1 Sopravap'R by Soprema
- .2 SA Vapor Retarder by Siplast

- .2 At torch-applied vapour retarder:

- .1 Torch-applied bituminous membrane. Acceptable products:

- .1 Elastophene SP 2.2 by Soprema
- .2 Irex 40 by Siplast

## 2.3 Base Insulation

- .1 Isocyanurate insulation to CAN/ULC-S704, thickness as indicated on Drawings, Type 2 Class 2 polymer bonded glass fibre, 20-psi compression to ASTM C1289 manufactured using HCFC-free blowing agents and integrally laminated to heavy, non-asphaltic, fiber reinforced, non-organic glass fibre facers. Maximum panel dimension shall be 1,219 mm (48"). Total insulation thickness shall be as noted on the Drawings. Acceptable Products:

- .1 Sopra-Iso Plus by Soprema
- .2 Paratherm CG by Siplast

- .2 Tapered Insulation

- .1 Sloped polyisocyanurate thermal insulation board as required to achieve a minimum 2% sloped roof surface throughout and as detailed. Acceptable Products:

- .1 Sopra-Iso Plus Tapered by Soprema
- .2 Paratherm CG Tapered by Siplast
- .2 Modules shall be factory-cut to correct slopes and clearly marked to match shop drawings.
- .3 All valley corners shall be factory mitred.

#### **2.4 Insulation/Deck Overlay Board and Factory-Laminated Base Sheet**

- .1 High-performance base sheet panel composed of SBS modified bitumen membrane, factory-laminated on high-density polyisocyanurate panel.
  - .1 2-1 SopraSmart ISO HD (12.7mm [0.5"] Thick) by Soprema
  - .2 Paraboard HD Barrier (12.7 [0.5"] Thick) by Siplast

#### **2.5 Modified Bitumen Membrane**

- .1 Two ply system made from prefabricated modified bitumen membranes containing minimum 11% of elastomer Styrene Butadiene Styrene (SBS) and reinforced with non-flammable, fireproof and stress-resistant insert of glass fibre and polyester composite.
  - .1 Base Sheet
    - .1 Refer to 2.3 – Insulation/Deck Overlay Board and Factory Laminated Base Sheet
  - .2 Base Sheet Stripping:
    - .1 Base Sheet Stripping:
      - .1 Properties:
        - .1 Application: Self-Adhesive.
        - .2 Reinforcing: Composite polyester/glass fibre mat
        - .3 Thickness: Minimum individual membrane thickness of 3.0 mm to CGSB 37-GP-56M.
        - .4 Bottom Surface: Silicone release film.
        - .5 Top Surface: Thermofusible Plastic Film.
      - .2 Acceptable Products:
        - .1 Sopraply Flam Stick by Soprema
        - .2 Paradiene 20 (Self Adhesive) by Siplast

- .3 Cap Sheet and Cap Sheet Stripping:
  - .1 Properties:
    - .1 Application: Torch Application
    - .2 Reinforcing: Reinforced with composite polyester/glass fibre mat.
    - .3 Thickness: Minimum individual membrane thickness of 4.0 mm to CGSB 37-GP-56M.
    - .4 Bottom Surface: Polyethylene surfaced
    - .5 Top Surface: Granulated
    - .6 Colour: As selected by the Owner
  - .2 Acceptable Products:
    - .1 Sopraply Traffic Cap by Soprema
    - .2 Parafor 30 TG by Siplast

## **2.6 Reinforced Liquid Flashing Membrane**

- .1 Two-component polymethyl methacrylate-based (PMMA) liquid membrane combined with fleece fabric to form a reinforced membrane for flashings and parapets. Acceptable products:
  - .1 Alsan RS 230 Flash by Soprema
  - .2 Parapro 123 Flashing System by Siplast

## **2.7 Fabric Reinforcement for Liquid Flashing Membrane**

- .1 Non-woven, needle-punched polyester fabric used as fabric reinforcement in liquid-applied membrane systems. Acceptable products:
  - .1 Alsan RS Fleece by Soprema
  - .2 Pro Fleece by Siplast

## **2.8 High Temperature Self Adhered Membrane**

- .1 High-temperature stable self-adhering SBS rubberized asphalt compound or self-adhering butyl compound integrally laminated to polyethylene or polypropylene film or aluminum facer. Acceptable Products:
  - .1 Lastobond Shield HT by Soprema

- .2 WALLcontrol Reinforced Aluminum Butyl Flashing by Siplast
- .3 Blueskin PE 200 HT by Henry
- .4 Approved alternate

## **2.9 Vapour-Permeable Self-Adhesive Wall Sheathing Membrane**

- .1 Vapour permeable self-adhesive membrane composed of an engineered facer and permeable adhesive backing. Acceptable Products:
  - .1 Sopraseal Stick VP by Soprema
  - .2 WALLcontrol Monolith VP Adhered AWB by Siplast
  - .3 Blueskin VP160 by Henry
  - .4 Approved alternate

## **2.10 Drains**

- .1 Spun copper or aluminum drain with clamping ring and die-cast aluminum strainer. Acceptable Products:
  - .1 Spun Copper (or Aluminum) Clamp-Tite Drain by Menzies Metal
  - .2 Spun Copper (or Aluminum) Drain (Clamping) by Precision Metals

## **2.11 Scupper**

- .1 Copper or aluminum pipe scupper complete with membrane clamping ring. Approved products:
  - .1 Clamp-Tite Overflow Scupper by Menzies Metal
  - .2 Approved alternate

## **2.12 Accessories**

- .1 Insulation Fasteners: Conform to membrane manufacturer's written recommendations for wind uplift and corrosion resistance; length as required by insulation thickness plus 25 mm max.
- .2 Vent Stack Flashings: Spun aluminum sleeve to fit over vent stack with sufficient space to insulate. A spun aluminum cap to fit outside sleeve and inside vent stack. Cap shall not restrict vent stack's inside diameter.

- .3 Wire and Cable Flashing: Prefabricated, insulated, seamless metal base flange with stainless steel pipe extending out.
  - .1 Flash-Tite Electrical Conduit "Gooseneck" by Lexcor (Lexsuco).
  - .2 Flash-Tite Model CF-WO by Lexcor (Lexsuco).
  - .3 Electrical Roof Flashing by Menzies Metal Products.
- .4 Gas Line Flashing: prefabricated sheet metal flashing box. Acceptable Product:
  - .1 Gas Retro Box by Menzies Metal Products.

### **3.0 EXECUTION**

#### **3.1 Protection**

- .1 Dispose of rainwater away from face of building until drains or hoppers are installed and connected.
- .2 Protect new and existing roofing from traffic and damage.
- .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.
- .4 Seal and protect exposed edges.

#### **3.2 Precautions**

- .1 Apply each part of roofing system only when surfaces are clean and dry.
- .2 Locate equipment and materials in areas designated by Consultant or Owner.
- .3 Conduct operations to leave deck exposed for minimum period of time. Protect, as required, to prevent water infiltration or environmental damage to building interior.
- .4 All aspects of roofing operation shall follow in close sequence. No part of the operation shall be far ahead of succeeding part such that the latter cannot be finished that working day.
- .5 Erect and maintain safety fences around tall equipment and material.

- .6 Take precautions to minimize introduction of asphalt fumes to interior space. Coordinate with Owner to close air intakes where practical.
- .7 Contractor Owner is responsible for disconnection, relocation, and reinstallation of all existing mechanical and electrical services and equipment.  
  
Ensure that Owner is aware of any such work that may impact the interior environment of the building, prior to disconnection or shut down.
- .8 Disconnection and reconnection of all electrical services to meet latest regulations of Canadian Electrical Code and applicable Municipal and Provincial Codes and Regulations. In each and every instance of application, Code, Regulation, Statute, By-Law, or Specification, the most stringent requirements shall apply.
- .9 Provide Owner with a schedule indicating time and dates for any work creating a disruption to interior environment and obtain Owner's written approval.
- .10 All adjacent parts of the building shall be protected from damage caused by roofing operations. Cover walls and other surfaces in the vicinity of hoisting apparatus with heavy canvas or other suitable protective material. Any damage caused under this contract shall be repaired to match the original materials and appearance.
- .11 Fire Extinguishers: Maintain at least one fully charged fire extinguisher with shutoff nozzle, ULC labelled for A, B, and C class per torch applicator, within 6 m of torch applicator. Strictly adhere to all safety guidelines for the torching of modified bituminous membrane.
- .12 Any sharp projections that may penetrate the membrane, in the opinion of the Consultant, shall be grounded smooth and flush.

### **3.3 Substrate Preparation**

- .1 Roof deck and existing roof construction shall be structurally sound to provide support for new roof system. Notify Consultant of any deteriorated decking to determine method of treatment or replacement.
- .2 Remove all existing membrane, flashings, cants, and wood blocking and sweep clean. Remove only amount of roofing and flashing that can be made watertight with new materials during the workday or before the onset of inclement weather.

- .3 Substrate surface shall be firm and free from dust, loose material, excess moisture, and oil-based curing agents.
- .4 Prepare substrate surface in accordance with membrane manufacturer's written instructions or this Specification, whichever is more stringent.

### **3.4 Primer Application**

- .1 Apply by brush or spray at rate designated by manufacturer.

### **3.5 Vapour Retarder Installation**

- .1 For Self-Adhering Vapour Retarder – Roofs 2, 3 and 9
  - .1 Prime deck as recommended by vapour retarder manufacturer.
  - .2 Install under new wood blocking as detailed on Drawings.
  - .3 Install membrane with minimum 75 mm (3") side laps and 150 mm (6") end laps.
  - .4 Apply pressure to membrane surface to ensure adequate adhesion. Avoid fish mouths, buckles, or any other application defect. Stagger end laps by a minimum of 12" (300 mm).
  - .5 Roll membrane per manufacturer's requirements.
  - .6 Overhang vapour retarder at all edges and extend up verticals 400 mm (16") minimum. Wrap over ends of insulation boards at roof perimeter and penetrations.
  - .7 Ensure that vapour retarder at roof edges and vertical building surfaces maintains, together with wall vapour retarder, integrity of vapour retarder system for the building.
- .2 For Torch Applied Vapour Retarder – Roofs 5 and 7
  - .1 Heat up existing vapour retarder and torch-apply a new SBS-modified bitumen vapour retarder atop the existing. Patch areas of existing vapour retarder discontinuity such that no existing plywood is exposed prior to torch-applying new vapour retarder. Maintain at least one fully charged fire extinguisher with shutoff nozzle, ULC labelled for A, B, and C class per torch applicator, within 6 m of torch applicator. Strictly adhere to all safety guidelines for the torching of modified bituminous membrane. Provide a minimum two-hour fire watch, including infrared thermography when torches

are used; it shall include checking the roof's underside for smouldering (whenever possible), as well as the top side. Walk the day's entire production area to check for smoke and hot spots.

- .2 Commencing at lowest point of roof and perpendicular to roof slope, adhere membrane to primed substrate. Torch apply membrane with minimum 75 mm (3") side laps and 150 mm (6") end laps. Extend base sheet up vertical, to point as detailed on Drawings.
- .3 Ensure membrane is unrolled to enable membrane to relax prior to installation, for amount of time required by weather conditions. Torch surface of membrane in an S-pattern.
- .4 Weld all lap joints by heat softening the membrane and pressing the edge of the membrane firmly with a roofing trowel.
- .5 Mark a chalk line where the first course is to start. Unroll 2.0 m to 3.0 m of the membrane and line it up to the chalk line or to selvage edge. Reroll back 60% and commence application in both directions. If the roll goes out of line by more than 12 mm, cur and realign.
- .6 With a torch, adhere membrane, release film side up. Carefully heat underside of membrane and slowly unroll. Constantly check adhesion to ensure proper bonding is achieved. In cold weather, at the last meter of membrane, roll surface of membrane with a neoprene roller when membrane is cool enough.
- .7 Membrane end lap corners to be cut on a bias (clipped or trimmed on an angle) prior to forming end laps. At head laps where "T" joints occur, cut corner of membrane to be overlapped, on a 45-degree angle. Apply manufacturer approved mastic seal to cover granule portion at overlap areas and to fill step where membrane "T" overlaps.
- .8 Side laps shall cover selvage edge and be minimum 75 mm. End laps must be 150 mm.

### 3.6 Survey

- .1 Survey roof deck during installation to locate low points not associated with drains and notify Consultant of findings.

### 3.7 Insulation Installation

- .1 For mechanically fastened insulation attachment:
  - .1 Install insulation to meet thickness and R-Value indicated on Drawings.
  - .2 In sump area around drain, reduce base insulation by 25 mm. Chamfer transition between insulation boards.
  - .3 Stagger all joints in the boards. Mechanically fasten insulation to meet specified wind uplift loads per manufacturer's tested assembly data.
  - .4 Install one layer of tapered insulation in areas indicated on Drawings, mechanically fasten to meet specified wind uplift loads per manufacturer's tested assembly data. Ensure modules are placed in parallel rows, in a pre-designed order, and as indicated on shop drawings.
- .2 All systems shall have additional fasteners and adhesive at slope transitions such as valleys, sumps, and slope to flat, etc., to prevent movement of membrane, overlay board, and insulation. Refasten if movement of more than 5 mm under reviewer's foot. Tapered Insulation
  - .1 Limit areas of ponding to a maximum of 2 sq. m, maximum 6 mm deep or as required by warranty.
  - .2 Final insulation installation shall provide complete support to roof membrane. No tenting or unsupported protection board or roof membrane is permitted. Provide slope to zero tapers, refasten insulation, or remove and reinstall insulation to provide complete and even support to membrane system.
  - .3 Supply factory tapers at all transitions. Leave no steps in insulation due to stepped ends of tapered insulation.
  - .4 Insulation slopes and thicknesses shall be as indicated on Drawings and shall be a distinct separate layer with joints staggered over base insulation.
  - .5 Insulation fillers shall meet requirements of base insulation.
  - .6 Do not site cut slopes or valley corners.

### **3.8 Base Sheet Installation**

- .1 For mechanically fastened base sheet overlay board:
  - .1 Commencing at lowest point of roof and perpendicular to roof slope, lay base sheet overlay board and mechanically attach with fasteners to meet specified wind uplift requirements. Apply base sheet with 75 mm (3") side laps and 150 mm (6") end laps.
  - .2 Ensure base sheet is unrolled to enable membrane to relax prior to installation, for amount of time required by weather conditions.
  - .3 Torch weld all lap joints by heat softening membrane and pressing edge of membrane firmly with a roofing trowel.

### **3.9 Cap Sheet Installation**

- .1 For torch applied cap sheet:
  - .1 Plan membrane application so that laps are not superimposed over laps of base sheet. Mark a chalk line where first course is to start. Unroll 2.0 m to 3.0 m of membrane and line it up to chalk line or selvage edge. Reroll and commence application. If roll goes out of line by more than 12 mm, cut and realign.
  - .2 With a torch, adhere one-ply of membrane, granule side up. Carefully heat underside of membrane and slowly unroll. Constantly check adhesion to ensure proper bonding is achieved.
  - .3 Side laps shall cover selvage edge and be a minimum of 75 mm. End laps must be 150 mm.
  - .4 Using a torch and round nosed roofing trowel, embed surface granules into heated and soft bitumen, from chalk line to edge of cap sheet at top of horizontal surface (a minimum distance of 200 mm from edge of cap sheet).

### **3.10 Membrane Flashings and Sheet Stripping Installation**

- .1 Install flashing membrane in accordance with specific system requirements using longest pieces practical. Terminate flashing as shown on Drawings in accordance with manufacturer's instructions.
- .2 Plan for flashing membrane installation so laps are not superimposed over laps of underlying membrane.

- .3 Extend flashing/stripping vertically a minimum of 200mm beyond the horizontal field surface.
- .4 Overlap base sheet flashing over horizontal field base sheet membrane a minimum of 200mm.
- .5 Overlap cap sheet flashing over horizontal field cap sheet membrane a minimum of 300mm.
- .6 Overlap flashing membrane side laps a minimum of 75mm.
- .7 Install reinforcing gussets at all inside and outside corners in accordance with manufacturer's recommendations.
- .8 Base sheet flashing/stripping shall be fully adhered over roof membrane and vertical surface in accordance with manufacturer's instructions. Cap sheet flashing shall be torched over base sheet membrane with specified overlap in accordance with manufacturer's instructions.
- .9 Secure all membrane flashings to verticals with continuous securement strips installed along top edge of membrane flashings and fastened as indicated on Drawings. Lap all strips to the selvage a minimum of 75mm and seal laps securely.
- .10 Embed granules for preparation of the selvage edges where membrane will overlap the mineral surface.
- .11 Using a propane torch, heat back of flashing strip until coating flows and bonds to roof and up the vertical. Press in firmly for proper adhesion. Continue by bonding upper portion to wall, taking precautions not to stretch membrane.
- .12 At all head laps, where "T" joints occur, cut corner of membrane to be overlapped, on a 45 degree angle. Apply manufacturer-approved mastic to cover granule portion at overlap areas and to fill step where membrane "T" overlaps.

### **3.11 Primer for Reinforced Liquid Applied Flashing Membrane Installation**

- .1 Mask off application area with masking tape.
- .2 All wood surfaces to be primed.
- .3 Comply with manufacturer's written application instructions for surface preparation and priming requirements.

- .4 Thoroughly mix primer resin and catalyst components to manufacturer's written instructions. Add catalyst only to amount of material that can be used within 10 to 15 minutes.
- .5 Apply resin to substrate using rollers, brushes, or notched squeegees for this purpose.
- .6 Spread primer evenly to completely saturate substrate with a single application.

### **3.12 Reinforced Liquid Applied Membrane Flashing Installation**

- .1 Thoroughly mix resin and catalyst components to manufacturer's written instructions.
- .2 Add catalyst only to amount of material that can be used within 10 to 15 minutes.
- .3 Apply first layer of resin to substrate using rollers, brushes, or notched squeegees for this purpose in accordance with manufacturer's written coverage rate.
- .4 Lay out and fully saturate polyester reinforcement on resin. Prevent the formation of wrinkles, swellings, or fish mouths and remove wrinkles and air bubbles under reinforcement.
- .5 Apply second resin layer on top of reinforcement in accordance with manufacturer's written coverage rate.
- .6 The final resin coating shall be smooth and even.
- .7 Overlap each reinforcement sheet over previous sheets a minimum of 50 mm (2").
- .8 Extend flashing 200 mm (8") onto horizontal field surface or as required by membrane manufacturer's written application instructions.
- .9 Extend flashing vertically a minimum of 200 mm (8") beyond horizontal field surface. Mask top edge for even, neat reveal.
- .10 Extend liquid membrane a minimum of 6 mm (1/4") past edge of reinforcing fabric at end laps.
- .11 Remove masking tape before membrane cures.

### **3.13 Vent Flashings Installation**

- .1 Install vent stack covers at all existing vent pipes. Extend existing vent pipes as required to a minimum height of 400 mm (16") above completed membrane surface. Provide sufficient allowance for pipe expansion or contraction.
- .2 Prime vent stack flange, centre over existing vent stack, and set into heated base sheet membrane. Flash with one ply of base sheet membrane for reinforcement, to extend a minimum of 200 mm beyond flange. Complete installation with application of cap sheet membrane.
- .3 Install batt insulation between vent stack and aluminum stack flashing.
- .4 Caulk as detailed on Drawings.
- .5 Secure vent caps with self-tapping screws.

### **3.14 Metal Flashings**

- .1 Refer to Section 07 62 00.

### **3.15 Cleaning of Drainage System**

- .1 Power flush (high-pressure jetting or approved equivalent) all drainage systems within Work areas to verify that all new and existing drains, drain lines, and related piping are totally cleaned, operational, and free running.
- .2 Clean all sediment buckets of all debris.
- .3 Test drainage system to confirm unobstructed operation.

### **3.16 Roof Drains Installation**

- .1 Ensure the integrity of the vapour barrier is maintained by sealing vapour barrier directly to the drain with spray foam or compatible sealant.
- .2 Install roof drain flange on the base sheet.
- .3 Trim roofing membrane and set clamping ring.
- .4 Prime the drain flange and install a reinforcing ply of base sheet flashing material (180 g/m<sup>2</sup>) to extend 250 mm (10") beyond drain limits and then complete the operation with the field cap sheet.

- .5 Permanently plumb roof drains into existing plumbing with mechanical joint connection in accordance with code and local standards, and without reducing flow capacity. Should existing plumbing be inaccessible, provide a insert gasket (Menzie's Blue Drain Seal or approved alternate).

### 3.17 General

- .1 Patch cap sheet membrane utilizing patches with a minimum size of 400 mm (16") by 900 mm (3 ft.)
- .2 Minimum length of cap sheet on flat run of roof shall not be less than 900 mm (3 ft.)
- .3 Discard any cap sheet rolls with or deformed ends.
- .4 Following completion of new roofing, torch soften and apply a liberal application of manufacturer-approved bulk type mineral granules to cap sheet membrane edges where asphalt has extruded or flowed beyond clean lines and to all surface damage.
- .5 Remove splices in delivered rolls. Cut back the roll 400 mm (16") on both sides of the splices.

### 3.18 Completion of Day's Work

- .1 Install water cut-offs at end of each day's work. Construct water cut-off as a permanent insulation cell wall. Note location of each insulation cell on (as-built) record drawings. Where a day's work is more than 200 sq. m, construct additional cell walls in order to keep insulation cells to 200 sq. m maximum.
- .2 Construct cell dividers using base sheet or vapour barrier.
- .3 Do not incorporate temporary roofing membranes into main roof system. Remove all membranes utilized for this purpose and discard.
- .4 Inspect all laps of membrane application to ensure they are properly bonded. Repair any deficiencies before leaving the site for the day.
- .5 Leave no openings for water ingress into the roof assembly.
- .6 Leave no base sheet exposed overnight unless all seams are sealed before leaving site.

- .7 Progressively remove from the site all debris created by the execution of Work and dispose of at a certified disposal location. Contractor may be asked to produce proof of disposal location.

### **3.19 Field Quality Control**

- .1 Consultant may have cut tests made to establish quality of work. Such tests will be made in presence of Contractor. Cost of tests and subsequent repairs shall be borne by the Contractor.
- .2 Notify Consultant in event that Specifications conflict with manufacturer's recommendations.
- .3 Review and testing service does not relieve Contractor of responsibility for quality control.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 Reference Standards

- .1 All referenced Standards are latest editions referenced by the Building Code in the Place of the Work, or latest editions if not referenced by Code.
- .2 British Columbia Building Code
- .3 RCABC Roofing Practices Manual and Roofstar Guarantee Program
- .4 SMACNA Architectural Sheet Metal Manual
- .5 ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- .6 ASTM B32 Standard Specification for Solder Metal
- .7 CAN/CGSB 37.5 Cutback Asphalt Plastic Cement (Withdrawn)
- .8 CSA B111 Wire Nails, Spikes and Staples (Withdrawn)
- .9 AA Aluminum Standards and Data
- .10 CSSBI S8 Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products

### 1.2 Submittals

- .1 Samples: Submit samples of each type of material and colour to be used.
- .2 Product Data: Provide manufacturer's technical data for each type of material to be used.
- .3 Maintenance Data: Provide manufacturer and Contractor information sheets for care and maintenance of materials.

### 1.3 Mock-Up

- .1 Assemble a mock-up of each condition, including cross-cavity flashing, sill, head, cap, saddle, etc.) on site for Consultant review.
- .2 Mock-up shall include all components of system, including typical joints and connection hardware, and typical tie-ins to adjoining systems, finished as specified.

- .3 Modify mock-ups as Consultant may direct to meet specified requirements.
- .4 Mock-up may remain as part of the Work.
- .5 Allow 24 hours for Consultant review of mock-up before proceeding with work.

#### **1.4 Delivery, Storage, and Handling**

- .1 Do not expose stored products to wetting or damage. Store neatly and properly stacked.
- .2 Transport, handle, and store products so as to prevent damage. Stack preformed products in manner to prevent twisting, bending, and rubbing.
- .3 Remove units or components that are stained, watermarked, cracked, bent, chipped, scratched, or otherwise unsuitable for installation and replace with new.
- .4 Protect finish and edges in accordance with manufacturer's directions.
- .5 Store material in accordance with manufacturer's directions.
- .6 Prevent contact of dissimilar metals during storage and protect from acids, flux, and other corrosive materials and elements.

### **2.0 PRODUCTS**

#### **2.1 Sheet Metal Materials**

- .1 Carbon Steel:
  - .1 G90 galvanized steel sheet to ASTM A653/A653M, commercial quality coating. Thickness: 24 gauge (0.6070 mm)
  - .2 Finish:
    - .1 Prefinished steel with factory applied silicone modified polyester on primer, both paint and primer back cured. Include paint system coating to reverse side of coil stock to prevent corrosion of backside surfaces and uniform colour.

- .3 Colour: As selected by the Owner from the manufacturer's standard colour range.

## **2.2 Accessories**

- .1 Plastic Cement: Cutback asphalt type, to CAN/CGSB 37.5.
- .2 Underlay for Metal Flashing and Transition Self-Adhering Membrane: High-Temperature self-adhering membrane or equivalent with compatible primers and sealants. Acceptable Products:
  - .1 Lastobond Shield HT by Soprema
  - .2 WALLcontrol Reinforced Aluminum AWB by Siplast
- .3 Cleats and Starter Strips: Of same materials and temper as sheet metal, minimum 50 mm (2") wide x thickness same as sheet metal being secured.
- .4 Fasteners: Of same material as sheet metal, corrosion resistant, to CSA B111, flat head roofing nails of length and thickness suitable for metal flashing and trim application.
- .5 Washers: Of same material as sheet metal, 1.0 mm thick with rubber packings.
- .6 Solder: To ASTM B32, alloy composition 50% pig lead and 50% block tin.
- .7 Flux: Commercial quality as recommended by sheet metal manufacturer.
- .8 Touch-Up Paint: As recommended by prefinished material manufacturer.

## **2.3 Fabrication**

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable RCABC and SMACNA details and specifications.
- .2 Form to maximum 2440 mm (8') lengths using one piece for each flashing section. Make allowance for expansion at joints.
- .3 Use flat-lock folded seams for joints and splices of thru-cavity flashings. S-lock joints may be used if all flashing surfaces are sloped greater than 3:1.

- .4 Use S-lock joints on parapet cap flashings with hidden fasteners. Allow for field bent standing seams minimum 12 mm (1/2") tall with 45° corner locks on parapet outside/inside corners.
- .5 Positively lap flat lock and S-lock seams if parapet is sloped.
- .6 Hem exposed edges on underside 12 mm (1/2"); mitre and seal corners with sealant.
- .7 Form sections square, true, and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .8 Ends of thru-cavity flashing shall have 12 mm (1/2") folded upturn, creating an end dam. Do not cut and caulk upturns.
- .9 Form metal flashing on a bending brake with shaping trimmed. Perform hand seaming on a bench, as far as practicable, with proper sheet metal working tools. Make angles of bends and folds for interlocking metal with full regard to expansion and contraction to avoid buckling and damage to metal.
- .10 Form flashings, copings, and fascia to profiles indicated on Drawings and as required to complement and finish membrane roofing and wall systems.

## **2.4 Saddle and Cap Flashings**

- .1 Shop fabricate complete saddle flashing in one piece with soldered seams. Grind seams smooth, prime, and shop paint to match sheet stock.

## **3.0 EXECUTION**

### **3.1 Examination**

- .1 Examine surfaces to receive flashings. Notify the Consultant of surfaces that are considered unacceptable to receive work of this Section.

### **3.2 Preparation**

- .1 Protect work of other Sections from damage by work of this Section.

### **3.3 Installation - General**

- .1 Install sheet metal work in accordance with RCABC standards.
- .2 Use concealed fastenings on front (exposed) faces, and exposed fasteners in areas hidden from view.

- .3 Provide underlay under sheet metal; secure in place and lap joints 100 mm (4"). Provide self-adhesive membrane to tie into adjacent assemblies.
- .4 Counter-flash bituminous flashings at intersections of roof with vertical surfaces and curbs.
- .5 Flash joints to fit tight over cleats (hook strips).
- .6 Use flat-lock joints for metal flashing except roof. S-pocket and standing seams are acceptable. Lock end joints and caulk with sealant.
- .7 Parapet (Coping) Flashings: Use S-pocket (S-lock) seams throughout with overlapped standing seam at corners. Secure standing seam with button punch or rivet.
- .8 Birdsmouth Terminations: Install surface mounted reglets true and level, and caulk top of birdsmouth with compatible sealant.
- .9 Reglet Terminations: Turn top edge of flashing into recessed reglet or mortar joint minimum 25 mm. Lead wedge flashing securely into joint and caulk flashing at reglet with compatible sealant.
- .10 Where flashing installed with mechanical fasteners, install fasteners in slotted or oversize holes to allow expansion and contraction of flashings.

### **3.4 Counter Flashings**

- .1 Install metal counter flashings as soon as possible after membrane flashings are in place and reviewed by Consultant.
- .2 Counter flashing shall have crimped bottom edge, stiffening break, and extend at least 400 mm (16") up verticals or as detailed on Drawings and extend down to horizontal plane of roof surface.
- .3 Where detailed on Drawings, turn top edge of flashing into walls, secure with lead wedge or friction fit pins into reglet, and caulk at joint to wall.
- .4 Secure sections in S-pocket joints and allow sufficient tolerance for expansion and contraction between each piece.
- .5 Secure metal counter flashing minimum 300 mm (12") above roof membrane. Use fasteners of sufficient length to penetrate at least 25 mm (1") into substrate.

### **3.5 Cap Flashings**

- .1 Supply and install continuous metal starter strips, secure at 150 mm o.c. (6" o.c.), maximum of 50 mm above drip edge, with fastener of sufficient length to penetrate minimum 25 mm (1") into substrate.
- .2 Form cap flashings to profiles shown on Drawings and provide positive drainage to interior roof surface areas.

### **3.6 Scuppers**

- .1 Install scuppers in accordance with applicable RCABC standards.

### **3.7 Touch-Up and Cleaning**

- .1 Remove grime and dirt from flashing materials by dry wiping as material is erected.
- .2 Remove excess solder. Remove excess sealant with sealant manufacturer recommended solvent that will not harm finish.
- .3 Wipe off handprints, smudges, and other superficial stains.
- .4 Remove and replace dented and damaged materials.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 Work Included**

- .1 Provide all labour, equipment, material, and supervision to seal designated joints as described in the Drawings.

### **1.2 Reference Standards**

- .1 All referenced Standards are latest editions referenced by the Building Code in the Place of the Work, or latest editions if not referenced by Code.
- .2 British Columbia Building Code
- .3 ASTM C920 Standard Specification for Elastomeric Joint Sealants
- .4 ASTM C1193 Standard Guide for Use of Joint Sealants

### **1.3 Performance Requirements**

- .1 Sealant shall be totally waterproof, flexible, and thermally compatible with the substrate under applicable service conditions.
- .2 Sealant assemblies to remain bonded and watertight, and withstand active cyclical movements of at least  $\pm 25\%$  of joint width, and no less than 6 mm across joint faces.
- .3 Sealant shall remain fully bonded to the substrate surfaces.
- .4 Sealed joint shall not leak.

### **1.4 Submittals**

- .1 Submit a certified statement from manufacturer attesting that all areas and surfaces were satisfactorily prepared to receive sealant per manufacturer instructions and requirements.
- .2 Submit statement from manufacturer attesting that all sealant was installed in accordance with manufacturer's written instructions.

### **1.5 Delivery, Storage, and Handling**

- .1 Deliver, handle, store, and protect materials as recommended by material manufacturer.

- .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels intact. Protect from heat, direct sunlight, freezing, moisture, water, and contact with ground or floor.
- .3 Maintain containers and labels in undamaged condition.

## **2.0 PRODUCTS**

### **2.1 Materials**

- .1 Sealant for typical (i.e. 1/2" +/-) backer rod and sealant or fillet joints shall be gun grade complete with Manufacturer's recommended primers. Approved products are:
  - .1 Tremco Dymonic 100
  - .2 Primer: Non-staining type recommended by sealant manufacturer.
  - .3 Backer rod to be non-gassing. Approved product is Sofrod.

### **2.2 Samples**

- .1 If requested by Consultant, apply samples of joint sealant on site to determine material application rates and final appearance.

## **3.0 EXECUTION**

### **3.1 Sealant Joints**

### **3.2 Sealant Joints**

- .1 Remove all existing caulking and prepare and prime surfaces in accordance with the Manufacturer's recommendations.
- .2 Clean the joint of all dust, paint, loose, and foreign material prior to sealing.
- .3 Mask surfaces/materials adjacent to the joint to be sealed prior to primer application where required to prevent staining
- .4 Apply sealant to all joints and interfaces as shown on the Drawings to fill all voids and joints solid and tool to a uniform profile.
- .5 Sealant surface is to be smooth and free from ridges, wrinkles, sags, air pockets, and embedded impurities.

### **3.3 Sealant Application**

- .1 Clean surfaces of all moisture, dust, grease, oil, existing caulking, and other materials that may adversely affect the sealant bond. Cleaned joints must be thoroughly dried, dust free, and frost free before installing sealing.
- .2 Application procedures that result in toxic fumes or flammable solvents collecting or endangering workers or building occupants are not permitted.
- .3 Material application is to be in strict conformance with manufacturer's recommendations with proper application temperatures adhered to. Do not install primer or sealant when temperature is below 5°C. Do not prepare substrates or install sealants if rain or other inclement weather is imminent or forecasted.
- .4 Install sealant to fill all voids and provide a continuous seal that is free of air pockets and voids.
- .5 Provide a smooth concave tooled joint.
- .6 Caulked joints shall be protected by Contractor until sufficiently cured.

### **3.4 Clean Up**

- .1 Clean adjacent surfaces immediately, leaving work area neat and clean.
- .2 Remove excess sealants and droppings using recommended cleaners as work progresses. Remove masking tape after tooling of joints.

### **3.5 Inspection and Testing**

- .1 Adhesion tests may be performed to ensure proper bonding of sealant material to substrate. Manufacturer's representative may also perform adhesion testing as required to satisfy themselves prior to issuance of manufacturer's warranty.
- .2 Repair all test locations at no extra cost.

**END OF SECTION**