

PROJECT SPECIFICATIONS  
BUILDING REMEDIATION  
DUNCAN CITY HALL – ROOF REPLACEMENT  
200 CRAIG STREET, DUNCAN BC

Issued for Tender - Feb 22, 2023



MORRISON HERSHFIELD

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**1.0 Description****1.1**

Work under this Contract, as detailed in the contract documents, includes (but is not restricted to) the supply of all labour, materials, services, and incidentals to perform the Work.

**1.2**

Except where specified otherwise, all requirements of this section shall apply to the Work of all other sections of the specifications.

**2.0 Documents Required at the Site**

One copy of each of the following documents shall be present and maintained at the job site:

1. Drawings and specifications
2. Addenda
3. Change Orders and Change Directives
4. Other modifications to the Contract
5. Site Visit Reports
6. Test reports
7. The approved, up to date, work schedule
8. Manufacturers' installation and application instructions
9. Copy of the Material Safety Data Sheet (MSDS) for all materials and products on site as required by the Workplace Hazardous Materials Information System (WHMIS)
10. A day-to-day record of all work performed
11. Consultant reviewed and approved Shop Drawings

**3.0 Work Schedule****3.1**

The following schedules shall be required:

1. Construction progress schedule
2. Schedule of values of the Work
3. Schedule for processing Shop Drawings, product data, and samples
4. Schedule for mock-up reviews of the key building components

**3.2**

Provide a schedule in accordance with GC 3.5.1 showing the anticipated progress stages and final completion of Work within the period quoted in the Bid Form. The schedule shall include dates for the following:

1. Submission of Shop Drawings, material lists, and samples
2. Start and completion of all major elements of Work including removals, structural repairs, interior fit-up, by area of Work
3. Substantial Completion and Total Completion

**3.3**

The Contractor shall submit an updated and revised schedule with each claim for payment.

**3.4**

The schedules shall abide by the following format:

1. Prepare the schedules in the form of a horizontal bar chart
2. Provide a separate bar for each trade or operation
3. Provide a horizontal time scale identifying the first work day of each week
4. The listing shall be in chronological order of the start of each item of work

**4.0 Work Sequence****4.1**

Construct the Work in stages to accommodate the Owner's use of the premises during construction.

**4.2**

Adhere to the approved construction schedule and coordinate with the Owner's occupancy during construction.

**4.3**

Construct Work in stages to provide continuous public usage. Do not close off public usage of facilities until the use of one stage of work will provide alternate usage.

**5.0 Submittals****5.1 Administrative****5.1.1**

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

**5.1.2**

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

**5.1.3**

Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

**5.1.4**

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

**5.1.5**

Verify the relevant field measurements and ensure the impacts to the affected, adjacent work are coordinated.

**5.1.6**

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

**5.1.7**

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

**5.1.8**

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

**5.1.9**

Keep one reviewed copy of each submission on site

**5.2 Shop Drawings and Product Data****5.2.1**

Shop Drawings shall be defined as drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data which are to be provided by the Contractor to illustrate the details of a portion of the Work.

**5.2.2**

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

**5.2.3**

Allow Consultant's review of each submission

**5.2.4**

Mark-ups to the Shop Drawings completed by the Consultant shall not be intended to change Contract Price. The proposed changes to the Shop Drawings shall be implemented by the Contractor.

**5.2.5**

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

**5.2.6**

Accompany submissions with transmittal letter, containing:

- .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.

**5.2.7**

Submissions include:

1. Date and revision dates.
2. Project title and number.
3. Name and address of:
  - a. Subcontractor.
  - b. Supplier.
  - c. 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:
  - a. Fabrication.
  - b. Layout, showing dimensions, including identified field dimensions, and clearances.
  - c. Setting or erection details.
  - d. Capacities.
  - e. Performance characteristics.
  - f. Standards.
  - g. Operating weight.
  - h. Wiring diagrams.
  - i. Single line and schematic diagrams.
  - j. Relationship to adjacent work

**5.2.8**

After Consultant's review, distribute copies.

**5.2.9**

Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request

**5.2.10**

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

**5.2.11**

Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Consultant.

1. Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

**5.2.12**



Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Consultant

**5.2.13**

Delete information not applicable to project

**5.2.14**

Supplement standard information to provide details applicable to project

**5.2.15**

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

**5.2.16**

The review of shop drawings by Consultant is for sole purpose of ascertaining conformance with general concept.

1. This review shall not mean that Consultant approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
2. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

**5.3 Samples**

Samples shall be submitted for review in triplicate as requested in their respective specification sections. The samples shall be prepaid delivered to the Consultant's business address.

**5.4 Operating and Maintenance Manuals****5.4.1**

Two weeks prior to Substantial Performance of the Work, the Contractor shall submit to the Consultant two (2) copies of the Operating and Maintenance Manual and relevant documentation.

**5.4.2**

The manuals shall contain operational information on the equipment, cleaning and lubrication schedules, filters, overhaul and adjustment schedules, and similar maintenance information as well as warranty information.

**5.4.3**

Bind contents in a three-ring, hard covered, plastic jacketed binder. Organize contents into applicable categories of work, parallel to specifications sections.

**5.5 Record Drawings****5.5.1**

After award of Contract, the Consultant shall provide a set of drawings for the purpose of maintaining record drawings. The Contractor shall accurately and neatly record deviations from the Contract Documents caused by site conditions and changes ordered by Consultant.

**5.5.2**

Record locations of concealed components of mechanical and electrical services.

**5.5.3**

Identify drawings as "Project Record Copy". Maintain in new condition and make available for review on site by Consultant.

**5.5.4**

On completion of Work and prior to final review, submit record documents to the Consultant.

**5.5.5**

Record drawings not submitted on completion of Work will be cause for the Consultant to withhold a retainage amount.

**5.6 Progress Reports**

At a minimum of every two weeks, the Contractor shall supply a written description of the project status and specific information about the work that will affect the building occupants. Increase the frequency of the submission as necessary to keep the Owners informed. Liaise with the Owner's Representative and Consultant with respect to all issues impacting the building occupants' use of the site and building.

**6.0 Progress Claims****6.1**

Progress claims submitted for payment during the project shall be based on the cost breakdown in accordance with the Schedule of Value or shall be modified as requested by the Consultant at the beginning of the project.

**6.2**

Progress claims shall be submitted in duplicate the first week of each month for the work completed the previous month. Only one claim per month shall be submitted.

**6.3**

A revised and updated work schedule shall be submitted by the Contractor with each progress claim.



**6.4**

All claims shall be submitted to:

Morrison Hershfield Ltd.  
Second Floor, 536 Broughton Street  
Victoria, BC V8W 1C6  
Attention: Chris Raudoy

**7.0 Measurement for Payment**

The Contractor shall notify Consultant sufficiently in advance of operations to permit required measurements for payment.

**8.0 Contractor's Use of Site****8.1**

The areas of work, available storage, and the disposal bin location on site shall be designated by the Consultant before commencement of Work. The boundaries established thereby shall be strictly observed. Do not unreasonably encumber the site with materials or equipment which interfere with the Owner.

**8.2**

Obtain and pay for use of additional storage or work areas as needed for operations at no additional expense to the Owner.

**8.3**

When required for the Contractor to conduct the Work, close off access to the site by placing barricades or posting guards to prevent access by unauthorized personnel. Unauthorized personnel shall mean the public and anyone not directly concerned with the execution, supervision, or inspection of the Work.

**8.4**

Existing or new roofs areas shall be protected with plywood or suitable sheet material if they are to be used for the transportation of materials, equipment, or excessive traffic. Co-ordinate use with the Owner.

**8.5**

One parking space will be made available to the Contractor.

**8.6**

No advertisements or company signs, other than safety or warning signs, are permitted on the building or site.

**8.7**

The Contractor shall be responsible for the care and cleaning of the areas within the building that are affected by the Work.

**8.8**

The Contractor shall:

1. Provide a 24-hour emergency contact telephone number.

2. Ensure that emergency service has a maximum response time of three (3) hours and can accommodate all conditions that may arise from the Work including water damage, hoarding, security, mechanical failure, electrical failure, gas service interruption, utility interruption, broken glass, and any other related failure.

### 8.9

Common floors used (including hallways) must be protected using Ram Board Protection (or approved equivalent).

### 9.0 Construction Facilities and Temporary Controls

Requirements pertaining to the construction facilities and temporary controls are as follows:

1. The Contractor shall provide construction facilities and temporary controls to execute the work efficiently. All such work shall be removed from site after use.
2. The Contractor shall erect hoarding to protect the public, workers, and property from injury or damage.
3. The Contractor shall provide sufficient sanitary facilities for workers in accordance with local health authorities. Maintain these facilities in a clean state. Existing facilities, if designated for the Contractor's use, are to be maintained throughout the construction period.
4. The Contractor shall provide temporary heating required during construction period, including attendance, maintenance, and fuel, at no additional cost to the Owner. Ventilate heated areas and keep building free of exhaust or combustion gases.
5. The Owner shall provide potable water for construction use.
6. The Owner shall pay for power required during construction for the operating of power tools, to a maximum supply of 120 volts and 20 amps. The Owner shall arrange for connection with the appropriate utility company, pay costs for installation, maintenance, and removal. Temporary power more than that provided by the Owner is the responsibility of the Contractor.
7. The Contractor shall provide and pay for a temporary telephone necessary for own use at no additional charge to the Owner.
8. The Contractor shall prevent overloading of any part of the building. Do not store or stockpile material or equipment on floors or roofs. Do not cut, drill, or sleeve any structural members.
9. The Contractor shall Protect existing work or work of other trades from damage. Damaged work shall be repaired by the appropriate trades at the expense of the Contractor.
10. The Contractor shall provide weathertight enclosures to unfinished areas or openings. Precautions shall be taken to protect openings made in the building from the entry of elements and of persons during the Work and to protect the existing structure and finishes from damage because of the Work. Work damaged or defaced, due to a failure in providing such protection, is to be removed and replaced, or repaired, as directed by the Consultant at no additional cost to the Owner.
11. The Contractor shall provide tarpaulins and/or other coverings for the protection of interior finishes and exterior surfaces.
12. The Contractor shall completely remove drips or smears of bitumen, adhesives, caulking, or sealing compounds from any unintended surfaces of contact without damaging said surfaces.
13. The Contractor shall provide suitable platforms, wheeling stages, and/or plywood to protect the roof system from possible damage caused by material and equipment being moved, mounted, or stored on the roof system.
14. Where security has been reduced by Work of Contract, the Contractor shall provide temporary means to maintain security.
15. Execution of Work within occupied premises shall cause a minimum interference with the use of the building. Maintain maximum safety to occupants during the project. Take reasonable measures

for control of noise and dust. Dust protection measures will be judged by their effectiveness. Any clean-up required is to be completed by the Contractor at no cost to the Owner.

16. Provide and maintain temporary fire protection equipment during performance of Work required by the insurance companies having jurisdiction and governing codes, regulations, and bylaws.
17. Do not operate any equipment or machinery, or undertake any dust generating operations, near or adjacent to air intakes. Provide protection to air intakes as required to prevent the entry of dust or other contaminants into the building or building mechanical systems or those of the surrounding buildings.
18. Dispose of rainwater on the roof(s) and away from the buildings until the roof drains, scuppers, eavestroughs, and downspouts are installed and connected properly.
19. Open fires and burning of materials are not permitted on the site.
20. Protect the existing building, curbs, roads, and lanes. If any portion of the building, curbs, roads, or lanes are damaged, the damage shall be repaired at no extra expense to the Owner.
21. At commencement of work, protect all fences, trees, shrubs, and landscape elements from incidental damage. Identify in advance any fencing and landscaping element that will prevent the timely undertaking of the work. The Contractor is to remove the agreed upon landscape elements. The Contractor shall remediate landscape (including sod) areas that are affected by the work and/or scaffolding. Every attempt shall be made to preserve the existing mature trees. Identify the trees that will interfere with the timely undertaking of the work. The Contractor shall make arrangements to trim and/or strap these trees wherever possible.
22. Interior protection:
  - A. Undertake a pre-construction survey of each unit interior areas to undertaking any work. Record all observations in writing or by photographic or video record and notify the Consultant in writing of any pre-existing conditions prior to commencing the Work.
  - B. While working inside, all staff must always wear either clean footwear used only for interior work or clean footwear guards.

## **10.0 Project Meetings**

### **10.1 Start-Up**

A start-up meeting shall be held prior to commencement of the Work at a suitable time and location, as approved by Consultant.

### **10.2 Progress**

The Contractor will attend project progress meetings at least every two weeks.

## **11.0 Codes and Standards**

### **11.1.1**

The project specifications are not intended to be a detailed description of installation methods but do indicate requirements in the completed Work.

### **11.1.2**

Conform to the BC Building Code, together with all its related supplements, hereinafter referred to as the "Code. Where drawings and specifications exceed the requirements of the Code, provide the work as specified in the project documents.

**11.1.3**

Where a material is designated on drawings or in the specifications for a certain application, unless otherwise specified, that material shall conform to the standards designated in the Code. Similarly, unless otherwise specified, installation methods and standards of workmanship shall also conform to the standards invoked the Code.

**11.1.4**

Where reference is made to a specification/code/standard, conform to the latest edition of the specification/code/standard, as amended, as of the date of the Contract.

**12.0 Quality Control****12.1**

Work shall be reviewed by the Consultant to evaluate general conformance with the contract documents. The Contractor is responsible to maintain quality control over all aspects of the Work.

**12.2**

Review and testing are specified as precautions against oversight or errors in the performance of the Contract. These precautions do not in any way relieve the Contractor of their responsibility to perform the Work in conformance with the Contract Documents.

**12.3**

The Owner and the Consultant shall have unlimited access to all Work at any time requested. If parts of the Work are in preparation at locations other than the Site, access shall be given to such Work whenever it is in progress.

**12.4**

The Contractor shall provide the Consultant with forty-eight (48) hours' notice requesting a review of Work requiring approval(s) by the Consultant.

**12.5**

If the Contractor covers (or permits work to be covered) that has been designated for special tests, review, or approvals before such is made, the Contractor shall, at their own expense, uncover the Work, have the Work reviewed or tests satisfactorily completed, and complete repairs if necessary.

**12.6**

The Consultant may order any part of the Work to be reviewed if such Work is suspected to be not in accordance with the Contract Documents. The Contractor shall be responsible for the cost of examination, replacement, or repair.

**12.7**

Defective work (workmanship or materials) deemed non-compliant with the Contract Documents by the Consultant shall be replaced or repaired. Any damage the adjacent work resulting from these replacements shall also be repaired promptly.

**13.0 Setting out of Work****13.1**

Line and levels are generally as shown on drawings. Verify the lines, levels, and dimensions and report errors or inconsistencies in the drawings to the Consultant before commencing.

**13.2**

Examine the work of others upon which the new work depends. Report any defects in such work to the Consultant in writing.

**13.3**

The Contractor shall assume full responsibility for and execute the complete layout of the work to the locations, lines, and elevations indicated.

**13.4**

The Contractor shall provide the devices and equipment required to lay out and construct the Work.

**13.5**

Drawings are, in part, diagrammatic and are provided to convey the design intent and scope of work, as well as indicate the general and approximate location, arrangement, and size of fixtures and equipment. The Contractor shall obtain more accurate information about locations, arrangements, and sizes at the site and become familiar with conditions and spaces affecting these matters before proceeding with work. Where job conditions require reasonable changes in indicated locations and arrangements, make changes at no additional cost to Owner. Similarly, where existing conditions interfere with new installations and require relocation, include such relocation in the Work of this Contract.

**14.0 Mock-Ups**

Mock-ups shall:

1. Be prepared as requested by the Consultant and in locations as required by the specifications herein and as directed by the Consultant.
2. Be prepared for review by the Consultant with reasonable promptness and in an orderly sequence, so as not to cause any project delays. Failure to prepare mock-ups in ample time is not considered a sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
3. If required, be removed at the conclusion of the work or when acceptable to Consultant.
4. Form part of the completed contract Work if approved by the Consultant.

**15.0 Location of Equipment and Fixtures****15.1**

The location of equipment, fixtures, and outlets indicated or specified shall be considered as approximate.

**15.2**

Locate equipment, fixtures, and distribution systems to provide minimum interference and maximum usable space and in accordance with Manufacturer's recommendations for safety, access, and maintenance.

**15.3**

Inform the Consultant of the impending installation and obtain approval for the actual location.

**15.4**

Where unknown services are encountered, immediately advise the Consultant and confirm the findings in writing.

**15.5**

All electrical work shall be completed by a licensed Contractor certified to work the present voltage ratings. Acquisition of the necessary permits is the responsibility of the electrical Contractor.

**16.0 Additional Drawings**

The Consultant may provide additional drawings to assist the proper execution of the Work. These drawings shall be issued for clarification only. Such drawings shall have the same meaning and intent as if they were included in the Contract Documents.

**17.0 Cutting and Patching****17.1**

The Contractor shall submit written request in advance of cutting or alteration which affects the integrity of structural elements, weather-exposed, or moisture resistant elements, visual qualities of sight-exposed elements, or work of the Owner or separate Contractors.

**17.2**

The Contractor shall inspect the existing conditions, including elements subject to damage or movement during cutting and patching. After uncovering, inspect conditions affecting performance of the Work. Commencing of cutting or patching means acceptance of existing conditions.

**17.3**

Perform cutting, fitting, and patching as necessary to complete the Work. Provide openings in non-structural elements for penetrations of mechanical and electrical Work. Prepare proper surfaces to receive patching and finishing. Restore work with new products in accordance with the Contract Documents or to match the existing.

**17.4**

At penetrations of the fire-rated wall, ceiling, or floor construction, completely seal voids with fire-rated material for the full thickness of the construction element.

**17.5**

Cut rigid materials using power saw or core drill. Pneumatic or impact tools shall not be allowed.

**17.6**

Fit adjacent materials airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

**17.7**

Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to the nearest intersection. For an assembly, refinish the entire unit.

**18.0 Material and Equipment****18.1**

Products, materials, equipment, and articles incorporated in the Work shall be new, not damaged or defective, and of the best quality for the purpose intended. If requested, supply evidence as to type, source, and quality. Should any dispute arise as to the quality or fitness of items incorporated in the Work, the decision rests strictly with the Consultant based upon the requirements of the Contract Documents.

**18.2**

Defective products shall be rejected, regardless of previous inspections and/or reviews. Inspections and reviews do not relieve responsibility but are a layer of precaution against oversight or error. Remove and replace defective products at the Contractor's expense and accept responsibility for delays and expenses caused by rejection.

**18.3**

Provide and maintain, in a clean and orderly condition, lockable weatherproof trailers for storage of tools, equipment, and materials.

**18.4**

Locate materials not required to be stored in weatherproof sheds on site in a manner to cause the least interference with work activities.

**18.5**

Unless otherwise specified, comply with Manufacturer's latest printed instructions for materials and installation methods.

**18.6**

Notify the Consultant in writing of any conflict between these specifications and the Manufacturer's instructions. The Consultant will designate which document is to be followed.

**18.7**

Deliver, store, and maintain packaged material and equipment with Manufacturer's seals and labels intact. Store material and equipment in accordance with Suppliers' instructions.

**18.8**

Prevent damage, adulteration, and soiling of material and equipment during delivery, handling, and storage. Immediately remove rejected material and equipment from site.

**18.9**

Touch-up damaged factory finished surfaces to the Consultant's satisfaction. Use primer or enamel to match original. Do not paint over name plates.



**18.10**

Store products subject to damage from weather in dry, off-ground, weatherproof enclosures. Remove only in quantities required for same day use.

**19.0 Removed Materials**

Except as expressly stated otherwise, material indicated for removal becomes the property of the Contractor and shall be taken from the site. Material removed from the site shall be disposed of in accordance with all Federal, Provincial and Municipal regulations.

**20.0 Workmanship****20.1**

Workmanship shall be the best quality, executed by workers experienced and skilled in the respective duties for which they are employed. Immediately notify the Consultant if the required Work is such as to make it impractical to produce required results.

**20.2**

Do not employ any unfit person or anyone unskilled in their required duties. The Owner and the Consultant reserve the right to require the dismissal from the site any worker(s) deemed incompetent, careless, or insubordinate.

**20.3**

Decisions as to the quality or fitness of workmanship in cases of dispute rest solely with the Consultant, whose decision is final.

**20.4**

Furnish all labour, materials, and equipment to complete the Work as described. "Work as described" includes all incidental items that by implication, good trade practice, or customary usage, are required to complete the Work, even though they may not be specifically mentioned or shown.

**21.0 Public Utilities**

Notify Public Utilities and obtain locations of utilities prior to excavation.

**22.0 Cleaning****22.1**

When the Work is Substantially Complete, remove surplus products, tools, construction machinery, and equipment not required for the performance of the remaining Work.

**22.2**

At least once per day, remove accumulations of waste material and debris. Provide a waste container and remove waste materials and debris from the site at regularly scheduled times or dispose of as directed by the Consultant. Cost for removal and disposal of waste material shall be included in the Contract Price.

**22.3**

The Contractor shall make arrangements with and obtain permits from Authorities Having Jurisdiction for disposal of waste and debris.

**22.4**

Remove dirt and dust, clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, mechanical, electrical fixtures, and interior and exterior surfaces. Vacuum carpets. Use only cleaning materials recommended by Manufacturer of surface to be cleaned, and as recommended by cleaning material Manufacturer. As directed by the Consultant, replace or repair broken, scratched, stained, or disfigured building elements.

**22.5**

Clean roofs, gutters, downspouts, and drainage systems upon completion of the Work.

**22.6**

Store volatile waste in covered metal containers and remove from premises at end of each working day.

**22.7**

Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

**22.8**

Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly repaired surfaces nor contaminate building systems.

**22.9**

Sweep paved surfaces, rake clean other surfaces of grounds as directed by the Owner or the Consultant.

**22.10**

Repair any damage to the landscaping, sodding, flower beds, etc. outside the area of Work damaged by the Contractor's equipment, materials, or work force.

**22.11**

Clean interior areas prior to start of the interior finishing work, maintain areas free of dust and other contaminants during finishing operations.

**22.12**

Clean the inside of all windows affected by or adjacent to work at the completion of interior repairs.

**22.13**

Clean the outside of all windows immediately after the completion of the exterior work.

**23.0 Documents Upon Substantial Completion****23.1**

Prior to applying for Substantial Completion, carefully inspect the Work and ensure it is substantially complete.

**23.2**

Following the date of Substantial Completion, the Contractor is to provide warranties fully executed and notarized.

**23.3**

Submit a final statement of accounting, giving total adjusted Contract Price, previous payments, and monies remaining due.

**23.4**

Provide a statutory declaration that all sub-trades and suppliers have been compensated for materials and labour. Original CCDC 9A must be submitted to the Consultant.

**23.5**

Submit certificate of good standing from the Workers' Compensation Board.

**23.6**

Comply with the requirements of the Builders Lien Act, British Columbia. The fifty-five (55) day lien period shall commence upon the date of Substantial Completion as certified by the Consultant.

**24.0 Takeover Procedures****24.1**

Notify the Consultant, in writing, of satisfactory completion of the Work and request for the final review.

**24.2**

During the final review by the Consultant and the Owner, a list of deficiencies and defects will be tabulated.

**1.0 General****1.1 Description**

The work in this section includes but is not limited to:

1. Designing, supplying, erecting, and maintaining scaffolding to facilitate restoration work including all bracing, tie backs, outriggers, guardrails, toe boards, platforms, access stairs, and ladders
2. Performing daily safety inspections of the scaffolding and maintaining the safety of the workers and pedestrians
3. Designing, supplying, erecting, and maintaining hoarding to protect the public, workers, and private property from injury or damage

**1.2 References**

1. British Columbia Building Code
2. CAN/CSA-S269.2 "Access Scaffolding for Construction Purposes"
3. CAN/CSA-Z271 "Safety Code for Suspended Elevating Platforms"
4. Occupational Health and Safety Act of British Columbia
5. Workers' Compensation Board of British Columbia

**2.0 Products****2.1 Scaffolding Components**

All metal scaffolding components shall be provided by a single source supplier. The supplier shall provide test data and test information upon request.

**2.2 Design****2.2.1**

The scaffolding shall be designed and constructed in accordance with the requirements of the referenced standards and codes.

**2.2.2**

When required, the scaffolding shall be equipped with an enclosure capable of providing protection to pedestrians and adjacent property from dust, dirt, debris, water spray, falling tools and/or materials, and any other workplace hazards.

**2.2.3 Support Conditions****2.2.3.1**

The bearing condition of the soil and/or supporting structure shall be verified by the Scaffolding Contractor.

**2.2.3.2**

Where the existing structure is to be used for the support of the scaffolding, the Contractor shall verify that the existing structure can safely support the imposed loads from the scaffolding. Should the existing structure require strengthening for support of the scaffolding, the Contractor shall provide details from a Professional Engineer for the shoring or strengthening requirements.

**2.2.3.3**

When the Contractor relies on the structural integrity of the existing exterior walls of the building for lateral support of the scaffolding, the Contractor shall establish whether the existing wall components can adequately support the additional lateral loads. The Contractor takes responsibility for providing adequate anchorage of the lateral supports for the scaffolding, and any damage to the existing wall due to the anchorage of the scaffolding shall be restored to its original condition.

**2.2.4 Enclosure**

The Contractor shall account for wind loads that are imposed on the scaffolding because of the scaffolding being enclosed. Plywood panels to be included for a height of 8' around the perimeter of the scaffolding. Access to scaffolding is to be through a locking door. Provide lighting throughout scaffolding.

**2.2.5 Access to Scaffolding****2.2.5.1**

Access to all working levels of the scaffolding shall be provided by means of either stairs or fixed vertical ladders.

**2.2.5.2**

All stairs shall have handrails and all landings shall have railings such that if a worker trips and falls while descending the stairs, it will not be possible for the worker to fall through the railing system.

**2.2.5.3**

All stair openings on planked working areas of the scaffolding shall be surrounded by railings to prevent workers from walking into the back or the sides of the open stair.

**2.2.6 Working Platforms****2.2.6.1**

Levels of the scaffolding designated for work shall be fully planked. On a designated working platform, the Contractor shall not remove isolated areas of planking such that the fully planked platform has areas of missing planks. All damaged planks shall be replaced by the Contractor immediately.

**2.2.6.2**

If the Contractor deems that fully planked working platforms are not required, or a partially planked platform is required to facilitate lowering or raising material, guardrails shall be installed to prevent a workman from falling off the partially planked platform.

**2.2.6.3**

Except for the front of stair openings, all openings in working platforms are to have railings to prevent workers from accidentally walking into the openings.

**3.0 Execution****3.1 Scaffolding Drawings for Review by the Consultant****3.1.1**

Prior to the assembly of the scaffolding, the Contractor shall prepare and submit assembly drawings and connection details for review by the Consultant. The drawings shall be stamped by a Professional Engineer (with experience in the structural design of scaffolding) registered in British Columbia. The Consultant's review does not relieve the Contractor from any contractual requirement and/or responsibility.

**3.1.2**

The scaffolding assembly drawings shall show the following:

1. Reference specifications, materials, and sizes for structural members
2. Main dimensions of the scaffolding; prepare surfaces in strict accordance with Manufacturer's directions
3. Locations of tie-backs and bracing
4. Guardrails
5. Planking
6. Stairs
7. Ladders
8. Where necessary, shoring or strengthening of existing structures
9. Connection details

**3.2 Professional Engineer's Certification****3.2.1**

All scaffolding shall be assembled in accordance with the assembly drawings.

**3.2.2**

All scaffold tie-backs should be positioned in line with the through-wall flashing, if possible. At locations where scaffold tie-backs penetrate the sheathing paper, self-adhesive membrane shall be installed on top of the sheathing paper. The Contractor shall seal the membrane penetration with mastic at the time of tie-back removal.

**3.2.3**

After the scaffolding is assembled, the Contractor shall provide written certification from a Professional Engineer that the scaffolding has been assembled in accordance with the reviewed assembly drawings.

**3.2.4**

Any inspection reports, orders to comply, etc., issued to the Contractor by the representative of the Workers' Compensation Board of British Columbia, shall be provided to the Consultant and the Professional Engineer responsible for certifying the scaffolding assembly drawings and confirming that the scaffolding is assembled in accordance with the reviewed assembly drawings. Any life safety instructions/work orders by the Workers' Compensation Board of British Columbia are to be immediately followed by the Contractor prior to continuing with the Work.

**3.3 Existing Structure**

**3.3.1**

The Contractor shall verify that the existing structure can safely support all loads imposed by the scaffolding.

**3.3.2**

The Contractor shall be responsible for all damage to the existing building caused by the assembly and dismantling of the scaffolding, and by loads imposed by the scaffolding.

**3.4 Fabrication and Installation of Hoarding****3.4.1**

All hoarding shall be installed in accordance with the rules and regulations set forth in the referenced standards.

**3.4.2**

Install hoarding protection at the areas identified as being in the scope of work and in accordance with approved shop drawings.

**3.4.3**

Provide posts, rafters, planking, and plywood sheathing.

**3.4.4**

The roof structure of the hoarding shall be constructed of wood framing capable of withstanding impact load from falling debris, materials, or tools to provide overhead protection to public accessing the building during construction. The roof of all hoarding shall also be waterproof.

**3.4.5**

If necessary, provide sufficient lighting for evening entrance and exit of the building throughout the covered walkways to ensure safety and security to the public. No dark areas shall be permitted.

**3.4.6**

The hoarding shall always be maintained in good condition and kept clean.

**3.4.7**

Repair any damaged hoarding to satisfaction of the Consultant and other applicable authorities.

**3.4.8**

Remove hoarding from site only when authorized by the Consultant.



**1.0 General****1.1 Description**

The work in this section includes but is not limited to:

1. Compliance with the regulations of the Codes and all applicable safety guidelines

**1.2 References**

1. CSA S269.1 "Falsework for Construction Purposes"
2. CAN/CSA-S269.2 "Access Scaffolding for Construction Purposes"
3. CAN/CSA-Z271 "Safety Code for Suspended Elevating Platforms"
4. Occupational Health and Safety Act of British Columbia
5. National Building Code of Canada

**1.3 Construction Safety Measures****1.3.1**

The Contractor shall review and abide by the construction safety measures of the Codes, Occupational Health and Safety Act of British Columbia, provincial authorities, and municipal authorities. In case of conflict or discrepancy, the more stringent requirements shall apply.

**1.3.2**

The Contractor shall comply with the requirements of the Occupational Health and Safety Act and Regulations for Construction Projects.

**1.3.3**

For the purpose of the Occupational Health and Safety Act, the Contractor shall, with respect to the work, be designated the 'constructor' as therein defined, and the Contractor shall assume the responsibilities of the constructor as set out in the Act and its Regulations, including the implementation of such precautions and safeguards as will protect all workers and other persons from any adverse effects caused by designated substances and/or hazardous materials originating at, or brought onto the site.

**1.3.4**

If the Contractor encounters any of the designated substances defined in the Occupational Health and Safety Act, they shall stop all work and notify the Consultant prior to undertaking any further work. The Contractor will not be compensated for any work stoppage due to the presence of designated substances.

**1.3.5**

The Contractor shall supply and maintain a health and safety plan throughout the duration of the Contract. The Contractor is to train and indoctrinate all personnel who will be involved with the Work. All work is to be performed with due regard for the safety of workers and the public.

**1.3.6**

The Contractor shall retain a full-time Construction Safety Office (CSO) on site.

**1.3.7**

The Contractor shall provide full hoarding and enclosures as made necessary by the Work to protect the public, workers, and property from injury or damage. Fenced enclosures shall be provided to all work areas.

**1.3.8**

The Contractor shall comply with the latest requirements of Reinstallation of Gas Appliance Vents issued by the Ministry of Municipal Affairs and FCC No. 301-Standard for Construction Operations issued by Fire Commissioner of Canada.

**1.4 Overloading**

The Contractor shall ensure that no part of the Work is subjected to loading that will endanger its safety or will cause permanent deformation.

**1.5 Falsework**

Design and construct falsework in accordance with CSA-S269.1 "Falsework for Construction Purposes".

**1.6 Scaffolding**

Design and construct scaffolding in accordance with CAN/CSA-S269.2 "Access Scaffolding for Construction Purposes" and specification section 01 52 7 Scaffolding.

**1.7 Suspended Scaffolding**

Suspended scaffolding and their operation shall conform to CAN/CSA-Z271 "Safety Code for Suspended Elevating Platforms" and specification section 01 52 7 Scaffolding.

**1.8 WHMIS****1.8.1**

The Contractor shall comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, disposal of hazardous materials, labeling, and the provision of material safety data sheets (MSDS) acceptable to Labour Canada and Health and Welfare Canada.

**1.8.2**

The Contractor shall deliver copies of WHMIS data sheets to the Consultant on delivery of materials.

**2.0 Products**

Reserved.

**3.0 Execution**

Reserved.

**1.0 General****1.1 Description**

The work in this section includes but is not limited to:

1. The demolition of the existing slate roofing system and 2-ply SBS roofing system.

**1.2 References**

1. CSA-S350 “Code of Practice for Safety in Demolition of Structures”

**1.3 Existing Conditions****1.3.1**

Take over structures to be demolished based on their condition on the date that tender is accepted.

**1.3.2**

Items to be salvaged shall be carefully protected. All existing slate to be maintained. Slate to be removed and packaged for transport at grade. The contractor is not responsible for transportation offsite.

**1.3.3**

If hazardous material is encountered during demolition work, stop work and notify the Consultant immediately. Do not proceed until written instructions have been received from the Consultant.

**1.4 Demolition Drawings****1.4.1**

Where required by Authorities Having Jurisdiction, the Contractor shall submit drawings, diagrams, or details showing sequence of disassembly work and supporting structures for approval.

**1.4.2**

Submissions shall bear the stamp of qualified Professional Engineer registered in Province of British Columbia.

**1.5 Protection****1.5.1**

The Contractor shall provide bracing and shoring as required to prevent movement, settlement, or damage to the adjacent buildings and/or the adjacent parts of the existing buildings which are to remain.

**1.5.2**

The Contractor shall take all precautions to support the affected structures. If the safety of any structure appears to be endangered, the Contractor shall cease operations and immediately notify the Consultant.

**1.5.3**

The Contractor shall prevent debris from blocking surface drainage system, elevators, mechanical and electrical systems which must remain in operation.

**1.5.4**

The Contractor shall post adequate warnings and barricades around the holes caused by demolition or removal of materials.

**1.5.5**

The Contractor shall repair all damages caused by demolition.

**2.0 Products**

Reserved.

**3.0 Execution****3.1 Work**

The Contractor shall dispose of demolished materials, except where noted otherwise, in accordance with Authorities Having Jurisdiction.

**3.2 Safety Code**

Unless otherwise specified, the demolition work shall be completed in accordance with section 01 00 1 General Requirements and CSA-S350 "Code of Practice for Safety in Demolition of Structures".

**3.3 Preparation****3.3.1**

Disconnect and re-route electrical, communication, security and telephone service lines in accordance with Authorities Having Jurisdiction. Post warning signs on electrical lines and equipment which must remain energized to serve other properties during period of demolition.

**3.3.2**

Disconnect and cap designated mechanical services in accordance with Authorities Having Jurisdiction. If disconnection of wire and/or gas line is required, the disconnection is to be made by qualified tradesman.

**3.3.3**

Do not disrupt active or energized utilities intended to remain undisturbed.

**3.3.4**

Notify the Consultant when deteriorated framing members are encountered in existing construction.

**3.4 Demolition****3.4.1**

Demolish parts of building to permit remedial work as indicated.

**3.4.2**

Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces and replace as work progresses.

**3.4.3**

Where directed by the Consultant, remove the existing damaged framing members.

**3.4.4**

At end of each day's work, leave work site in a safe condition so that no part is in danger of toppling or falling. Always protect the interior areas that will not be demolished from the exterior elements.

**3.4.5**

Keep materials wetted to minimize dusting as directed by the Consultant.

**1.0 Preface****1.1 Project Location**

This project comprises the Duncan City Call Building, located at 200 Craig St, Duncan, BC.

**1.2 Project Design Intent Statements**

1. Replace the existing sloped roof systems with new systems and repair any substrate damage.

**1.3 Project Description**

This project consists of the following:

1. Roof replacement, including but not limited to:
  1. Removal and disposal of existing roof systems (slate shingles and two-ply modified bitumen membrane) and associated accessories (e.g., flashing, vents, etc.) from the roofs
  2. Removal and disposal of existing roof sheathing.
  3. Supply and installation of new roof sheathing and backing (framing) to provide a new structural diaphragm for the roof.
  4. Supply and installation of new roofing underlayment, synthetic slate shingles, flashings (copper synthetic slate shingles) and associated accessories.
  5. Supply and installation of new two-ply modified bitumen membrane (SBS), flashings and associated accessories throughout the gutters.
  6. Supply and install new drains throughout the gutters, including tie-ins to existing plumbing system.
  7. Cut back stucco siding, wood cladding and/or trim at roof-to-wall upturns to complete appropriate membrane/flashing tie-ins and protect the tie-in with new trim and flashing as shown on the drawings.
  8. New copper flashings at all masonry interfaces, including reglet detailing.
  9. New mechanical vents and passive air vents.
  10. Include all lifts, scaffolding, hoarding, sidewalk protection, utility protection, etc that may be required is to be included in scope of work.
2. Unit Price Work:
  1. Repair, replacement and repainting of existing wood trims where directed by the Consultant.

**1.4 Building Occupancy**

The Work shall be completed on an occupied commercial building and, as result, every effort shall be made to minimize disruption to the occupants' use of the buildings and not create unsafe conditions. The third floor will be vacant during the course of construction.

**2.0 General****2.1 Documents****2.1.1**

The Bid Documents shall include:

1. The General Conditions of the Stipulated Price Contract, Canadian Standard Construction Document, CCDC 2 – 2008. The document is not reproduced here but is available at local construction association offices.

- 2. All items as listed in Appendix “A” to the Bid Form.

**2.1.2**

Each Bidder shall examine the Tender Documents as soon as possible after receipt thereof and should any errors, omissions or contradictions be discovered therein, the Bidder shall notify the Consultant in writing as soon as possible prior to the date set for receiving Tenders so that further instructions may be issued to all Bidders before the closing date.

**2.2 Site Visit**

**2.2.1**

It is the responsibility of the Bidder to visit the site and review all aspects of the Work prior to submitting the Bid Documents.

**2.2.2**

Each Bidder shall attend a mandatory pre-bid site meeting to review the buildings and the scope of the work. The site meeting is scheduled to commence at the following time and place:

<b>Date</b>	<b>TO BE DETERMINED</b>
<b>Location</b>	200 Craig Street, Duncan BC

**2.3 Existing Conditions**

**2.3.1**

Each Bidder shall carefully examine the buildings, site, and services thereon which affect the proper execution of the Work and obtain for themselves a clear and comprehensive knowledge of the existing conditions.

**2.3.2**

The Bidders shall, prior to submitting their Bid Documents, visit the site and satisfy themselves regarding all issues which may affect their work or the Bid, including the following:

1. The Bid Documents.
2. The site and location of the Work on the site as to their state and condition.
3. The local conditions and requirements affecting performance of the Work.
4. The means of access to the site.
5. All foreign, federal, provincial, and municipal taxes and charges applicable to the Work.
6. All laws, by-laws, regulations, ordinances, codes, licensing, Workers Compensation Board requirements, and permit requirements applicable to the Work.
7. The availability of services and utilities requested for the performance of the Work at and around the site.
8. Labour market and trade union conditions.
9. All other circumstances of site conditions which may affect the Bid.

**2.4 Project Completion**

**2.4.1 Bid Submission**

The time quoted in the Bid Form shall be maintained.



**2.4.2 Working Hours**

The Contractor shall be permitted to work between 07:00 and 21:00, 7 days a week. Work to be completed within constraints of applicable noise bylaws.

**2.4.3 Completion Date Alterations**

Deletion of work ("credits") or the addition of work ("extras") may result in a change to the stipulated working days for completion. Such reductions or increases in the number of working days will be evaluated on an individual basis. The total number of working days specified within the Contract may be modified by the Consultant and shall form a part of the Change Order.

**2.5 Contractor's Options for Selection of Materials for Tendering****2.5.1**

Where materials are required to be listed on the "Canadian General Standards Board, Qualified Products List", select any manufacturer so listed.

**2.5.2**

Where materials are specified by performance, select any material meeting or exceeding specification.

**2.5.3**

Where materials are specified by naming one or more materials, select any material named. For these specifications, the term "Acceptable Material" is deemed to be a complete and working commodity as described by a manufacturer's name, catalogue number, trade name, or any combination thereof.

**2.5.4**

When materials are specified by a standard or performance specification, upon request by the Consultant, an independent testing laboratory report from the manufacturer(s) shall be obtained which shows the material or equipment meets or exceeds the specified requirements.

**2.6 Substitution****2.6.1**

Substitutions for specified materials shall not be permitted without the Consultant's prior written approval.

**2.6.2**

Proposals for substitution may only be submitted after award of contract. Such requests shall include statements of respective costs of items originally specified and the proposed substitution.

**2.6.3**

Substitution proposals will be considered by the Consultant should one of the following apply:

1. Materials selected by the Contractor from those specified are not available.
2. Delivery date of materials selected from those materials specified would unduly delay completion of the Contract.
3. The proposed substitute material is considered by the Consultant to be functionally equivalent to the material specified.

**2.6.4**

When proposing to furnish materials and/or equipment other than those specified, the Contractor shall submit a written request for all substitutions to the Consultant. Such a request shall be accompanied with complete descriptive (manufacturer, brand name, catalogue number, etc.) and technical data.

**2.6.5**

Where substitutions are permitted, the Contractor shall bear any extra cost of evaluating the equality of the materials and equipment to be installed, and additional costs for preparation of drawings, sketches, and specifications by the Consultant or others.

**2.6.6**

Should the proposed substitution be accepted, either in part or in whole, the Contractor shall assume full responsibility and costs when the substitution affects other work on the project and shall pay for design or drawing changes required as result of substitution.

**2.6.7**

Amounts of all credits arising from the approval of substitutions will be determined by the Consultant and Contractor. The Contract Price shall then be reduced accordingly.

**3.0 Prior to Tender Closing****3.1 Addenda****3.1.1**

During the Bid period, Bidders may be advised by Addenda of required additions to, deletions from, or alterations to the requirements of the Bid Documents. All such changes shall become an integral part of the Bid Documents and shall be allowed for in arriving at the Contract Price.

**3.1.2**

Bidders shall insert in the spaces provided in the Bid Form the Addenda numbers of all Addenda received by them during the Bid period, including any bound into the Bid Documents. If no Addenda have been received, the word "NONE" shall be inserted in the space provided.

**3.1.3**

Clarifications requested by Bidders shall be submitted in writing and received by the Consultant no less than three working days before the date set for receipt of bids. The reply will be made in the form of an addendum.

**3.2 Inquiries****3.2.1**

Questions related to the Tender Documents shall be directed in writing to:

Chris Raudoy  
craudoy@morrisonhershfield.com

**3.2.2**

Subcontractors and material suppliers shall direct their questions to the Consultant via the Bidders.

**3.3 Site Access**

**3.3.1**

Access to the site, other than the Tender Period site visit, shall be arranged with the Owner and will be discussed at the site visit.

**3.3.2**

No claims for extra payment shall be made for extra work made necessary by, or for difficulties encountered due to, conditions of the site which were visible upon, or reasonably inferable from, an examination of the site at the time before Bid closing date. Commencement of Work will signify that the Contractor accepts all previous work and condition of substrate materials as found.

**4.0 Tender Submissions****4.1 Bid Method****4.1.1**

Each Bidder shall state the stipulated price for which the Bidder will undertake to carry out all the Work as described in the Bid Documents. All prices, as required, shall be submitted per the Bid Form.

**4.1.2**

Unless otherwise specifically requested in the Bid Documents, all prices shall be "Work Completed" and, for all materials, labour, and other expenses, shall be understood to include all fees, insurance, compensation, taxes, permits, and other items required by governing laws (including all licensing fees as required by the Homeowners Protection Office for mandatory warranty coverage but excluding the building permit), as well as overhead and profit for the Work concerned.

**4.1.3**

The Bid Form shall be returned in a sealed, opaque envelope. The following information shall appear on the envelope:

1. Project name.
2. Bidder's name and return address.
3. Office and address to which the bid is to be returned.

Bid Forms that have not been fully completed and executed shall be considered incomplete and void.

**4.1.4**

The completed Bid Form shall be received until March 17<sup>th</sup> at 2:00 PM at the following address:

Morrison Hershfield Ltd.  
536 Broughton Street, Second Floor  
Victoria, BC V8W 1C6  
Attention: John Little, EIT

Email submissions can be sent through to [caudoy@morrisonhershfield.com](mailto:caudoy@morrisonhershfield.com). Bidders are responsible to ensure emails are received.

**4.1.5**

The Owner reserves the right to require each Bidder to submit evidence of any proposed Subcontractor's experience and capabilities in similar work previously executed.

**4.1.6**

The Owner reserves the right to disqualify any Bids not submitted in strict accordance with the requirements of the Bid Documents.

**4.1.7**

Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may be considered invalid and thereby rejected by the Owner.

**4.1.8**

Bidders shall submit their price according to the requirements of the Bid Documents.

**4.1.9**

The signature of the Bid shall be submitted in longhand and executed by a Principal duly authorized to make contracts. The completed forms shall be without interlineation, alterations, or erasures. Where the Bidder is a corporation, the corporate seal shall be affixed.

**4.1.10**

The Tender Documents shall not be marked, altered, or mutilated. They must be returned with the bid, bound in order, as originally issued.

**4.2 Bidder Qualification****4.2.1**

Bidders shall have extensive experience acting as Prime/General Contractor for similar work.

**4.2.2**

Subcontractors shall have at least five years of experience with similar work.

**4.2.3**

The Contractor shall not subcontract the Work or change subcontractors during the Work, without first obtaining the Owner's consent.

**4.3 Permits**

The Contractor shall include the costs for all required permits or damage deposits in the Contract Price, except for the Building Permit.

**4.4 Taxes**

The Contractor shall include all applicable taxes and duties within the Contract Price, excluding G.S.T., which is reported separately.

**4.5 Offer Acceptance and Withdrawal****4.5.1**

The lowest or any bid offer need not necessarily be accepted by the Owner. The Owner reserves the right to accept or reject any or all offers in its sole discretion, on any basis, at any time, without further explanation or to accept any offers considered advantageous to the Owner.

**4.5.2**

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. The Bid Price.
2. The Contract Time and Proposed Schedule.
3. The Bidder's ability to effectively manage and perform the Work.
4. The Bidder's ability to co-operate and work effectively with the Owner, the Consultant, other Contractors, and their respective representatives.
5. The Bidder's understanding of the Work.
6. The Bidder's Unit Prices, Alternative Prices, and/or Separate Prices, as applicable.
7. The Bidder's ability to present cost saving opportunities, which may be appropriate and acceptable to the Consultant and the Owner.
8. The Bidder's qualifications, experience, competence, and crew size, as well as that of its Subcontractors and Suppliers, in performing work similar to the Work.
9. The financial strength and capability of the Bidder.
10. The experience, qualifications, and abilities of the Bidder's supervisory personnel.
11. The Bidder's past performance on other projects, which the Owner may determine in its sole discretion, based on the degree of satisfaction with the Bidder's previous work expressed by other owners and consultants.
12. The Owner's authorized budget for the Work.
13. Completeness of the Bid.
14. Other criteria, with the Owner, in its sole discretion may consider appropriate to its evaluation.

**4.5.3**

Offers which contain qualifying conditions or otherwise fail to conform to these Bid Documents may be accepted or may be disqualified or rejected.

**4.5.4**

The Owner may, prior to and after Contract award, negotiate changes to the scope of work, the materials, the specifications, or any conditions with the low Bidder or one or more of the bidders without having a duty or obligation to advise any other Bidder, or to allow them to vary their prices as a result of such changes, and the Owner shall have not liability to any other Bidder, including the low Bidder, as a result of such negotiations or changes.

**4.5.5**

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, or arising out of, submitting a bid for the proposed Contract, or due to the Owner's acceptance or non-acceptance of its bid.

**4.5.6**

The offer shall remain open for 30 calendar days from the closing date for submission of bids whether any other bid for the Work has been previously accepted or not.

#### **4.5.7**

After acceptance by the Owner, the Consultant, on behalf of the Owner, will issue to the successful Bidder a written letter of intent to contract.

#### **4.5.8 Withdrawal of Bids**

Bids may be withdrawn at any time prior to the Bid closing date.

#### **4.6 Insurance**

Submit with the Bid Form a signed "Undertaking of Insurance" on a standard form provided by the insurance company stating their intention to provide insurance to the Bidder in accordance with the insurance requirements of the Contract Documents.

# SPECIFICATION



Roof Replacement  
Duncan City Hall  
200 Craig St, Duncan, BC

## BID FORM

Section 00200  
Project No. 2103427.00  
Issued for Tender

Project Name: Duncan City Hall  
Location: 200 Craig St, Duncan, BC  
Owners: City of Duncan

Date: \_\_\_\_\_  
Submitted By: \_\_\_\_\_  
Address: Street: \_\_\_\_\_  
City: \_\_\_\_\_ Province: \_\_\_\_\_ Postal Code: \_\_\_\_\_  
Telephone: \_\_\_\_\_ Email: \_\_\_\_\_

Submitted To: Capital Regional District  
c/o Morrison Hershfield Ltd.  
536 Broughton Street, Second Floor  
Victoria, BC V8W 1C6  
  
Office: 250-361-1215  
  
Attention: Chris Raudoy  
Project Manager

### 1.0

Having examined the Tender Documents, as listed in Appendix A to this Bid Form, and Addenda No. \_\_\_\_\_ to No. \_\_\_\_\_, inclusive, all as issued by Morrison Hershfield Ltd. and having visited the place of the Work, we hereby offer to enter into a Contract to perform the Work required by the Bid Documents for the following:

- A. Perform the stipulated price component of the Work in accordance with the Bid Documents for the stipulated price of:

\$ \_\_\_\_\_ in Canadian dollars, excluding Value Added Taxes  
AMOUNT IN FIGURES

AND

- B. Perform the unit price component (initial allowance) of the Work in accordance with the Bid Documents for the Total Extended Amount (total of the unit prices set out in the Schedule of Unit Prices) of:

\$ \_\_\_\_\_ in Canadian dollars, excluding Value Added Taxes  
AMOUNT IN FIGURES

AND

## C. Cash allowance (Appendix C):

\$ \_\_\_\_\_ in Canadian dollars, excluding Value Added Taxes  
AMOUNT IN FIGURES

## D. Total Bid Price (A + B + C)

\$ \_\_\_\_\_ in Canadian dollars, excluding Value Added Taxes  
AMOUNT IN FIGURES

**2.0**

It is understood that:

1. Bids will be evaluated, and the lowest Bidder will be determined based on the sum of the amounts entered in Section 1.0 above. Notwithstanding the foregoing, the successful Bidder shall be selected by the Owner in accordance with the Instructions to Bidders.
2. The quantities in the Schedule of Unit Prices are estimated and may vary.
3. The unit prices in the Schedule of Unit Prices and actual quantities will form the basis for payment of the unit price component of the Work. The Contractor shall provide quotations for change notices based on unit rates provided.
4. The extensions of unit prices and addition of unit price extensions will be checked by the Consultant and if arithmetical errors are discovered, the unit prices will be considered as representing our intentions and the unit price extensions and the total amount entered above for the unit price component of the Work will be corrected accordingly.

**3.0 Confirmations**

We confirm that we have carefully examined the project site and the Bid Documents. We have included all profits, cost of permits excluding the Building Permit, and all government sales or other taxes in force at this date.

**4.0 Time Limitation**

We hereby agree that this offer shall remain open for 30 calendar days from the closing date for submission of bids, whether any other bid for the same work has been previously accepted or not.

**5.0 Security Deposit**

A security deposit in the form of a certified cheque or Bid Bond representing 10% of the Total Stipulated Price of Bid is enclosed.

**6.0 Withdrawal**

We agree that if we withdraw this Bid during the time that this Bid is open for acceptance, as set out in Section 4.0 of this Bid Form, the amount of the Bid Bond accompanying this Bid shall be forfeited.

**7.0 Bonds and Insurance**

Bonding is not required.

We enclose a signed "Undertaking of Insurance" on a standard form provided by an insurance company stating its intention to provide insurance to the Bidder in accordance with the insurance requirements of the Contract Documents.





**8.0 Time Proposal**

**Work Commencement**

The undersigned agrees that work on site shall commence not later than \_\_\_\_\_ calendar days following the award of the Contract.

**Substantial Performance of Work**

The undersigned agrees that Substantial Performance of the Work will be attained in \_\_\_\_\_ working days following the award of the Contract.

**Total Completion**

The undersigned agrees that Total Completion will be attained three weeks following Substantial Performance.

**Work Continuity**

The undersigned submits and agrees the project will be serviced continually from start to finish.

**9.0 Subcontractors and Suppliers**

Listed below are the names of Subcontractors and Suppliers upon whose proposals this Bid is based. We recognize that this list will be considered in the selection of the successful Bidder, and that Bids will not be accepted unless this information is provided. We also recognize that, after submission of the Bid, this list may not be changed without good and sufficient reason and requires the written approval of the Owner.

Item	Name of Subcontractor or Supplier	
Demolition		
Synthetic Slate Shingles	Supplier	
	Installer	
Modified Bitumen (SBS) Roofing Membrane	Supplier	
	Installer	
Flashing	Supplier	
	Installer	

**10.0 Schedule of Unit Prices**

The following are Stipulated Rates for Work which will be used to adjust the Contract Price as the scope of work increases, at the discretion of the Consultant. It is understood that:

1. The following Total Extended Amount is to be included in the Bid Price.
2. The quantities shown have been estimated by the Consultant.
3. Actual quantities will be verified during the execution of the Work.
4. These hourly rates will be used for the purpose of evaluating and valuing additional work directed by the Consultant and for evaluating and valuing any Changes in the Work as defined under GC 6.1 – Changes.
5. In each Progress Payment Application, the unit price component of the Work shall include:
  1. The description of the work, the hours worked this claim, the unit rate, the amount this claim, the previous amount, the amount to date, and the amount remaining.
  2. A description and breakdown of the material costs and summary statement in relation to the “allowance to purchase material for contingency work” from the Bid Form. Copies of material invoices shall be provided as a back-up for the claim.
6. During the Work, the actual hours expended against each of the allowance items will be tabulated. The Contract Price will be adjusted by multiplying the difference between the estimated hours listed below and the actual hours by the appropriate unit rate.
7. The net adjustment to the Contract Price could be an increase or a decrease and the same unit rate will apply in either instance and is to be documented for reconciliation purposes through a Change Order at Substantial Performance.
8. Rates shall be based on a 40-hour work week and are all inclusive, including without limitation: wages, benefits, mobilization and demobilization, travel time and travel costs, access costs, bonding and insurance, supervision above the foreman level, administration, small tools, all rental rates including scaffolding, overhead (include site and head office) and profit. The Bidder shall list all applicable labour rates for both “own forces” as well as sub-trade work. Prices quoted do not include G.S.T. No additional costs associated with these work items will be considered. No overtime rates will be allowed.
9. No additional cost will be accepted for Site Superintendent overseeing unit price work.

# SPECIFICATION



Roof Replacement  
 Duncan City Hall  
 200 Craig St, Duncan, BC

## BID FORM

Section 00200  
 Project No. 2103427.00  
 Issued for Tender

Description		Unit Rates	Quantities	Amount
1	Hourly Rate for Foreman	\$ _____ / hour	1 hour	\$ _____
2	Hourly Rate for Labourer	\$ _____ / hour	60 hours	\$ _____
3	Hourly Rate for Journeyman Roofer	\$ _____ / hour	40 hours	\$ _____
4	Hourly Rate for Apprentice Roofer	\$ _____ / hour	40 hours	\$ _____
5	Hourly Rate for Journeyman Sheet Metal Fabrication Labour	\$ _____ / hour	20 hours	\$ _____
6	Hourly Rate for Journeyman Carpenter	\$ _____ / hour	100 hours	\$ _____
7	Hourly Rate for Apprentice Carpenter	\$ _____ / hour	100 hours	\$ _____
8	Hourly Rate for Mechanical Trade	\$ _____ / hour	20 hours	\$ _____
9	Hourly Rate for Electrician	\$ _____ / hour	20 hours	\$ _____
10	Hourly Rate for Painter	\$ _____ / hour	30 hours	\$ _____
11	Material Allowance	-	-	\$10,000
Total Initial Allowance (Section 1.0, Item B of this Form)				\$ _____

**11.0 Hourly Rates**

The following hourly rates will be used for additional unforeseen work, at the discretion of the Consultant, not included in the scope of work provided in the Bid Documents and the Schedule of Unit Prices above.

Rates shall be based on a 40-hour work week and are all inclusive, including without limitation: wages, benefits, mobilization and demobilization, travel time and travel costs, access costs, bonding and insurance, supervision above the foreman level, administration, small tools, all rental rates including scaffolding, overhead (include site and head office) and profit. The Bidder shall list all applicable labour rates for both “own forces” as well as sub-trade work. Prices quoted do not include G.S.T. No additional costs associated with these work items will be considered.

Description		Hourly Rate
1	Foreman	\$ _____ / hour
2	Carpenter – Journeyman	\$ _____ / hour
3	Carpenter – Apprentice	\$ _____ / hour
4	Labourer	\$ _____ / hour
5	Roofer – Journeyman	\$ _____ / hour
6	Roofer – Apprentice	\$ _____ / hour
7	Electrician – Journeyman	\$ _____ / hour
8	Electrician – Apprentice	\$ _____ / hour
9	Mechanical – Journeyman	\$ _____ / hour
10	Mechanical – Apprentice	\$ _____ / hour

Actual quantities shall be verified during the execution of the Work and these hourly rates will be used for the purpose of evaluating and valuing Changes in the Work as defined under GC 6.1 – Changes.



**12.0 Average Crew Size**

The average crew size on site on a daily basis will be the following:

Foreman/Supervisor \_\_\_\_\_ (Name: \_\_\_\_\_)

Labourers \_\_\_\_\_

Others (Specify) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

The average crew size shall also be used for the purpose of reviewing changes to the Contract Schedule and in defining Changes in the Work pursuant to GC 6.1, 6.2, and 6.3. Note that the Foreman is to be assigned to this project on a full-time basis until completion.

**13.0 Schedule of Prices**

Within seven (7) calendar days of award of Contract, we agree to provide breakdowns of all/any prices submitted in a format that the Consultant may reasonably request, including the breakdown of labour rates, materials, taxes, and administrative costs, as well as a breakdown by task and component. These breakdowns will be supplied within seven (7) days of the request and may be used as the basis for assessing progress payments.

**14.0 After Acceptance of Bid**

Within ten (10) calendar days of notification by the Owner of the acceptance of this Bid, we shall:

1. Provide the Consultant a certificate of good standing with WorkSafe BC.
2. Provide proof that is satisfactory to the Owner and the Consultant that we have contracted for insurance as required by the General Conditions of this Contract. Certificates submitted in proof shall show date of expiration of each policy and contain the agreement of insurance carrier that the subject policies will not be cancelled or materially changed without fifteen (15) days prior written notice to the Consultant.
3. Provide the Consultant, before commencing work, the names and telephone numbers of staff members who are usually designated as Project Manager, Superintendent, and Site Foreman who will oversee the Work.
4. Furnish copies of Bonds as required by the Instructions to Bidders.

**15.0 Contract**

We undertake and hold ourselves ready, upon the acceptance of our Bid, to enter into a Contract with the Owner for the amount executed and complete the Work based on the General Conditions of the Stipulated Price Contract, Canadian Standard Construction Document, CCDC 2 – 2008, as modified by the Bid Documents.



**16.0 Owner’s Right to Accept or Reject Bids**

In submitting this Bid, we recognize the Owner’s right to accept any Bid at the Stipulated Sum submitted or to reject all bids.

We understand that the Bid evaluation and award will be based on, but not limited to, the criteria of fixed bid price, unit rates, proposed schedule, completeness of Bid, experience and qualifications of Subcontractors and Suppliers and crew size.

We understand that, due to the unknown conditions, the unit rates form an important part of the overall bid, and that the fixed bid price may not be the main factor in determining the total cost of the work and will not be the only deciding criteria for bid selection. For instance, the Schedule of Unit Prices Table in Section 10.0 may have quantities adjusted during the Bid analysis to reflect the different possible scenarios for this project.

**17.0 Signatures**

Signed and submitted for and on behalf of:

\_\_\_\_\_  
NAME OF BIDDER

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
NAME AND TITLE OF PERSON SIGNING

\_\_\_\_\_  
DATE

**Witness**

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
NAME AND TITLE OF PERSON SIGNING

\_\_\_\_\_  
DATE

**Appendix A (To be Submitted with Bid Form)**

Project Name: Duncan City Hall – Roof Replacement

Bidder: \_\_\_\_\_

**List of Tender Documents**

The following is the list or description of the Tender Documents referred to in the Bid Form for the above-named project:

<b>Specifications</b>	
00100	Instructions to Bidders
00200	Bid Form
00300	Form of Agreement
00800	Supplementary Conditions
01001	General Requirements
01527	Scaffolding
01545	Safety
02060	Demolition
06 05 73	Wood Treatment
06 10 00	Rough Carpentry
07 25 10	Self-Adhered Membrane, Vapour Impermeable
07 31 39	Synthetic Slate – Base Bid
07 52 50	Modified Bitumen Membrane (SBS)
07 62 00	Sheet Metal Flashing and Trim
07 31 39 Alternate Price #1	Synthetic Slate – Separate Price #1

# SPECIFICATION



Roof Replacement  
Duncan City Hall  
200 Craig St, Duncan, BC

## BID FORM

Section 00200  
Project No. 2103427.00  
Issued for Tender

	<b>Drawings</b>	<b>Sheet Number</b>
1.	Cover Sheet	BE.000
2.	Roof Plan	BE.010
3.	Roof Plan – Photo Clarifications	BE.011
4.	Roof Elevations	BE.020
5.	Roofing Details - 1	BE.401
6.	Roofing Details – 2	BE.402
7.	Roofing Details - 3	BE.403



# SPECIFICATION



Roof Replacement  
Duncan City Hall  
200 Craig St, Duncan, BC

## BID FORM

Section 00200  
Project No. 2103427.00  
Issued for Tender

### Appendix B (To be Submitted with Bid Form)

Project Name: Duncan City Hall – Roof Replacement

Bidder: \_\_\_\_\_

### Separate Prices

The following are our Separate Prices for the work listed hereunder. **Such work and amounts are not included in our Bid Price.** These Separate Prices do not include Value Added Taxes (G.S.T.). The following Separate Price items may be incorporated in the Contract at the Owner's option.

If not used, bar and initial the space(s) below.

Description		Separate Price Amount
1		\$ _____



**Appendix C (To be Submitted with Bid Form)**

Project Name: Duncan City Hall – Roof Replacement

Bidder: \_\_\_\_\_

**List of Cash Allowances**

The following is a list of Cash Allowance items and their amounts, which are requested and determined by the Consultant. These Cash Allowances shall be used in accordance with GC4.1 – Cash Allowances, on a time and materials basis.

Such Cash Allowances are included in our Bid Price. These prices do not include G.S.T.

Description		Allowance
1	Wood Rot Repair	\$15,000.00

**Appendix D (To be Submitted with Bid Form)**

Project Name: Duncan City Hall – Roof Replacement

Bidder: \_\_\_\_\_

**Alternate Price**

The following are our Alternate Price for the work listed hereunder. **Such work and amounts are not included in our Bid Price.** These Alternate Price do not include Value Added Taxes (G.S.T.). The following Alternate Price items may be incorporated in the Contract at the Owner’s option.

If not used, bar and initial the space(s) below.

	Description	Cost Impact on Base Bid	Schedule Change (working days)
1	<p><b>Synthetic Roofing – Alternative Price #1</b></p> <p>Supply and install of A2Z Polymers Inc, Full Sate System (Virginia Dark). Refer to project specifications, Section 07 31 39 – Alternative Price #1</p>		
2	<p><b>Copper Flashing – Alternative Price #2</b></p> <p>Cold-rolled sheet copper (H00), complying with ASTM B370, CDS 2B (bright) finish, 16 ounces per Sq. Ft. (0.0216” thick) except as otherwise indicated.</p>		

**Appendix E (To be Submitted with Bid Form)**

Project Name: Duncan City Hall – Roof Replacement

Bidder: \_\_\_\_\_

**List of References**

Provide three reference projects of comparable size and scope. Provide brief project description, construction cost and contact information for projects.

<b>Project #1</b>	
Address	
Description	
Cost of Construction	
Contact Information (email)	
<b>Project #2</b>	
Address	
Description	
Cost of Construction	
Contact Information (email)	
<b>Project #3</b>	
Address	
Description	
Cost of Construction	
Contact Information (email)	

## **1.0 Reference**

### **1.1**

The Stipulated Price Contract form of agreement (Canadian Construction Documents Committee Standard Construction Document CCDC-2 2008), as amended and supplemented by the Supplementary Conditions contained in Section 0800, shall be executed for this project.

### **1.2**

The Stipulated Price Contract (CCDC 2 – 2008) referenced above is not reproduced herein but is available at local construction association offices.

**AGREEMENT BETWEEN OWNER AND CONTRACTOR****Article A-2 Agreements and Amendments**

- A-2.2 Add the following to the end of the paragraph: “For an amendment to be effective and binding on the Owner it must be in writing and signed or approved by the proper signing authorities of the Owner.”

**Article A-4 Contract Price**

- A-4.2 Add the following to the end of the paragraph: “Despite the phrase “which excludes Value Added Taxes” that appears in paragraph 4.1, British Columbia Provincial Sales Tax (P.S.T.) is included in the Contract Price. In paragraph 4.2 of Article A-4, the amount shown for Value Added Taxes consists only of Goods and Services Tax (G.S.T.) at 5% and does not include P.S.T (which, as previously stated, is included in the Contract Price).”

**Article A-5 Payment**

- A-5.3.1 In the 2nd line, delete “rates” and replace with “rate”. Delete paragraphs 5.3.1(1) and 5.3.1(2) and replace with the following:
- “2% per annum above the bank rate, as it may change from time to time, quoted by the Royal Bank of Canada for Canadian Dollar prime business loans in Canada. Such interest shall be compounded on a monthly basis.”

**Article A-6 Receipt of and Addresses for Notice in Writing**

- Add A-6.2 Provided that, despite paragraph 6.1 of this Article, a Notice in Writing sent by facsimile or other form of electronic communication shall not be effectively given unless actually received.

**Article A-8 Succession**

- Add A-6.2 In the 2nd line, insert “permitted” before “assigns”.

## DEFINITIONS

19. Delete the definition of “Subcontractor” and replace with the following:  
Subcontractor means any "subcontractor" as defined under the Builders Lien Act, in respects of any part or parts of the Work.”
22. Delete the definition of “Supplier” and replace with the following:  
Supplier means any "material supplier" as defined under the Builders Lien Act, in respect of any Products forming part of the Work.”
- Add 27. **Builders Lien Act**  
Builders Lien Act refers to the Builders Lien Act, S.B.C. 1997 c.45., as amended from time to time. The Builders Lien Act is the lien legislation applicable to the Place of the Work, for the purpose of the Contract.
- Add 28. **Builders Lien Holdback**  
Builders Lien Holdback refers to the holdback retained by the Owner under the Builders Lien Act as provided for in the Contract.

**GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT****PART 2 ADMINISTRATION OF THE CONTRACT****GC 2.3 Review and Inspection of the Work**

- 2.3.2 Add, in the first sentence “review”, before the word “tests”.
- 2.3.4 In the first sentence replace “special” with “review”, and “review,” before the third instance of “inspections”.
- Add 2.3.8 Should the Consultant be required to make more than one review of rejected work or should the Consultant perform additional reviews due to failure of the Work to comply with the application for status of completion made by the Contractor, the Contractor is required to compensate the Owner for such additional Consultant services including expenses incurred. Adjustment for such compensation will be made by the issuance of a Change Order.

**GC 2.4 Defective Work**

- 2.4.3 Delete the phrase “the difference in value between the Work as performed and that called for by the Contract Documents” and replace with “the value of such work as is necessary to correct any non-compliance with the Contract Documents”.
- Add 2.4.4 The Contractor’s obligations under paragraphs 2.4.1 and 2.4.2 of this GC 2.4 shall continue during the warranty period.

**PART 3 EXECUTION OF THE WORK****GC 3.2 Construction by Owner or Other Contractors**

- Delete 3.2.2.2 Delete this clause in its entirety.

**GC 3.4 Document Review**

- 3.4.1 Immediately before the words “shall not proceed” in the sixth line, insert “shall promptly report the matter to the Owner and the Consultant, and the Contractor”.
- Add 3.4.2 Notwithstanding paragraph 3.4.1 of GC 3.4 (Document Review), the Contractor represents and agrees that it has examined all of the Contract Documents to fully acquaint itself with the complete scope and requirements of the Work prior to the execution of the Contract and that no claim for a change in the Work will be accepted as a result of failure of the Contractor to do so.

**GC 3.5 Construction Schedule**

- 3.5.1.1 Delete “prior to the first application for payment” and replace with “within ten (10) Working Days after award of the Contract.”

**GC 3.6 Supervision**

- 3.6.1 Add the following to the end of the paragraph: “If the Supervisor is changed, any replacement Supervisor must first be approved by the Owner. The Work includes comprehensive site supervision (including site supervision for any and all changes by Change Order or Change Directive, and any requirement under Supplemental Instruction).”



**GC 3.7 Subcontractors and Suppliers**

- 3.7.2 Add the following to the end of the paragraph: “The selection of Subcontractors and Suppliers for the Work or parts thereof is subject to any stipulation made by the Owner or the Consultant, or agreed upon by the Owner and the Contractor, regarding Subcontractor or Suppliers, during the bidding process or leading up to the Contract. The Contractor shall not be entitled to change from the proposed Subcontractor and Suppliers or to change any specified Product or system without the written consent of the Owner. If an approved change results in savings to the Contract Price, such savings shall be credited to the Owner.”
- 3.7.4 Add at the end of the sentence “, as outlined in GC 6.3 – CHANGE DIRECTIVE.”
- 3.7.7 Add the following to the end of the paragraph: “The Contractor shall be responsible and accountable for its Subcontractor and Suppliers. In the interpretation of the Contract, the terms and conditions of the Contract relative to the Contractor will extend and apply to the Subcontractor and Suppliers. The Contractor will ensure compliance by the Subcontractor and Suppliers with the terms and conditions of this Contract and performance by the Subcontractor and Suppliers in accordance with the requirement of the Contract. Any failure, breach or default on the part of a Subcontractor or Suppliers shall be treated as and shall constitute failure, breach or default by the Contractor under the Contract.”

**GC 3.10 Shop Drawings**

- 3.10.9 Add the following to the end of the paragraph: “If the shop drawings deviate in any manner from the requirements for the Work as set out in Contract Documents, the Contractor shall advise the Consultant of same in writing, in a communication separate from the shop drawings themselves, at the time of submission of the shop drawings, stating in detail how, where and why the shop drawings and any associated or related submissions differ from the requirements for the Work established by the Contract Documents and seeking written authorization from the Owner and Consultant for such deviation. The mere submission of shop drawings does not constitute notice of a proposed deviation from the Contract requirements. In the absence of such express notice, the Owner and Consultant are entitled to assume that the shop drawings comply strictly with the requirements for the Work as set out in the Contract Documents.”

**GC 3.13 Cleanup**

- Add 3.14.4 Should the Contractor fail to perform ongoing or final cleanup when required by the Owner, the Owner may have the cleanup performed by whatever means may be expedient and all associated costs will be charged to the Contractor and the Owner may deduct and set off such costs against amounts otherwise owed or payable to the Contractor.

**Add GC 3.14 Substitutions**

- 3.14.1 The Contractor shall not make any substitution of specified materials without the prior written approval of the Consultant.
- 3.14.2 Any application by the Contractor for the approval of substitution of a specified material shall:
- .1 be in writing;
  - .2 include a complete description of the proposed substitution including, manufacturer, brand name, catalogue number and like and technical data; and

- .3 include statements of both the costs of the materials originally specified and the proposed substitution (inclusive of installation costs where they vary).
- 3.14.3 Applications for substitution of specified materials shall be considered by the Consultant if:
- .1 the materials selected by the Contractor from those specified are not available; or
- .2 the delivery date of materials selected by the Contractor from those specified would unduly delay completion of the Work;
- .3 the proposed substituted material is considered by the Consultant to be functionally equivalent to the material specified.
- 3.14.4 Where any substitution is permitted, the Contractor shall bear any additional costs of:
- .1 evaluating the equality of the materials and equipment to be installed; and
- .2 preparing drawings, sketches and specifications by the Consultant and others.
- 3.14.5 Where any substitution is permitted, whether in whole or in part, the Contractor shall assume full responsibility (including in respect of all costs) for any impacts that the substitution has on any other part of the Project.
- 3.14.6 The amount of all credits arising from the approval of any approved substitutions will be determined by the Consultant and the Contractor and the Contract Price will then be reduced accordingly.

**Add GC 3.15 No Contracting**

- 3.15.1 Except where permitted in writing by the Owner, the Contractor shall not contract with individual unit owners for work within the Place of the Work for the duration of the Project.

**PART 4 ALLOWANCES****GC 4.1 Cash Allowances**

- 4.1.2 Add, after the first sentence "Unless noted otherwise, none of the Work included in the drawings and specifications is intended to be paid for by the cash allowances. The cash allowances are for the Owner's use, at the Owner's sole discretion."

**GC 4.2 Contingency Allowance**

Delete paragraph 4.2.3 and refer to Section 8 [Schedule of Unit Prices] of the Bid Form.

**PART 5 PAYMENT****GC 5.2 Applications for Progress Payments**

- 5.2.4 Add, after the first sentence:
- "A second schedule, stating the anticipated monthly progress payments, is to be submitted within 7 Working Days of a request by the Owner."
- Add 5.2.8 An application for payment shall be deemed received by the Consultant only if and when submitted complete with required supporting documentation as determined by the Consultant.

- Add 5.2.9 The Contractor shall with each and every application for payment subsequent to the first, submit a current CCDC 9A Statutory Declaration of Progress Payment Distribution by Contractor, which shall be completed and sworn before a Notary Public or a Commissioner for Oaths for the Province of British Columbia.

**GC 5.3 Progress Payment**

- 5.3.1.2 Add to the end of the paragraph,

“If, after a certificate of payment has been issued to the Owner (but prior to payment by the Owner), the Consultant determines on the basis of new information that the amount certified for payment is inappropriately high or low relative to the value of the work performed, then the Consultant shall issue a revised certificate of payment.”

- 5.3.1.3 Delete in its entirety and replace with,

“The Owner shall make payment to the Contractor, on account, in the amount certified by the Consultant as provided in Article A-5 of the Agreement – PAYMENT, on or before the later of:

- .1 twenty calendar days after receipt by the Consultant of the application for payment, or
- .2 twenty-eight calendar days after the last day of the payment period for which the Contractor’s application for payment is made.”

- Add 5.3.2 The Consultant may not issue a certificate of payment until the Contractor has executed the Contract Documents and has provided the schedule of values and, where requested, the schedule of progress payments.

**GC 5.4 Substantial Performance of Work**

- 5.4.2 Delete “20 calendar days” and replace with “10 days (as prescribed by Section 7(3) of the Builders Lien Act)”.

- Add 5.4.4 An application for Substantial Performance of the Work shall be deemed complete only if submitted with required supporting documentation, including those requirements in CG 5.2.8, as determined by the Consultant.

- Add 5.4.5 Subject to the requirements of the Builders Lien Act relative to the date of issuance by the Consultant of the certificate pursuant to paragraph 5.4.2:

- .1 the Consultant shall issue to the Owner and copy to the Contractor a certificate of payment for an amount equal to the Contract Price less:
  - .1 twice the value of any deficiencies shown on the comprehensive list of items to be completed or corrected as in GC 5.4.1, as determined by the Consultant;
  - .2 the value of incomplete work as determined by the Consultant;
  - .3 the amounts of all previous certificates of payment;
  - .4 the full value plus security for costs, of any builders lien filed against the title to the Project with respect to the Work, plus any costs, including legal costs, incurred by the Owner to have the lien removed;

- .5 any other monetary claims against the Contractor which are enforceable against the Owner including garnishing orders;
  - .6 security for any actual or potential liability to others for costs, damages or expenses resulting from the Contractor's performance of the Work;
  - .7 any other amounts which the Owner is authorized to withhold or deduct under the terms of the Contract.
- .2 The Owner shall make payment to the Contractor in accordance with the provisions of GC 5.3.1.3.
- Add 5.4.6 The Owner reserves the right to take possession of and use completed or partially completed portion of the Work, in addition to occupancy conditions included in the Contract, providing:
- .1 the portion of the Work is ready to be used for the purpose intended, to the satisfaction of the Consultant and authorities having jurisdiction; and
  - .2 the Owner's possession and use do not interfere with the Contractor's Work; and
  - .3 the Consultant conducts a review prior to possession by the Owner.

**GC 5.5 Payment of Holdback Upon Substantial Performance of Work**

Add 5.5.1.3 When applying for release of holdback, the Contractor shall submit a current CCDC 9B Statutory Declaration of Progress Payment Distribution by Subcontractor from each of the first tier Subcontractors and a Worker's Compensation Board Letter of Good Standing in respect of the Contractor.

5.5.3 Delete and replace with the following:

The Owner and the Contractor agree that the lien holdback funds withheld by the Owner pursuant to the Builders Lien Act will be held in a separate trust account in the name of the Owner and the Contractor by the Owner's legal counsel. Such funds will be held and paid out in accordance with the provisions of the Builders Lien Act.

**GC 5.6 Progress Release of Holdback**

Add 5.6.4 An application for progressive release holdback will not be considered complete until all related documentation required for the Consultant's review is received, including required supporting documentation as determined by the Consultant.

**GC 5.7 Final Payment**

5.7.4 Delete "no later than 5 calendar days after the issuance of a final certificate for payment,"

Add 5.7.5 Partial payment may not be made for the completion or correction of any deficiencies shown on the comprehensive list of items to be completed or corrected prior to the date of the issuance of the final certificate payment.

**PART 6 CHANGES TO THE WORK****GC 6.1 Owner's Right to Make Changes**

6.1.1.2 After the words "by Change Order", add the words "or Change Directive".

- 6.1.2 Insert the following at the beginning of the paragraph: “Except as provided in GC 4.2 [Contingency Allowance],”

**GC 6.2 Change Order**

Add 6.2.3 The following shall determine Contractor markup on Change Orders by percentage:

- .1 To the cost of the Work performed by the Contractor directly, the Contractor may add a maximum of 10% markup for overhead, including the cost of bonds, insurance and any finance charges, plus a 5% mark-up for profit.
- .2 To the cost of the Work performed by Subcontractors for the Contractor, before the Subcontractor’s markup, the Contractor may add a maximum of 10% markup for overhead, which includes the cost of bonds, insurance and any finance charges, plus an additional 5% mark-up for profit.
- .3 On Work deleted from the Contract, not covered by unit prices, the credit to the Owner shall be the cost of the Work as set out in GC 6.3 – CHANGE DIRECTIVE, article 6.3.7.
- .4 For a detailed list of what the Contractor may include in the cost of the work before adding markups, refer to GC 6.3 CHANGE DIRECTIVE, article 6.3.7.

6.2.4 The Contractor shall provide quotations for proposed changes in the Work in the form and within the time frame reasonably requested by the Consultant. The Contractor acknowledges that failure to do so will result in delays to the approval and payment of changes in the Work and additional costs to the Owner. If the Contractor fails to provide good faith quotations in the form or time prescribed then the Consultant will be entitled to establish a reasonable valuation for the change in the Work and to establish a reasonable adjustment if any in the Contract Time attributable to the change in the Work, and the Contractor shall be bound thereby.

6.2.5 If the Owner elects to proceed with a change in the Work on the basis of cost of the Work, then the Contractor shall be entitled to an adjustment in the Contract Price as set out in GC 6.3 [CHANGE DIRECTIVE].

6.2.6 When requested by the Consultant, the Contractor shall promptly provide itemized labour and material cost breakdowns and any other detailed information required to substantiate the Contractor claims for a change to the Contract Price or Contract Time.

6.2.7 Upon issuance of a Change Order by the Consultant to the Contractor for a proposed change in the Work, the Contractor is deemed to have accepted the valuation for the change in the Work proposed by the Consultant and the adjustment if any in the Contract Time proposed by the Consultant if no Notice in Writing disputing it is given to the Owner within three (3) Working Days of the date of issuance of the Change Order.

**GC 6.3 Change Directive**

6.3.7 Add the following to the end of the paragraph:

“Provided that:

- (a) if unit prices are set out in the Contract or subsequently agreed upon, then the unit prices alone shall govern, despite the other provisions of paragraph 6.3.6 and of this paragraph 6.3.7 of GC 6.3 [CHANGE DIRECTIVE]; and

- (b) payment for the cost of performing the work attributable to the Change Directive shall be made only if and to the extent that the Contractor has taken all reasonable steps to mitigate and minimize the impact of the change and the resulting cost, and only to the extent of the incremental increase if any in the outlays of the Contractor attributable to the Change Directive, and, as to any personnel or resources not exclusively dedicated to the work attributable to the Change Directive, only a reasonable allocation or reasonable hourly or other time charge shall be applied, and shall exclude any charges for personnel (such as the principals and executive and senior officers of the Contractor) and resources the Owner could reasonably expect would form part of Contractor's head office overhead (for which the percentage fee is stipulated in paragraph 6.3.6.3)."

**GC 6.4 Concealed or Unknown Conditions**

6.4.4 Delete and replace with the following: "The Contractor represents and warrants to the Owner that, prior to bidding the Project, it conducted its own examination and assessment of the Place of the Work, including the approaches and access to the Place of the Work and the Work, and the facilities that are necessary for the performance of the Work, or voluntarily chose not to do so.

Add 6.4.5 Nothing in this GC 6.4 shall relieve the Contractor from the responsibility to conduct its own examination at the Place of the Work and the Work, as provided in paragraph 6.4.4, and the Contractor shall not be entitled to, and shall not claim, any additional compensation, or extension of Contract Time, as a result of any condition that may bear upon the Place of the Work and the Work that was, or would have been, disclosed by such examination.

**GC 6.5 Delays**

6.5.3.3 Add the word "local" after the word "adverse".

6.5.3.4 Add the following to the end of the paragraph: "except lack of funds or breakdown of Construction Equipment".

Add 6.5.6 The Contractor making the claim shall submit to the Consultant, within 10 Working Days, a detailed account of the Contract Time extension claimed and the grounds upon which the claim is based complete with required supporting documentation as determined by the Consultant.

Add 6.5.7 Should the Consultant, in consultation with the Contractor, determine the Contractor is delayed in performance of the Work, or any part thereof, by the Contractor's inaction, or by delay or inaction of anyone employed or engaged by the Contractor directly or indirectly, and the Contract Time is compromised:

- .1 The Consultant will promptly give Notice in Writing of such determination to the Owner and the Contractor.
- .2 Then the Contractor shall accelerate the Work as required to meet the Contract Time.
- .3 The Contractor shall then promptly give the Owner and the Consultant Notice in Writing of specific changes to the construction scheduling and construction processes the Contractor will implement to accelerate the Work.
- .4 The Contractor shall not be entitled to payment for costs to accelerate the Work to meet the Contract Time.

- 6.5.8 The extension of Contract Time and reimbursement of costs shall be made only if and to the extent that the Contractor has taken all reasonable steps to mitigate and minimize the impact of the delay, and can establish with supporting documentation that the delays materially affected the Contractor's performance of the Work within the Contract Time and the Contractor's costs in the performance of the Work to such a degree that no reasonable measures could have been taken (other than those that were taken by the Contractor) to avoid or prevent the additional time and costs incurred. Any claim by the Contractor for delay shall apply only to the extent that the delay exceeds two calendar months, and only in respect of periods for which there was no concurrent delay caused or materially contributed to by the Contractor. Any float (also described as "slack" or "cushion") that exists in the construction schedule does not belong exclusively to the Owner or exclusively to the Contractor, but rather will: firstly, be used for and applied to obviate any delay or extension of time otherwise provided for in the Contract (including any delay or extension of time that would otherwise result from a Change Order or Change Directive) that the Contractor would otherwise be entitled to, and despite any provision of the Contract allowing for delay or extension of time the Contract Time will not be delayed or extended to the extent that float is available at the time the matter, circumstance or event arose or occurred; and any remaining float will, in the administration and interpretation of the Contract, be shared and applied equitably by and between the Owner and the Contractor.
- 6.5.9 The claim for reimbursement by the Contractor under paragraphs 6.5.1 and 6.5.2 of GC 6.5 [DELAYS] shall be determined on the basis of the cost of the Contractor's actual expenditures and savings attributable to the delay, valued in accordance with paragraph 6.3.7 of GC 6.3 [CHANGE DIRECTIVE]. No claim for profit or overhead shall be included other than as stipulated in paragraph 6.2.3 of GC 6.2 [CHANGE ORDER].

**GC 6.6 Claims for a Change in the Contract Price**

- 6.6.1 Add the following to the end of the paragraph: "in no case more than 10 Working Days from the event or series of events giving rise to the claim."

**PART 7 DEFAULT NOTICE****GC 7.1 Owner's Right to Perform the Work, Stop the Work, or Terminate the Contract**

- 7.1.1 In the 1st line, add the words "commits an act of bankruptcy," after the word "bankrupt".
- 7.1.5 In the first sentence, after "paragraph 7.1.1," replace "and" with "or".

**GC 7.2 Contractor's Right to Suspend the Work or Terminate the Contract**

- 7.2.1 In the 1st line, add the words "commits an act of bankruptcy," after the word "bankrupt".
- Add 7.2.5 The Contractor shall be entitled to be paid for all work performed to the date of termination, and, subject to mitigation by the Contractor, for loss sustained upon Products and Construction Equipment, but not for such other damages as the Contractor may have sustained as a result of the termination of the Contract.

**PART 9 PROTECTION OF PERSONS AND PROPERTY****GC 9.4 Construction Safety**

- 9.4.1 Delete the phrase "Subject to paragraph 3.2.2.2 of GC 3.2 [CONSTRUCTION BY OWNER OR OTHER CONTRACTORS], the" and replace with the word "The"



**PART 10 GOVERNING REGULATIONS****GC 10.2 Laws, Notices, Permits, and Fees**

Add 10.2.8 The Contractor shall provide to the Consultant copies of all inspection reports from the various authorities having jurisdiction within two Working Days of their receipt by the Contractor or the applicable Subcontractor.

**GC 10.4 Workers' Compensation**

Add 10.4.3 The Contractor shall, for the purpose of Section 118 of the Workers Compensation Act, R.S.B.C. 1996, c. 492, as amended from time to time, and regulations thereto (the "Workers Compensation Act"), be the "prime contractor" as defined in the Workers Compensation Act.

**PART 11 INSURANCE AND CONTRACT SECURITY****GC 11.2 Contract Security**

11.2.1 Delete and replace with the following:

Within ten (10) days of Contract award, and in any case prior to commencement of the Work, the Contractor shall provide to the Owner the following:

- .1 a performance bond for 50% of the Contract Price; and
- .2 a labour and material payment bond for 50% of the Contract Price.

11.2.2 Delete and replace with the following:

The said bonds shall:

- .1 be issued by a duly licensed surety that is authorized to carry on the business of suretyship in British Columbia;
- .2 be in the latest form of CCDC Documents 221 and 222 respectively, or other form acceptable to the Owner;
- .3 be maintained in good standing until the Contractor has performed and fulfilled all of its obligations under the Contract, including its warranty obligations pursuant to GC 12.3;
- .4 name the Owner as obligee.

Add 11.2.3 If the Contractor fails to provide the required bonds as required by paragraphs 11.2.1 and 11.2.2, the Owner may, by written notice and without any liability, to the Contractor terminate the Contractor's right to continue with the Work.

11.2.4 The Contractor shall give the Owner Notice in Writing of any material change with respect to the contract security within 15 days of occurrence of such material change.



**PART 12 INDEMNIFICATION, WAIVER OR CLAIMS AND WARRANTY****GC 12.2 Waiver of Claims**

12.2.3.4 Delete and replace with the following:

Damages arising from the Contractor's actions, or the actions of Subcontractors, Suppliers, or other parties performing work or providing Products on behalf of the Contractor or under this Contract, which result in defects or deficiencies in the Work;

**GC 12.3 Warranty**

12.3.1 After the phrase "in paragraph 12.3.6", add the words "or elsewhere in the Contract".

12.3.1 Change "the warranty period under the Contract is one year from the date of Substantial Performance of the Work" to "the warranty period under the Contract is two years from the date of Substantial Performance of the Work".

12.3.4 Add the following to the end of the paragraph: "In effecting a correction of defects or deficiencies, the Contractor shall also bear all costs involved in removing, replacing, repairing, or restoring aspects of the Work that may be affected in the process of making the correction."

Add 12.3.7 Where a material, product or installation covered by warranty fails, the stipulated warranty and warranty period shall be renewed for the specific work being replaced or repaired, with the exception of warranties referred to in GC 12.3.6.

12.3.8 The Contractor warrants that:

.1 the Work, and any corrections made by or on behalf of the Contractor to any part of the Work, will be free from defects and deficiencies; and

.2 all materials used or incorporated in the Work are new and conform with the quality, grade and other requirements specified in the Contract Documents.

12.3.9 The warranties in this GC 12.3 [Warranty] do not affect, limit or extinguish any liability or obligation of the Contractor under applicable Laws.

**1.0 General****1.1 Description**

The work in this section includes but is not limited to:

1. Factory treatment of new lumber installed outside the roofing and/or roofing membrane.
2. Field treatment of all field cuts in new, treated lumber and treated plywood
3. Field treatment of existing lumber and plywood as directed by the Consultant. This work is to be performed based on the unit rates.

**1.2 References**

1. CSA-O80 Series "Wood Preservation"
2. CSA-O80S1 "Supplement No.1 to CSA-O80 Series"
3. CSA-086-09 "Engineering Design in Wood"
4. American Wood Preserver's Association Standards

**1.3 Alkaline Copper Quaternary (ACQ) Treated Lumber**

Alkaline Copper Quaternary (ACQ) treated lumber shall not be used without written consent from the Consultant.

**1.4 Quality Assurance****1.4.1**

Inspection of products treated with preservative by vacuum-pressure impregnation shall be carried out by an accredited inspection agency of the Canadian Wood Preservers Bureau (CWPB).

**1.4.2**

All treated lumber and plywood shall bear an identifying stamp in accordance with the CWPB requirements.

**1.5 Certificates**

For products treated with preservative by vacuum-pressure impregnation, when required, submit following information certified by authorized signing officer of the treatment plant:

1. Wood treatment information as specified in the CAN/CSA-O80 Series "Wood Treatment" and AWPA standards
2. Moisture content after drying following treatment with water-borne preservative
3. Acceptable types of adhesive, paint, stain, and clear finishes that may be used over the treated materials

**1.6 Product Delivery, Storage, and Handling****1.6.1**

Delivery shall not occur until installation is imminent and a sufficient protected staging area is available for on-site storage. The staging area shall be approved by Owner.

**1.6.2**

The products should be stored in the Manufacturer's unopened packaging until ready for installation.

**1.6.3**

Materials shall not be in contact with the ground when stored. The materials shall be stored on a smooth, level surface that is under cover to keep the treated product dry until installation.

**1.7 Project/Site Conditions**

Environmental Requirements: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Workers' Compensation Board of British Columbia.

**2.0 Products****2.1 Preservatives****2.1.1**

New lumber that is not directly exposed to the weather, including new rainscreen strapping, shall use the preservative disodium octaborate tetrahydrate (DOT/Borate).

**3.0 Execution****3.1 Factory Applications of Preservatives****3.1.1**

All DOT treated lumber shall be factory treated to CSA-O80.34 "Pressure Preservative Treatment of Lumber and Timber with Borate for Use Out of Ground Contact and Continuously Protected from Liquid Water" to obtain an average net retention of 4.0 kg/m<sup>3</sup> DOT.

**3.1.2**

All treated plywood sheathing shall be vacuum-pressure impregnated with preservative (DOT) in accordance with the requirements of AWWA Standard C9-96 "Plywood - Preservative Treatment by Pressure Processes".

**3.1.3**

Following water-borne preservative treatment, all dimensional lumber and plywood sheathing shall be dried to maximum moisture content of 15% when installed.

**3.2 Field Applications of Preservatives****3.2.1**

Touch-up all field cuts in new treated lumber and plywood in accordance with the preservative Manufacturer's instructions.

**1.0 General****1.1 Description**

The work in this section includes but is not limited to:

1. Installation of new roof sheathing.
2. Installation of blocking as required by structural.
3. Installation of blocking and support for roof crickets.

**1.2 References**

1. ANSI-B18.6.4 "Screws, Tapping and Metallic Drive, Inch Series, Thread Forming and Cutting"
2. CSA-B111 "Wire Nails, Spikes and Staples"
3. CAN/CSA-G164 "Hot Dip Galvanizing of Irregularly Shaped Articles"
4. CSA-O86.1 "Engineering Design in Wood"
5. CSA-O86.1S1 "Supplement to CSA-O86.1"
6. CSA-O121 "Douglas Fir Plywood"
7. CAN/CSA-O141 "Softwood Lumber"
8. CSA-O151 "Canadian Softwood Plywood"
9. CAN/CGSB-71.26 "Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems"
10. ASTM-A153 "Zinc Coating (Hot Dip) on Iron and Steel Hardware"
11. National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber

**1.3 Quality Assurance**

Lumber shall be marked by a grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board. Plywood shall be marked by a grade stamp in accordance with the applicable CSA standards.

**1.4 Product Delivery, Storage, and Handling**

Product delivery shall not occur until installation is imminent and a sufficiently protected staging area is available for on-site storage. The staging area shall be approved by the Owner. The materials shall not be stored in direct contact with the ground and shall be stored on a flat, level surface beneath cover to ensure the material is kept dry prior to installation.

**1.5 Project/Site Conditions****1.5.1 Environmental Requirements**

Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding:

1. Use, handling, storage, and disposal of hazardous materials
2. Labeling and provision of Material Safety Data Sheets acceptable to Workers' Compensation Board of British Columbia

**1.5.2**

Maintain environmental conditions (protection from elements, temperature, humidity and ventilation) within limits recommended by the Manufacturer for optimum results. Do not install products under environmental conditions outside of the Manufacturer's absolute limits.

**2.0 Products****2.1 Lumber Material****2.1.1**

Unless specified otherwise, lumber shall be treated, surfaced on four sides (S4S), and have a moisture content of 19% or less in accordance with following standards:

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

**2.1.2**

Furring, blocking, nailing strips, cants, curbs, fascia backing and sleepers shall:

1. Be treated in accordance with Section 06070 - Wood Treatment
2. Consist of "standard" board sizes (or better grade)
3. Consist of "standard" light framing dimensions (or better grade)
4. Consist of "standard" (or better grade) post and timber sizes

**2.2 Panel Material****2.2.1**

Panel material shall consist of 5/8" Tongue and Groove Douglas fir plywood (DFP) compliant to CSA-0121 "Douglas Fir Plywood".

**2.3 Accessories****2.3.1 Nails, Spikes, and Staples**

Nails, spikes and, staples shall be compliant with CSA-B111 "Wire Nails, Spikes and Staples".

**2.3.2 Framing and Sheathing Nails**

Framing and sheathing nails shall be galvanized common nails and compliant with the wood frame construction requirements of the applicable codes.

**2.3.3 Furring Strip Fasteners**

Vertical wood furring/strapping nails shall be 64 mm hot-dipped galvanized common nails.

**2.3.4 Screws**

Screws shall be compliant with ANSI-B18.6.4 "Screws, Tapping and Metallic Drive, Inch Series, Tread Forming and Cutting".

**2.3.5 Bolts**

Bolts shall be 12.5 mm in diameter unless indicated otherwise, complete with nuts and washers.

**2.3.6 Proprietary Fasteners**

Proprietary fasteners, such as toggle bolts, expansion shields and lag bolts, screws, explosive actuated fastening devices shall be used in accordance with the purpose and instruction specified by the Manufacturer.

### **2.3.7 Fastener Coatings**

#### **2.3.7.1 General**

Fasteners shall be galvanized steel compliant with CAN/CSA-G164 "Hot Dip Galvanizing or Irregular Shaped Articles" with a minimum zinc coating thickness of 45  $\mu\text{m}$  (320 g/m<sup>2</sup>).

#### **2.3.7.2 Contact with ACQ Treated Wood**

Fasteners in contact with ACQ treated wood shall be stainless steel.

### **2.3.8 Sheathing Adhesive**

Deck sheathing adhesive shall be compliant with CAN/CGSB-71.26 "Adhesive for Field Gluing Plywood to Lumber Framing for Floor Systems". All roof sheathing shall be adhered to the joists and blocking.

### **2.3.9 Anchors**

Anchors shall be in accordance with the details specified in the project drawings.

## **3.0 Execution**

### **3.1 Examination**

Prior to commencing installation, the governing dimensions of building and condition of substrate shall be verified. If the substrate preparation is the responsibility of another installer, notify Consultant of unsatisfactory preparation before proceeding. Proceeding with installation acknowledges acceptance of substrate.

### **3.2 Preparation**

#### **3.2.1**

All preservative treated plywood sheathing and dimensional lumber including blocking, furring, and cants shall comply with the Morrison Hershfield Specification Section 06 05 73 "Wood Treatment".

#### **3.2.2**

All new installations shall be compliant with the current code requirements.

### **3.3 Blocking Requirements**

#### **3.3.1**

Provide continuous blocking at all panel joints.

### **3.4 Sheathing Fastening**

#### **3.4.1**

Nailing pattern to be 3" nails at 4" o/c at all panel edges and 3" nails at 12" at intermediate framing members.

**1.0 General****1.1 Description**

The work in this section includes but is not limited to:

1. The installation of vapour impermeable self-adhesive membrane (SAM) for all sloped roof assemblies and interfaces.

**1.2 References**

1. ASTM E2178 "Standard Test Method for Air Permeance of Building Materials"
2. ASTM E96 "Water Vapor Transmission of Materials"
3. ASTM E2357 "Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies"
4. CGSB-37-GP-9Ma "Primer, Asphalt, Unfilled, for Asphalt Roofing, Damproofing and Waterproofing"
5. CGSB-37-GP-15M "Application of Asphalt Primer for Asphalt Roofing, Damproofing and Waterproofing"
6. CGSB 37-GP-56M "Membrane, Modified, Bituminous, Prefabricated, and Reinforced"
7. Roofing Contractors' Association of British Columbia, Roofing Practices Manual. Note: where the word "should" is used, it shall read as "shall".

**1.3 Quality Assurance****1.3.1**

The Contractor shall have successfully completed similar work over a period of not less than five (5) years and, when required, shall submit supporting documentation.

**1.3.2**

The Contractor shall be officially recognized as an authorized Contractor by the membrane Manufacturer.

**1.3.3**

Only competent, qualified individuals experienced with membrane installation shall execute the work of this section.

**1.3.4**

A pre-installation conference with the Consultant and Installers shall be arranged prior to commencing the installation. If requested by the Consultant, the Manufacturer's representative shall be present.

**1.3.5**

The Foreman and one other member of the crew shall have attended an application seminar provided by the membrane Manufacturer.

**1.3.6**

The surfaces to which membrane is to be applied shall be confirmed to be in a condition suitable for the application.

**1.3.7**

Unless otherwise specified, the Installer shall comply with the Manufacturer's latest printed instructions for materials and installation methods.

**1.3.8**

Notify the Consultant in writing of any conflict between these specifications and Manufacturer's instructions. The Consultant shall designate which document is to be followed.

**1.3.9**

Components used in this section shall be sourced from one Manufacturer, including sheet membrane, air barrier sealants, primers, mastics, and adhesives.

**1.3.10 Mock-Up**

Provide a mock-up for the evaluation of surface preparation techniques, application workmanship, and general sequencing requirements. Further, the following apply:

1. The mock-up shall be prepared in accordance with Section 01001 - General Requirements as part of the actual work. The mock-up shall be a minimum of 3 m x 3 m (10 ft. x 10 ft.) in size.
2. The mock-up shall be prepared in accordance with Finish Areas designated by Consultant. Mock-up shall include typical window and door rough openings.
3. The Contractor shall not proceed with remaining work until workmanship and sequencing are approved by Consultant
4. The mock-up area shall be re-finished, as required, to produce acceptable work.
5. Approved mock-up shall become the accepted standard for all future work.

**1.4 Submittals****1.4.1**

Submittals are to be submitted under provisions of Section 01001 – General Requirements.

**1.4.2 Product Data**

The Manufacturer's data sheets on each product to be used shall include the following:

1. Preparation instructions and recommendations
2. Storage and handling requirements and recommendations
3. Installation methods
4. Air and water vapour permeance

**1.4.3 Verification Samples**

For each finish product specified, two samples, minimum size 100 mm x 500 mm (4" x 6").

**1.4.4**

The Contractor shall provide the Consultant with the Manufacturer's installation instructions and shall keep one (1) copy on site for reference by Consultant if requested.



**1.4.5**

If requested by the Consultant, the Contractor shall coordinate a Manufacturer's representative to visit the site and provide field visit/site visit reports.

**1.4.6**

The Contractor shall provide the Consultant with written confirmation from the Manufacturer regarding compatibility between installed product and adjacent sheathing membranes.

**1.4.7**

Prior to the commencement of work, the Manufacturer's complete set of standard details for the air barrier membrane systems (showing a continuous plane of "air-tightness" throughout the building envelope) shall be submitted to the Consultant.

**1.5 Product Delivery, Storage, and Handling****1.5.1**

Delivery to site shall not occur until installation is imminent and a sufficient protected staging area is available for on-site storage. The staging area shall be approved by the Owner.

**1.5.2**

Products shall be stored in the Manufacturer's unopened packaging until ready for installation.

**1.5.3**

Products shall:

1. Not be stored in direct contact with the ground
2. Be stored as specified by the Manufacturer (e.g. vertical or horizontal orientation)
3. Be stored under cover and kept dry

**1.5.4**

Store and dispose of solvent-based materials and materials used with solvent-based materials, in accordance with requirements of local Authority Having Jurisdiction.

**1.5.5**

Store adhesives and primers at a minimum temperature of 5°C or above the minimum temperature specified by the Manufacturer—whichever is higher.

**1.6 Project/Site Conditions****1.6.1 Environmental Requirements**

Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding:

1. Use, handling, storage, and disposal of hazardous materials
2. Labeling and provision of Material Safety Data Sheets acceptable to Workers' Compensation Board of British Columbia

**1.6.2**

Maintain environmental conditions (protection from elements, temperature, humidity and ventilation) within limits recommended by the Manufacturer for optimum results. Do not install products under environmental conditions outside of the Manufacturer's absolute limits.

**1.6.3**

No work shall be carried out under conditions of rain or snow.

**1.6.4**

Prior to commencing work, the Contractor shall ensure that forecasted meteorological conditions will permit work to be carried out without interruption during the day.

**1.6.5**

Installation shall not occur at a temperature below 5°C unless stated otherwise by the membrane Manufacturer. For Manufacturer's providing winter and summer grade products, ensure the appropriate membrane grade is installed during applicable climatic conditions.

**1.6.6**

Membranes shall be installed on dry substrates that are free of snow and ice. Only dry materials shall be used and applied only during weather that will not introduce moisture into membrane system.

**1.6.7**

If water penetrates through the assembly due to inadequate protection, the Contractor shall inspect the damages via exploratory openings, remove, replace, and re-install all materials at their own cost to eliminate water in the assembly.

**1.6.8**

The membrane shall be watertight at the end of each shift. All exposed leading edges shall be sealed at end of each work day.

**2.0 Products****2.1 Self-Adhesive Membrane****2.1.1 Typical Locations**

Shall consist of a modified bitumen prefabricated sheet, a self-adhesive face one side with release paper, and is reinforced with a high-density polyethylene surface film. The membrane shall meet the following minimum criteria:

1. Thickness: 1.0 mm (40 mils) minimum
2. Vapour impermeable
3. Acceptable products:
  - A. Sopraseal Stick 1100T by Soprema
  - B. Blueskin SA by Henry
  - C. PW-100/40 by Protecto Wrap
  - D. Alternatives as approved by the Consultant
4. Primer and sealant selected as recommended by membrane Manufacturer

**2.1.2 High-Temperature Locations**

High temperature membrane shall be installed under all cap flashing locations. Shall consist of a modified bitumen prefabricated sheet, a self-adhesive face one side with release paper, and is reinforced with high density polyethylene surface film. The membrane must meet the following minimum criteria:

1. Thickness: 1.0 mm (40 mils) minimum
2. Vapour impermeable
3. Acceptable products:
  - A. Sopraseal Stick 1100HT by Soprema
  - B. Blueskin SA HT by Henry
  - C. Jiffy Seal Ice and Water Guard HT by Protecto Wrap
4. Primer and sealant selected as recommended by membrane Manufacturer

**2.1.3 Primer, Surface Conditioners, and Sealant**

Shall be selected as recommended by membrane Manufacturer and be compatible with substrates and adjacent materials including but not limited to the following:

1. Metal substrates
2. Concrete which may contain release agents
3. Wood substrates to which preservative or fire-retardant treatment has been applied

**2.2 Metal Flashing**

Metal flashings shall be specified in accordance with Section 07 62 00 and the project drawings in order to fully conceal the membranes.

**3.0 Execution****3.1 Examination**

Prior to commencing installation, governing dimensions of the building and condition of substrate shall be verified. If substrate preparation is the responsibility of another installer, notify the Consultant of unsatisfactory preparation before proceeding. Proceeding with installation acknowledges acceptance of substrate.

**3.2 Preparation****3.2.1**

Examine, clean and repair as necessary any substrate conditions that would be detrimental to proper installation.

**3.2.2**

Do not begin installation until unacceptable conditions have been corrected.

**3.2.3**

Prepare surfaces using the methods recommended by the Manufacturer for achieving the best results for the substrate under the project conditions.

**3.2.4**

Clean all surfaces to receive membrane of all debris and oils.

**3.3 Installation****3.3.1**

The membrane shall be installed in accordance with Manufacturer's instructions.

**3.3.2**

Install primer to all substrates where membrane is to be applied in strict accordance with Manufacturer's instructions.

**3.3.3**

Wrinkles, fish-mouths, and air pockets in the sheets shall be minimized.

**3.3.4**

A mechanical roller shall be used to apply pressure throughout the membrane, ensuring complete adhesion to the substrate.

**3.3.5**

Side- and end-laps shall be completed in a shingle-fashion with a minimum overlap of 51 mm (2") or as specified by the Manufacturer or the project documents, whichever is greater.

**3.3.6**

If the membrane is to be installed as the air/vapour barrier of the building, the membrane shall be applied over the entire wall surface in a shingled-fashion, lapping horizontal joints a minimum of 51 mm (2") and vertical joints 76 mm (3"). Ensure all joints are water-tight.

**3.3.7**

Seal around items protruding or penetrating through the membrane using sealant approved by Manufacturer.

**3.3.8**

Seal membrane seams with sealant as directed by Manufacturer's recommendations or as directed by Consultant. As a minimum, seal upper-most edge of the membrane where not lapped by other flashing or waterproofing and all horizontal overlaps where a positive (shingle-style) overlap was not achieved

**3.3.9**

When terminating membrane onto concrete substrate, seal leading edge of membrane with compatible sealant as recommended by Manufacturer.

**3.3.10**

For locations where less than 2" lap onto concrete substrate is possible, provide termination bar along leading edge.

**3.3.11**

Ensure high temperature products are used below metal roof parapet cap flashings and other locations where potential for heat build-up is high.

Roof Replacement  
Duncan City Hall  
200 Craig St, Duncan, BC

**Self-Adhesive Roof Underlayment  
Membrane  
(Vapour-Impermeable)**

Section 07 25 10  
Project No. 2103427.00  
Issued for Tender

**3.3.12**

Where membrane is being installed over PVC materials, use a separator tape (as recommended by the PVC membrane Manufacturer).

**3.4 Field Quality Control****3.4.1**

The Manufacturer's technical representative shall visit the site during installation and provide written field reports to the Contractor for submission to Consultant, as requested.

**3.4.2**

All completed work shall be protected.

**3.4.3**

Touch-up, repair, or replace damaged materials prior to Substantial Completion.

**3.5 Clean-Up**

At completion of work, remove, and clean all excess primer from exposed finishes as per Manufacturer's recommendations. Remove all excess materials and debris from site and remove and dispose of all solvent based products in accordance with Authority Having Jurisdiction.

**1.0 General****1.1 Description**

The work in this section includes but is not limited to:

1. Synthetic slate shingles, underlayment, and fasteners.

**1.2 References**

1. ASTM-D226/D226M "Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing"
2. ASTM-D3161/D3161M "Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)"
3. ASTM-D3462/D3462M "Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules"
4. ASTM-E108 "Standard Test Methods for Fire Tests of Roof Coverings"
5. ASTM-G21 "Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi"
6. National Research Council Canada, Canadian Construction Materials Centre (NRCC CCMC) Evaluation Report 14094-R

**1.3 Quality Assurance****1.3.1**

The Contractor (Installer) shall have successfully completed similar work over a period of not less than three (3) years and, when required, shall submit supporting documentation.

**1.3.2**

A pre-installation conference with the Consultant and Installers shall be arranged 2 weeks prior to commencing the installation. If requested by the Consultant, the Manufacturer's representative shall be present.

**1.3.3 Mock-Up**

Provide a mock-up for the evaluation of surface preparation techniques, application workmanship, and general sequencing requirements. Further, the following apply:

1. The mock-up shall be prepared in accordance with Section 01001 - General Requirements as part of the actual work. The mock-up shall be a minimum of 8 x 8 feet and located where directed.
2. The mock-up shall contain shingles, underlayment, and related flashings.
3. The Contractor shall not proceed with the remaining work until the workmanship, sequencing, colour, gauge, and profiles are approved by the Consultant.
4. The mock-up area shall be re-finished, as required, to produce acceptable work.

Approved mock-up shall become the accepted standard for all future work.

**1.4 Submittals****1.4.1 Submittals**

1. Submit product data in accordance with Section 01001 – General Requirements.
  - a. Submit the Manufacturer's printed product literature, specifications, and datasheet.

- b. Submit WHMIS MSDS – Material Safety Data Sheets.
2. Submit the Manufacturer's product data, standard drawing details, and installation instructions for the system and individual components. The shop drawings are to bear the stamp of a qualified Professional Engineer registered in the Province of British Columbia.
3. Submit Schedule B-1 "Assurance of Professional Design and Commitment for Field Review" in accordance with the appropriate codes along with shop drawings.
4. Submit Schedule C-B "Assurance of Professional Field Review and Compliance" promptly on completion of work.
5. Upon project completion, submit the Manufacturer's warranties, including limitations and conditions.
6. Submit Manufacturer's product warranties.
7. Submit Shop Drawings that:
  - a. Indicate layout, profiles, and product components including anchorage, accessories, finish colours, and textures
  - b. Include details showing thickness and dimensions of the various system parts, fastening and anchoring methods, locations of joints and gaskets, and location and configuration of movement joints
  - c. Include references for wind load requirements

#### **1.4.2 Samples**

Submit two sets of color chips representing the manufacturer's full range of available colors and surface textures. After selection, submit two samples representing the actual product, color, and texture.

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

#### **1.5.1**

Delivery shall not occur until installation is imminent and a sufficient protected staging area is available for on-site storage. The staging area shall be approved by the Owner.

#### **1.5.2**

Ship shingles in bundles:

1. Collate in a sequence of widths and colors as required for the selected color blend.
2. Assemble bundles so that sorting at the job site is not required.

#### **1.5.3**

The products should be stored in the Manufacturer's unopened packaging until ready for installation.

#### **1.5.4**

Materials shall not be in contact with the ground when stored. The materials shall be stored on a smooth, level surface that is undercover to keep the product dry until installation.

#### **1.5.5**

Store products at a temperature required by manufacturer.

**1.5.6**

Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of authorities having jurisdiction.

**1.6 Project/Site Conditions****1.6.1 Environmental Requirements**

Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Workers' Compensation Board of British Columbia.

**1.6.2**

Maintain environmental conditions (protection from elements, temperature, humidity, and ventilation) within limits recommended by the Manufacturer for optimum results. Do not install products under environmental conditions outside of the Manufacturer's absolute limits.

**1.7 Warranty****1.7.1 Product Warranty**

The Owner shall be provided a Furnish Manufacturer's 50-year warranty against breakage and deterioration resulting in leaks under normal weather and use conditions.

**1.7.2 Workmanship Warranty**

The Owner shall be provided a Furnish Installer's 10-year total roof system warranty against water penetration, including underlayment, flashings, trim, and other roof components.

**2.0 Products****2.1 Manufacturers**

Basis of Design: DaVinci Roofscapes, LLC

**2.2 Materials****2.2.1 Performance Requirements**

1. Roof system: Manufactured synthetic shingles attached to the structural substrate to form weather tight roof envelope with no measurable water penetration.
2. Method of attachments designed to adequately resist wind uplift for roof configuration and Project location.
3. Meet minimum uplift resistance of 186 PSF with a 2:1 safety factor in accordance with TAS 125.

**2.3 Accessories****2.3.1 Flashing**

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

**2.3.2 Fasteners**

1. Material: All fasteners for synthetic slate panels are to be 316 stainless steel. Gauge, dimension, and profile as per structural requirements.



2. The use of nail guns is strictly prohibited.

### **2.3.3 Venting**

1. All roofing must be thoroughly vented to allow heat buildup and moisture to escape the attic space. Venting products are not covered by this specification.

## **3.0 Execution**

### **3.1 Examination**

Prior to commencing installation, governing dimensions of the building and condition of substrate shall be verified. Proceeding with installation acknowledges acceptance of substrate.

### **3.2 Preparation**

#### **3.2.1**

Examine, clean, and repair as necessary any substrate conditions that would be detrimental to proper installation.

#### **3.2.2**

Do not begin installation until unacceptable conditions have been corrected.

#### **3.2.3**

Inspect roof framing and substrate. Verify the following:

1. The roof is complete, rigid, and braced, and the deck members are securely fastened.
2. Proper ventilation has been provided for roof space.
3. The roof deck is clean, dry, and ready to receive shingles.
4. The roof surface is free of dirt, loose fasteners, and protrusions.

### **3.3 Installation**

Install waterproof sheet membrane over the full roof area.

1. Apply waterproof sheet membrane at temperatures recommended by the Manufacturer.
2. Adhere and attach as recommended by the manufacturer of waterproof sheet membrane.
3. Start underlayment installation at the lower edge of the roof. Install perpendicular to roof slope with minimum 4-inch (102 mm) side laps and minimum 6-inch (152 mm) end laps.
4. Extend underlayment minimum of 8 inches (204 mm) up vertical wall intersections.
5. Do not leave the underlayment membrane exposed in excess of the time limit required by the manufacturer. Do not puncture or tear the underlayment.

### **3.4 Flashing Installation**

#### **3.4.1**

Install drip edge on eaves, gable ends, and metal flashings at valleys, ridges, hips, roof curbs, penetrations, and intersections with vertical surfaces, in accordance with Section 07 62 00.

#### **3.4.2**

Weather lap joints minimum 2 inches (52 mm) and seal with sealant as specified in Section 07 92 00.

**3.4.3**

Secure in place with clips, nails, or other fasteners.

**3.5 Shingle Installation****3.5.1**

Install shingles in accordance with the manufacturer's instructions and approved Shop Drawings.

**3.5.2**

Install shingles so that breaks between shingles in adjacent courses are offset by 1-1/2 inches (38 mm).

**3.5.3**

Do not install shingles of the same color in contact or shingles of the same width side by side.

**3.5.4 Spacing**

Provide a 3/16-to-3/8-inch (4.76 to 9.5 mm) gap between shingles.

**3.5.5**

Stagger shingle joints in one course minimum 1-1/2 inches (38 mm) from joints in course below.

**3.5.6 Eaves**

1. Install a row of starter shingles at the eaves as a base layer.
2. Project eave shingles approximately 1 inch, as required to allow water to drain, or 1/8 inch (3 mm) past overhanging drip edge.

**3.5.7 Gables**

Project shingles approximately 3/4 inch (19 mm) beyond gable rakes or 1/8 inch (3 mm) past overhanging drip edge.

**3.5.8 Ridges and Hips**

1. After field shingle installation is complete, install a double row of shingles over 6-inch (152 mm) wide metal flashing.
2. Ridges: Use 7-inch (178 mm) wide shingles with 6-inch (152 mm) exposure. Start ridge shingles at the leeward end. Face shingle laps away from the prevailing wind.
3. Hips: Use 7-inch (178 mm) wide shingles with 6 inch (152 mm) exposure. Start hip course at eave.

**3.5.9 Fastening**

Attach each shingle to the deck with two nails:

1. Place nails at locations indicated on shingles.
2. Ensure full penetration but do not overdrive nails.

3. Do not nail at an angle.
4. Ensure that the nail head is flush with the shingle surface.
5. At valleys do not nail shingles within 5 inches (127 mm) of the valley center line.

**3.5.10**

Inspect units as they are installed. Do not install cracked, broken, twisted, curled, or otherwise damaged units.

**3.5.11**

As work progresses, exercise care not to scratch or mar installed shingles. Replace damaged shingles.

**3.5.12**

Visually inspect completed installation for weathertight condition.

**3.6 Field Quality Control****3.6.1**

Inspect units as they are installed. Do not install cracked, broken, twisted, curled, or otherwise damaged units.

**3.6.2**

As work progresses, exercise care not to scratch or mar installed shingles. Replace damaged shingles.

**3.6.3**

After approximately 200 units have been installed, inspect roof from ground. Verify proper layout and appearance. Repeat inspection every 200 shingles.

**3.6.4**

Visually inspect completed installation for weathertight condition.

**3.7 Protection****3.7.1**

Protect installed roofing until completion of Project.

**3.7.2**

Do not allow traffic on completed roof.

**3.8 Adjusting**

Replace damaged shingles prior to Substantial Completion.

**3.9 Provision of Additional Material**

Provide additional synthetic slate shingle for 5% of the roof area. Product to be delivered to site.

**3.10 Clean-Up**



Roof Replacement  
Duncan City Hall  
200 Craig St, Duncan, BC

**SYNTHETIC SLATE SHINGLES**

Section 07 31 39  
Project No. 2103427.00  
Issued for Tender

Remove all excess materials and debris from site and remove and dispose of all solvent-based products in accordance with Authority Having Jurisdiction.

**1.0 General****1.1 Description**

The work in this section includes but is not limited to:

1. Synthetic slate shingles, underlayment, and fasteners.

**1.2 References**

1. ASTM-D226/D226M "Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing"
2. ASTM-D3161/D3161M "Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)"
3. ASTM-D3462/D3462M "Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules"
4. ASTM-E108 "Standard Test Methods for Fire Tests of Roof Coverings"
5. ASTM-G21 "Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi"
6. National Research Council Canada, Canadian Construction Materials Centre (NRCC CCMC) Evaluation Report 14094-R

**1.3 Quality Assurance****1.3.1**

The Contractor (Installer) shall have successfully completed similar work over a period of not less than three (3) years and, when required, shall submit supporting documentation.

**1.3.2**

A pre-installation conference with the Consultant and Installers shall be arranged 2 weeks prior to commencing the installation. If requested by the Consultant, the Manufacturer's representative shall be present.

**1.3.3 Mock-Up**

Provide a mock-up for the evaluation of surface preparation techniques, application workmanship, and general sequencing requirements. Further, the following apply:

1. The mock-up shall be prepared in accordance with Section 01001 - General Requirements as part of the actual work. The mock-up shall be a minimum of 8 x 8 feet and located where directed.
2. The mock-up shall contain shingles, underlayment, and related flashings.
3. The Contractor shall not proceed with the remaining work until the workmanship, sequencing, colour, gauge, and profiles are approved by the Consultant.
4. The mock-up area shall be re-finished, as required, to produce acceptable work.

Approved mock-up shall become the accepted standard for all future work.

**1.4 Submittals****1.4.1 Submittals**

1. Submit product data in accordance with Section 01001 – General Requirements.
  - a. Submit the Manufacturer's printed product literature, specifications, and datasheet.

- b. Submit WHMIS MSDS – Material Safety Data Sheets.
2. Submit the Manufacturer's product data, standard drawing details, and installation instructions for the system and individual components. The shop drawings are to bear the stamp of a qualified Professional Engineer registered in the Province of British Columbia.
3. Submit Schedule B-1 "Assurance of Professional Design and Commitment for Field Review" in accordance with the appropriate codes along with shop drawings.
4. Submit Schedule C-B "Assurance of Professional Field Review and Compliance" promptly on completion of work.
5. Upon project completion, submit the Manufacturer's warranties, including limitations and conditions.
6. Submit Manufacturer's product warranties.
7. Submit Shop Drawings that:
  - a. Indicate layout, profiles, and product components including anchorage, accessories, finish colours, and textures
  - b. Include details showing thickness and dimensions of the various system parts, fastening and anchoring methods, locations of joints and gaskets, and location and configuration of movement joints
  - c. Include references for wind load requirements

#### **1.4.2 Samples**

Submit two sets of color chips representing the manufacturer's full range of available colors and surface textures. After selection, submit two samples representing the actual product, color, and texture.

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

#### **1.5.1**

Delivery shall not occur until installation is imminent and a sufficient protected staging area is available for on-site storage. The staging area shall be approved by the Owner.

#### **1.5.2**

Ship shingles in bundles:

1. Collate in a sequence of widths and colors as required for the selected color blend.
2. Assemble bundles so that sorting at the job site is not required.

#### **1.5.3**

The products should be stored in the Manufacturer's unopened packaging until ready for installation.

#### **1.5.4**

Materials shall not be in contact with the ground when stored. The materials shall be stored on a smooth, level surface that is undercover to keep the product dry until installation.

#### **1.5.5**

Store products at a temperature required by manufacturer.

**1.5.6**

Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of authorities having jurisdiction.

**1.6 Project/Site Conditions****1.6.1 Environmental Requirements**

Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Workers' Compensation Board of British Columbia.

**1.6.2**

Maintain environmental conditions (protection from elements, temperature, humidity, and ventilation) within limits recommended by the Manufacturer for optimum results. Do not install products under environmental conditions outside of the Manufacturer's absolute limits.

**1.7 Warranty****1.7.1 Product Warranty**

The Owner shall be provided a Furnish Manufacturer's 50-year warranty against breakage and deterioration resulting in leaks under normal weather and use conditions.

**1.7.2 Workmanship Warranty**

The Owner shall be provided a Furnish Installer's 10-year total roof system warranty against water penetration, including underlayment, flashings, trim, and other roof components.

**2.0 Products****2.1 Manufacturers**

Basis of Design: A2Z Polymers Inc, Virginia Slate

**2.2 Materials****2.2.1 General**

1. Roof system: Manufactured synthetic shingles attached to the structural substrate to form weather tight roof envelope with no measurable water penetration.
2. Method of attachments designed to adequately resist wind uplift for roof configuration and Project location.
3. Meet minimum uplift resistance of 186 PSF with a 2:1 safety factor in accordance with TAS 125.

**2.3 Related Materials****2.3.1 Flashing**

1. Refer to Section 07 62 00 - Sheet Metal Flashing and Trim
2. A metal starter strip (drip edge) is required to stop water from penetrating in beneath the slates.

**2.3.2 Fasteners**

1. Material: All fasteners for synthetic slate panels are to be 316 stainless steel. Gauge, dimension, and profile as per structural requirements.
2. The use of nail guns is strictly prohibited.

**2.3.3 Venting**

1. All roofing must be thoroughly vented to allow heat buildup and moisture to escape the attic space. Venting products are not covered by this specification.

**3.0 Execution****3.1 Examination**

Prior to commencing installation, governing dimensions of the building and condition of substrate shall be verified. Proceeding with installation acknowledges acceptance of substrate.

**3.2 Preparation****3.2.1**

Examine, clean, and repair as necessary any substrate conditions that would be detrimental to proper installation.

**3.2.2**

Do not begin installation until unacceptable conditions have been corrected.

**3.2.3**

Inspect roof framing and substrate. Verify the following:

1. The roof is complete, rigid, and braced, and the deck members are securely fastened.
2. Proper ventilation has been provided for roof space.
3. The roof deck is clean, dry, and ready to receive shingles.
4. The roof surface is free of dirt, loose fasteners, and protrusions.

**3.3 Installation**

Install waterproof sheet membrane over the full roof area.

1. Apply waterproof sheet membrane at temperatures recommended by the Manufacturer.
2. Adhere and attach as recommended by the manufacturer of waterproof sheet membrane.
3. Start underlayment installation at the lower edge of the roof. Install perpendicular to roof slope with minimum 4-inch (102 mm) side laps and minimum 6-inch (152 mm) end laps.
4. Extend underlayment minimum of 8 inches (204 mm) up vertical wall intersections.
5. Do not leave the underlayment membrane exposed in excess of the time limit required by the manufacturer. Do not puncture or tear the underlayment.

**3.4 Flashing Installation****3.4.1**

Install drip edge on eaves, gable ends, and metal flashings at valleys, ridges, hips, roof curbs, penetrations, and intersections with vertical surfaces, in accordance with Section 07 62 00.



**3.4.2**

Weather lap joints minimum 2 inches (52 mm) and seal with sealant as specified in Section 07 92 00.

**3.4.3**

Secure in place with clips, nails, or other fasteners.

**3.5 Shingle Installation****3.5.1**

Install shingles in accordance with the manufacturer's instructions and approved Shop Drawings.

**3.5.2 Spacing**

Spacing beside each slate of 3/16" (5 mm) is to be maintained, the engineered spacer tabs located on the sides of the slates ensure proper spacing.

**3.5.3**

Do not install shingles of the same color in contact or shingles of the same width side by side.

**3.5.4 Eaves**

1. Install a row of starter shingles at the eaves as a base layer.
2. Install these 12" x 12" (30.5 x 30.5 cm) slates in a straight line along the edge of the roof leaving 3/16" (4.75 mm) spacing between them.
3. Project eave shingles approximately 1 inch, as required to allow water to drain, or 1/8 inch (3 mm) past overhanging drip edge.

**3.5.5 Gables**

Project shingles approximately 3/4 inch (19 mm) beyond gable rakes or 1/8 inch (3 mm) past overhanging drip edge.

**3.5.6 Ridges and Hips**

1. After field shingle installation is complete, install a double row of shingles over 6-inch (152 mm) wide metal flashing.
2. Ridges: Use 7-inch (178 mm) wide shingles with 6-inch (152 mm) exposure. Start ridge shingles at the leeward end. Face shingle laps away from the prevailing wind.
3. Hips: Use 7-inch (178 mm) wide shingles with 6 inch (152 mm) exposure. Start hip course at eave.

**3.5.7 Fastening**

Attach each shingle to the deck with two nails:

1. Nails are to be installed into the divots located on the slates.
2. Two secondary nails will be installed from the next row of slates that overlap.
3. Ensure full penetration, but do not overdrive nails.
4. Do not nail at an angle.

5. Ensure that the nail head is flush with the surface.
6. At valleys do not nail shingles within 5 inches (127 mm) of the valley center line.

**3.5.8**

Inspect units as they are installed. Do not install cracked, broken, twisted, curled, or otherwise damaged units.

**3.5.9**

As work progresses, exercise care not to scratch or mar installed shingles. Replace damaged shingles.

**3.5.10**

Visually inspect completed installation for weathertight condition.

**3.6 Field Quality Control****3.6.1**

Inspect units as they are installed. Do not install cracked, broken, twisted, curled, or otherwise damaged units.

**3.6.2**

As work progresses, exercise care not to scratch or mar installed shingles. Replace damaged shingles.

**3.6.3**

After approximately 200 units have been installed, inspect roof from ground. Verify proper layout and appearance. Repeat inspection every 200 shingles.

**3.7 Protection****3.7.1**

Protect installed roofing until completion of Project.

**3.7.2**

Do not allow traffic on completed roof.

**3.8 Adjusting**

Replace damaged shingles prior to Substantial Completion.

**3.9 Provision of Additional Material**

Provide additional synthetic slate shingle for 5% of the roof area. Product to be delivered to site.

**3.10 Clean-Up**

Remove all excess materials and debris from site and remove and dispose of all solvent-based products in accordance with Authority Having Jurisdiction.

**1.0 General****1.1 Description**

The work in this section includes but is not limited to the:

1. Installation of new recovery board.
2. Installation of new two-ply modified bitumen (SBS) membrane.
3. Installation of new roof drains
4. Installation of overflow scuppers
5. Installation of new flashings

**1.2 References**

1. CSA-A123.4 "Asphalt for Use in Construction of Built-Up Roof Coverings and Waterproofing Systems"
2. CGSB-37-GP-56M "Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing"
3. CGSB-37-GP-15M "Application of Asphalt Primer for Asphalt Roofing, Dampproofing and Waterproofing"
4. Roofing Contractors' Association of British Columbia (RCABC), Roofing Practices Manual. Where the word "should" is used, it shall read as "shall".
5. Membranes must meet or exceed requirements of ASTM D6162, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fibre Reinforcements. Composite membranes shall have glass yarns in both machine and cross directions.
6. CSA-A123.21-10 "Standard Test Method for the Dynamic Wind Uplift Resistance of Mechanically Attached Membrane-roofing Systems"

**1.3 Quality Assurance****1.3.1**

The Contractor, including the site supervision and crew (Installers), shall have roofing trade certification and have a minimum of five (5) years experience in roofing work similar in nature and scope to the specified roofing. Qualifications may be reviewed prior to award of contract or on-site by the Inspector.

**1.3.2**

The Contractor shall provide written certification from the membrane Manufacturer certifying that the Installer is approved by the Manufacturer for installation of the specified system and supply of the required guarantee documents. The Installers shall be experienced in the application of the materials and shall supply job references to show modified bitumen installation experience of similar size and scope to this project.

**1.3.3**

A pre-installation conference with the Consultant and Installers shall be arranged prior to commencing the installation. If requested by the Consultant, the Manufacturer's representative shall be present.

**1.3.4**

The surfaces to which membrane is to be applied shall be confirmed to be in a condition suitable for the application. The commencement of roofing or flashing will imply unconditional acceptance by the Installer of the surfaces to receive work in this section.

**1.3.5**

Unless otherwise specified, the Installer shall comply with the Manufacturer's latest printed instructions for materials and installation methods.

**1.3.6**

Notify the Consultant in writing of any conflict between these specifications and the Manufacturer's instructions. The Consultant shall designate which document is to be followed.

**1.3.7**

Primary materials shall be sourced from a single Manufacturer which has produced that type of product and system successfully for not less than five (5) years. Project references shall be submitted at the request of the Owner. All accessory materials shall be only as recommended or accepted by the primary Manufacturer.

**1.3.8 Mock-Up**

Provide a mock-up for the evaluation of surface preparation techniques, application workmanship, and general sequencing requirements. Further, the following apply:

1. The mock-up shall be prepared in accordance with Section 01001 - General Requirements as part of the actual work. The mock-up shall be a minimum of 3 m x 3 m (10 ft. x 10 ft.) in size.
2. The mock-up shall be prepared in accordance with Finish Areas designated by the Consultant. Mock-up shall include typical window and door rough openings.
3. The Contractor shall not proceed with the remaining work until workmanship and sequencing are approved by the Consultant
4. The mock-up area shall be re-finished, as required, to produce acceptable work.
5. Approved mock-up shall become the accepted standard for all future work.

**1.4 Laboratory Testing****1.4.1**

If requested by the Consultant, the Manufacturer is to provide, at no cost, the results of tests and chemical analysis on the materials supplied.

**1.4.2**

Tests shall be conducted in conformance to CGSB 37-GP-56M "Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing".

**1.5 Mock-Up**

If requested by the Consultant, the Contractor shall prepare a mock-up of the assembly. The mock-up shall be a minimum of 3 m x 3 m (10 ft. x 10 ft.) in size and shall include horizontal to vertical tie-ins and all associated metal flashing.

**1.6 Environmental Requirements****1.6.1**

No work shall be carried out under conditions of rain or snow.

**1.6.2**

Prior to commencing work, the Contractor shall ensure the forecasted meteorological conditions shall permit work to be carried out without interruption throughout the day.

**1.6.3**

For heat-weld-applied membranes, the membrane shall not be installed when the temperature (including accounting for the wind chill factor) is below 5°C, or at the minimum temperature recommended by the Manufacturer, whichever is higher.

**1.6.4**

For fully-adhered membranes, the membrane shall not be installed when the temperature (including accounting for the wind chill factor) is below -5°C, or at the minimum temperature recommended by the Manufacturer, whichever is higher.

**1.6.5**

The membrane shall be installed when dry on a dry substrate that is free of snow and ice and only during weather that will not introduce moisture into the waterproofing system.

**1.6.6**

Areas of work, including wall areas, shall be protected from moisture ingress at the end of each working day or interruption in work. If water penetrates through the assembly due to inadequate protection, the Contractor shall cut and inspect damages, remove, replace, and re-install all materials at their own cost to eliminate the water in the assembly.

**1.7 Protection****1.7.1**

A minimum of one 4A40BC fire extinguisher (with current charge tags intact) shall be on-site per heat-weld-applied membrane roof. An extinguisher shall always be within 6 m (20 ft.) of an operating torch. The Installer shall be able to demonstrate verbal competence in the use of the extinguisher upon the request of the Consultant. The project may be delayed or shut down for non-compliance.

**1.7.2**

It is not recommended to store any material or equipment within 30 m (100 ft.) of the building when the roofing Installer is not on site.

**1.7.3**

A fire watch shall extend for one (1) hour after the torch has been turned off.

**1.8 Warranty****1.8.1**

The Contractor shall provide a standard warranty period of ten (10) years (minimum, non-prorated) for labour and materials.

**1.8.2**

The Contractor shall ensure the Owner is provided a material warranty from the Manufacturer for a period of fifteen (15) years (minimum, non-prorated) from the date of installation guaranteeing a waterproof surface. The warranty shall cover both material and workmanship and shall not exclude random areas of ponding from coverage.

**1.9 Compatibility**

When required by the Consultant, the Contractor shall provide the Consultant written declaration from the Manufacturer stating that materials and components, as assembled in the system, are compatible.

**1.10 Manufacturer's Representative****1.10.1**

At the request of the Consultant, the Manufacturer's representative shall visit the site and provide the Consultant a written report of their observations noted. This shall be completed at no additional cost to the Owner.

**1.10.2**

Contractor shall permit and facilitate access to the site, at all times, for the above-mentioned Manufacturer's representative.

**2.0 Products****2.1 Waterproofing Membrane****2.1.1 Base Sheet**

Base sheet and base sheet stripping: high-performance self-adhered modified bitumen base ply designed for use in homogeneous multi-layer modified bitumen roof membrane systems that consists of a lightweight random fibrous glass mat coated with elastomeric Styrene-Butadiene-Styrene (SBS) modified bitumen and a back surface with factory-applied heat-activated adhesive strips. Acceptable products:

1. Siplast – Paradiene 20 SA
2. Soprema – Sopralene Flam Stick
3. Siplast IKO – Armourbond Flash
4. Alternatives as approved by the Consultant

**2.1.2 Cap Sheet**

Cap sheet and cap sheet stripping, Torched cap: high-performance modified bitumen finish ply designed for use in multi-layer modified bitumen roof membrane systems that consists of fiberglass scrim/polyester mat composite coated with high-quality Styrene-Butadiene-Styrene (SBS) modified bitumen and surfaced with ceramic granules. Acceptable product:

1. Siplast – Paradiene 30 TG
2. Soprema – Sopralene Flam 180
3. IKO – TorcTP 180 FF
4. Alternatives as approved by the Consultant

**2.1.3 Liquid-Applied Membrane**

Liquid-applied membranes shall consist of a minimum of two layers of polyurethane with bitumen resins encapsulating a layer of polyester fleece or a minimum of two layers of catalyst-activated PMMA resin combined with needle-punched polyester fleece fabric. Liquid membrane shall be compatible with SBS roofing (and approved by the SBS membrane Manufacturer). Acceptable products include:

1. Soprema Alsan RS 230
2. Siplast Parapro 123 Flashing Resin
3. Alternatives as approved by the Consultant

**2.1.4 Accessories****2.1.4.1 Primer**

All primers used shall be approved by the roofing Manufacturer.

#### **2.1.4.2 Sealant**

Acceptable products include:

1. AC Products Flexible Seal
2. Alternatives as approved by the Consultant

#### **2.1.4.3 High-Temperature Sealant**

High-temperature sealant shall be a single component silicone with a neutral cure. Acceptable materials include:

1. Tremco Tremstop Fyre-Sil
2. Alternatives as approved by the Consultant

#### **2.1.4.4 Mastics**

All mastics used shall be approved by the roofing Manufacturer.

#### **2.1.4.5 Recovery Board**

Acceptable materials include:

1. Soprema Sopraboard adhered with Duotack adhesive
2. IKO Protectoboard adhered with Parafast adhesive
3. Alternatives as approved by the Consultant

#### **2.1.4.6 Fire Tape**

All fire tape used shall be approved by the roofing Manufacturer.

### **2.2 Roofing Accessories**

#### **2.2.1 Roof Drains**

Roof drains shall be Menzies Metal Products' Commercial Spun Copper Drain or an equivalent product approved by the Consultant. The drain shall include a mechanically-fastened, spun aluminum strainer and a U-flow connection to the existing rainwater leader (downspout) or drainpipe.

#### **2.2.2 Wall Overflow Scuppers**

Wall overflow scuppers shall be in accordance with Table 8.3.6, Page 3 of the RCABC Roofing Practices Manual. The scuppers shall be adequately long to penetrate the parapet wall.

#### **2.2.3 Scupper Drains**

Scupper drains shall be Menzies Metal Products' Clamp-Tite Copper Box Scupper, or an equivalent product approved by the Consultant.

### **3.0 Execution**

#### **3.1 Workmanship**

##### **3.1.1**

Waterproofing work shall be completed in accordance with the RCABC Roofing Practices Manual.

### **3.1.2**

Priming for asphalt waterproofing shall be completed in accordance with CGSB-37-GP-15M “Application of Asphalt Primer for Asphalt Roofing, Damproofing, and Waterproofing”.

### **3.1.3**

Waterproofing elements shall be installed on an on clean, dry substrate in accordance with the Manufacturer's instructions.

### **3.1.4**

Waterproofing work shall be scheduled and performed in a sequence such that no component of the assembly is left unprotected when operations are interrupted.

## **3.2 Equipment**

All equipment and tools shall be maintained and in good working order. For torch-applied membranes, the torch and fuel type shall be those which are specified by the Manufacturer of the related membrane.

## **3.3 Removal**

All existing materials required to install new waterproofing membrane(s) shall be removed, as shown on the drawings. This may include all existing metal flashings, overburden, membrane flashing, and membrane—down to the existing substrate. While completing the removal of the previous watertight layer(s), a watertight condition shall be maintained.

## **3.4 Roof Sheathing**

Roof sheathing shall be fastened in accordance with the Manufacture's requirements. Installation shall be completed in conformance with CSA A123.21-10. Data sheets with installation requirements shall be submitted by the Contractor to the Consultant.

## **3.5 Overlay Board**

Install overlay boards over the existing or new insulation as shown on drawings. Mechanically attach using metal plates and screws or adhere in accordance with the Manufacturer's instructions, to cover the entire roof to receive the roofing membrane. Tape all joints.

## **3.6 Membrane**

The waterproofing membrane shall be installed as follows:

1. Installation of base sheet:
  - .1 Base sheet membrane shall be unrolled dry on deck for alignment.
  - .2 Base sheet shall be unrolled starting from the low point of the roof. Base sheet shall be re-rolled from both ends. Care must be taken to ensure good alignment of the first roll (parallel with the edge of the roof).
  - .3 Base sheet shall be self-adhered in accordance with recommendations of the membrane manufacturer.
  - .4 Base sheet shall have side laps of 75 mm and end laps 150 mm.
  - .5 Heat seal all joints and overlaps.
  - .6 Application shall provide a smooth surface without air pockets, wrinkles, fish-mouths or tears.
  - .7 After installation of the base sheet, check all lap seams on the base sheet.



2. Installation of base sheet stripping:
  - .1 Primer coating must be dry before application of the base sheet stripping.
  - .2 Base sheet stripping shall be laid in strips one meter wide to vertical surfaces, extending on to the flat surface of the roof a minimum of 100mm. Side laps shall be 75mm and shall be staggered a minimum of 100mm with the laps of the base sheet.
  - .3 Base sheet stripping shall be self-adhered directly on its support from bottom to top.
  - .4 Gussets shall be installed at all inside and outside corners, included sumps.
  
3. Installation of cap sheet:
  - .1 Once the base sheet and stripping have been applied and do not show any defects, the cap sheet can then be laid.
  - .2 Cap sheet shall be unrolled starting from the low point on the roof. Cap sheet shall be re-rolled from both ends prior to torch-adhering. Care must be taken to ensure alignment of the first roll (parallel with the edge of the roof).
  - .3 Cap sheet shall be self-adhered in accordance with the recommendations of the membrane manufacturer, to the base sheet membrane.
  - .4 Care must be taken not to burn the membranes and their respective reinforcements.
  - .5 Base and cap sheet seams shall be staggered at a minimum of 300 mm.
  - .6 Cap sheet shall have side laps of 75 mm and end laps of 150 mm.
  - .7 Make sure the two membranes are properly adhered to, without air pockets, wrinkles, fish mouths, or tears.
  - .8 After installation of the cap sheet, check all lap seams on the cap sheet.
  
4. Installation of cap sheet stripping:
  - .1 Cap sheet stripping shall be laid in strips one meter wide. Side laps shall be 75mm, and shall be staggered a minimum of 100mm from cap sheet laps in order to avoid excessive thickness.
  2. Using a chalk line, lay out a straight line on the cap sheet surface, parallel to the roof edge, 200mm inside the roof, from the base of the wall.
  3. Cap sheet stripping shall be torched and fully adhered directly on its base sheet.
  4. Cap sheet stripping shall be applied to extend down the outside face of the exterior edge, across the top of the parapet, down the interior vertical surface, and onto a flat roof at a distance of 150mm. Cut roll into required lengths and use the width of the roll (1 meter) down the length of the roof, maintaining specified 75mm side laps.
  
5. Cap sheet seams:
  - A. Install two layers of Soprema Alsan RS (or equivalent as approved by the Consultant) at all cap sheet membrane seams.

### **3.7 Sealing**

Sealant shall be applied where shown and/or required by common roofing practice. Perform sealing in compliance with the workmanship, preparation, and application requirements specified.

### **3.8 Field Quality Control**

#### **3.8.1**

The roofing Installer shall notify the Manufacturer of the commencement of roofing.

**3.8.2**

The Manufacturer may provide periodic inspections during roofing applications, as required.

**3.8.3**

Cut tests to confirm adhesion shall be completed as directed by the Consultant.

**3.8.4**

The roofing Installer is required to notify the Manufacturer at the base sheet stage of application and shall not proceed with application of cap sheet until base sheet application has been approved, in writing, by Manufacturer and Consultant.

**3.8.5**

The Manufacturer shall be notified upon completion of the roofing and shall complete a final inspection before the guarantee is issued.

**3.8.6**

Deficiencies apparent upon final inspection shall be corrected to the satisfaction of Manufacturer prior to the guarantee being issued.

**1.0 General****1.1 Description**

The work in this section includes but is not limited to:

1. Flashings throughout the synthetic slate roofing system. All flashings to match current profiles.
2. Metal cap flashing over curbs and parapets
3. Metal vents
4. General flashings shown on the drawings

Note: Refer to Section 2.0 Products:

- a. Zinc-coated steel sheets shall be pre-finished with factory-applied fluoropolymer (PVDF) – Base Bid Material
- b. Cold-rolled sheet copper - Alternative Price #2

**1.2 References**

1. CSSBI-S8 “Quality and Performance Specification for Pre-Finished Sheet Steel Used for Building Products”
2. ASTM-A924/A924M “Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process”
3. ASTM-B32 “Standard Specification for Solder Metal”
4. ASTM-B69 “Standard Specification for Rolled Zinc”
5. ASTM-B370 “Standard Specification for Copper Sheet and Strip Building Construction”
6. ASTM-D822 “Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and related Coatings”
7. CSA-B111 “ Wire Nails, Spikes and Staples”
8. CAN/CGSB-93.1M “ Sheet Aluminum Alloy, Pre-Finished, Residential”
9. CAN/CGSB-1.171 “inorganic Zinc Coating”
10. ASTM-A653/A653M “Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process”
11. Aluminum Association Designation System for Aluminum Finishes
12. Aluminum Association Aluminum Sheet Metal Work in Building Construction
13. CSSBI-20M “Standard for Sheet Steel Cladding for Architectural Industrial and Commercial Building Application”
14. Roofing Practices Manual, Roofing Contractors Association of British Columbia (RCABC)

**1.3 Quality Assurance****1.3.1**

The Contractor (Installer) shall have successfully completed similar work over a period of not less than five (5) years and, when required, shall submit supporting documentation.

**1.3.2**

A pre-installation conference with the Consultant and Installers shall be arranged prior to commencing the installation. If requested by the Consultant, the Manufacturer’s representative shall be present.

**1.3.3 Mock-Up**

Provide a mock-up for the evaluation of surface preparation techniques, application workmanship, and general sequencing requirements. Further, the following apply:

1. The mock-up shall be prepared in accordance with Section 01001 - General Requirements as part of the actual work. The mock-up shall be a minimum of 300 mm (12 in.) in length.
2. The mock-up shall contain trim, stops, and closures
3. The Contractor shall not proceed with remaining work until the workmanship, sequencing, colour, gauge, and profiles are approved by Consultant
4. The mock-up area shall be re-finished, as required, to produce acceptable work
5. Approved mock-up shall become the accepted standard for all future work

## **1.4 Submittals**

### **1.4.1**

Submittals are to be submitted under provisions of Section 01001 – General Requirements.

### **1.4.2 Product Data**

The Manufacturer's data sheets on each product to be used shall include the following:

1. Product finish and gauge
2. Storage and handling requirements and recommendations
3. Installation methods

### **1.4.3 Verification Samples**

For each specified profile, a 300 mm (12 in.) sample shall be submitted to the Consultant as well as samples of all related accessories and fasteners.

### **1.4.4**

The Contractor shall provide the Consultant with the product Manufacturer's product maintenance data and guidelines.

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

### **1.5.1**

Delivery to site shall not occur until installation is imminent and a sufficient protected staging area is available for on-site storage. The staging area shall be approved by the Owner.

### **1.5.2**

Products shall be stored in the Manufacturer's unopened packaging until ready for installation.

### **1.5.3**

Products shall:

1. Not be stored in direct contact with the ground
2. Be stored as specified by the Manufacturer
3. Be stored under cover and kept dry

## **1.6 Project/Site Conditions**

### **1.6.1 Environmental Requirements**

Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding:

1. Use, handling, storage, and disposal of hazardous materials
2. Labeling and provision of Material Safety Data Sheets acceptable to Workers' Compensation Board of British Columbia

## **1.7 Warranty**

### **1.7.1 Product Warranty**

The Owner shall be provided a Manufacturer's limited product warranty against manufacturing defects for a period of not less than five (5) years from the date of Substantial Completion.

### **1.7.2 Finish Warranty**

The Owner shall be provided a Manufacturer's limited product warranty against manufacturing finish defects for a period of not less than ten (10) years from the date of Substantial Completion. This guarantee includes peeling, fading, corrosion, and the cost of labour and materials.

### **1.7.3 Workmanship Warranty**

The Owner shall be provided an application workmanship limited warranty for a period of not less than two (2) years from the date of Substantial Completion.

## **2.0 Products**

### **2.1 Pre-Finished Zinc-Coated Steel Sheet Coating - Base Bid**

Zinc-coated steel sheets shall be pre-finished with factory-applied fluoropolymer (PVDF) with the following specifications:

1. Supplier – Old Country Millwork Inc. Patina Green or alternative approved by the Consultant.
2. Specular gloss shall be 30 units  $\pm$  5 in accordance with ASTM-D523 "Standard Test Method for Specular Gloss"

### **2.2 Copper Flashing – Alternative Price #2**

Cold-rolled sheet copper (H00), complying with ASTM B370, CDS 2B (bright) finish, 16 ounces per Sq. Ft. (0.0216" thick) except as otherwise indicated.

## **2.3 Accessories and Fasteners**

### **2.3.1 Isolation Coating**

Isolation coatings shall consist of alkali-resistant bituminous paint.

### **2.3.2 Pop Rivets**

Pop rivets shall consist of the same material as the sheet metal and be of a length and thickness suitable for the application.

### **2.3.3 Fasteners**

Fasteners shall be:

1. Of the same material as the metal used.
2. In conformance with CSA-B111 "Wire Nails, Spikes and Staples"

3. Ring thread flat head roofing nails of length and thickness suitable for metal flashing application

**2.3.4 Washers**

Washers shall be of the same material as the sheet metal, shall be 1 mm thick with rubber packings

**2.3.5 Solder**

Solder shall conform with ASTM-B32 "Standard Specification for Solder Metal".

**2.3.6 Flux**

Flux shall be rosin, cut hydrochloric acid, or commercial preparation suitable for the materials to be soldered.

**2.3.7 Touch-Up Paint**

Touch-up paint shall be specified as is recommended by the pre-finished material Manufacturer.

**2.4 General Fabrication****2.4.1**

Metal flashings and other sheet metal work shall be fabricated in accordance with the applicable RCABC details and as indicated on the drawings.

**2.4.2**

Pieces shall be formed in 2.4 m (8 ft.) maximum lengths. Allowances for expansion at joints shall be implemented.

**2.4.3**

Form sections square, true, and accurate to size, free from distortion and other defects detrimental to appearance or performance.

**2.4.4**

Hem exposed edges on the underside 12 mm (3/8 in.).

**2.4.5**

Return the finished side at the underside to conceal any unfinished underside at all exposed, visible locations.

**2.5 Metal Flashing****2.5.1**

All concealed flashing shall be formed from 26-gauge sheet metal to profiles indicated on the drawings.

**2.5.2**

All exposed flashing, coping, and fascia shall be formed from 24-gauge to profiles indicated on the drawings.

**2.5.3**

All window head and sill flashing shall be from a single piece.

**2.5.4**

Form all exposed flashing in contact with vinyl deck membranes from 24-gauge, pre-finished steel with polyvinyl chloride coating to profiles as indicated on drawings.

**2.5.5**

Return the finished side at the underside to conceal the unfinished underside at all exposed, visible locations.

**2.5.6**

All parapet wall flashings shall be terminated with a hook strip.

**2.6 Typical Vents****2.6.1**

All metal vents shall be formed from 24-gauge, pre-finished steel sheets with factory-applied fluoropolymer (PVDF) coating to profiles indicated on the drawings.

**2.6.2**

All corners and connections shall be soldered.

**3.0 Execution****3.1 Examination**

Prior to commencing installation, governing dimensions of the building and condition of substrate shall be verified. If substrate preparation is the responsibility of another installer, notify the Consultant of unsatisfactory preparation before proceeding. Proceeding with installation acknowledges acceptance of substrate.

**3.2 Preparation****3.2.1**

Examine, clean, and repair any substrate conditions that would be detrimental to proper installation.

**3.2.2**

Installation shall not begin until unacceptable conditions have been corrected.

**3.2.3**

Prepare surfaces using the methods recommended by the Manufacturer for achieving the best results for the substrate under the project conditions.

**3.3 General Installation**

General installation shall include the following:

1. Install sheet metal work in accordance with RCABC details, and Aluminum Sheet Metal Work in Building Construction as detailed
2. Use concealed fastenings except where approved before installation

3. Provide underlay under the sheet metal, secure in place, and lap the joints 100 mm (4 in.), minimum

**3.4 Flashing****3.4.1 S-Locks or Standing Seams**

Joints shall be connected with S-locks or standing seams, forming tight fits over hook strips.

**3.4.2 Sealant Application**

Sealant shall be installed at all joints that are not directly over a self-adhesive membrane counter flashing.

**3.4.3 End Joints**

End joints shall be locked and caulked with sealant.

**3.4.4 End-Dams****3.4.4.1**

Flashing end-dams shall be soldered or continuously folded end-dams with safety edges. Folded end-dams shall be completed in a fashion to eliminate pin hole penetrations.

**3.4.5 Hook Strips**

Hook strips shall be utilized at all parapet wall flashing terminations.

**3.5 Field Quality Control****3.5.1**

The Manufacturer's technical representative shall visit site during installation and provide written field reports to the Contractor for submission to the Consultant as requested.

**3.5.2**

All completed work shall be protected.