

**Parks Canada**

**Prince of Wales Tower  
Halifax, N.S.**

**New Roof**

**SPECIFICATION**

**ISSUED FOR TENDER**

**27 November 2015**



This document is the document referred to as Plans and Specifications and marked "A" in the Articles of Agreement.

**Specifications:**

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## **PART 1 - GENERAL**

### **1.1 DESCRIPTION OF WORK**

- .1 Work under this contract covers upgrades to the Prince of Wales Tower at Point Pleasant Park. Prince of Wales Tower New Roof, Point Pleasant Park, Halifax, NS. The tower is approximately 200 years old and part of the historic defence installations that protected Halifax Harbour. It is owned and managed by Parks Canada, while Point Pleasant Park is owned and managed by the City of Halifax.
- .2 Provision of new roof over existing masonry Prince of Wales Tower.
- .3 Replacement of existing screens with metal louvres and covers.
- .4 Miscellaneous repairs to existing wood doors.
- .5 Provide and maintain scaffolding, hoarding, ramps, ladders, swing staging, platforms, hoists, cranes and temporary stairs to complete the Work.
- .6 Provide vented plate on main entrance door and at window as indicated.
- .7 Provide temporary lighting string as indicated. Lighting string to remain.
- .8 Provide temporary protective hoarding fence, minimum of 6'-0" high to surround entire work area.
- .9 The Prince of Wales Tower is a National Historic Site. Protect Prince of Wales Tower and surrounding area from damage due to construction activities on the site. Contractors are to take the utmost care in executing the Work. No damage to the Tower as a result of the Work is acceptable. Any damage which occurs to adjacent assets or surfaces shall be repaired at the Contractor's cost.
- .10 The Contractor shall be deemed to have visited the site and examined all assets and to have become fully familiar with all conditions relative to carrying out the work. There shall be no consideration given to claims resulting from the Contractor's failure to carry out sufficient site investigations prior to tendering of the work.

### **1.2 CONTRACT METHOD**

- .1 Construct the Work under a Stipulated Sum contract.

### **1.3 CONTRACTOR'S USE OF SITE**

- .1 The site is located at the Point Pleasant Park. Use of the site shall be limited to surrounding area of the tower. The contractor shall liaise with Parks regarding acceptable times and usage of the site, roads, etc. It shall be the Contractor's responsibility to arrange for all required transportation of men, equipment and materials to the site. Contractor to take into
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consideration that there will be pedestrians and dogs at the site area, as well as HRM maintenance vehicles when providing site safety.

- .1 The Park is open from 5:00 a.m. to 12:00 a.m.
  - .2 The Park issues vehicle permits and keys to the site.
  - .3 Limit number of vehicles on park roads.
  - .4 Work to take place on weekdays, not on holidays or weekends without written permission from Department Representative.
  - .5 The Contractor shall submit a Traffic Control Plan prior to mobilizing to the site for review and approval. All signage shall be symbolic or bilingual.
  - .6 All deliveries to be escorted by contractor personnel, and should be done off peak hours to avoid high levels of pedestrians.
  - .7 Contractor to confirm equipment can assess the site prior to tender closing. Any tree trimming required will have to be approved by HRM and department representative and done at contractor's expense. All work to adhere to HRM by-laws and required permits.
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- .2 Do not unreasonably encumber site with materials or equipment.
  - .3 Move stored products or equipment which interfere with operations of Parks Canada.
  - .4 Obtain and pay for use of additional storage or work areas needed for operations.
  - .5 Provide all barriers, signs, enclosures, etc. to ensure safety of the public or other parties on the site.
  - .6 Contractor to do Work within the temporary hoarding fence as established around the construction area and building.
  - .7 Contractor is responsible for restoring any grass disturbed or damaged during work of this contract adjacent the building site.
  - .8 Control all sediment run off resulting from construction.
  - .9 The Prince of Wales Tower is a National Historic Site. Contractors are to take the utmost care in executing the Work; no damage to the Tower as a result of the Work is acceptable.
  - .10 There is no electrical power or washroom facilities available onsite, contractor to supply as required.

#### **1.4 DOCUMENTS REQUIRED**

- .1 Maintain at job site, one copy each of following:
    - .1 Contract drawings
    - .2 Contract Specifications.
    - .3 Addenda.
    - .4 Reviewed shop drawings.
    - .5 Change orders.
    - .6 Other modifications to Contract.
    - .7 Field test reports.
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- .8 Copy of approved work schedule
- .9 Manufacturers' installation and application instructions.
- .10 Record drawings (kept up to date on a daily basis)
- .11 Site Specific Safety Plan
- .12 Contractor to maintain a photo record of the progress on the project with labels and will submit to Departmental Representative upon completion. (minimum of 10 photos per week)

## 1.5 PRODUCTS

- .1 Contractor's duties:
  - .1 Order products specified from designated suppliers. Order in quantities and at times compatible with construction schedule and site storage capacity.
  - .2 Transport, unload and handle at site.
  - .3 Promptly inspect delivered products, and give written report to the Departmental Representative on condition of all items received.
  - .4 Pay demurrage charges.
  - .5 Install, connect and finish products as specified.

## 1.6 SECURITY AND SAFETY

- .1 General Contractor's Responsibilities:
  - .1 The general contractor to assume total responsibility for security of the construction area described in this contract for all construction materials and components that are supplied by this contract or owner supplied. Secure site after each day's work to mutual satisfaction of general contractor and the Owner's Representative.
  - .2 Maintain security at all times.
  - .3 All separate contractors supplied by the Owner are directly under the Security and Safety Program of the General Contractor for this project.

## 1.7 WORK SCHEDULE

- .1 The Contractor is to prepare and submit to the Departmental Representative within five days of notification of award of the Contract five copies of the proposed Construction Schedule for approval by Parks Canada Agency. It is intended that all work of the contract will be carried out between May 2016 – October 2016.
  - .2 The Contractor is to comply with the agreed schedule(s) at all times. If, for any reasons, the schedule is not followed, the Contractor is to immediately notify the Departmental Representative of the change and submit a revised Schedule for acceptance.
  - .3 Interim reviews of work progress based on work Schedule will be conducted as decided by the Departmental Representative and Bi-weekly schedule updates submitted to Department Representative for review by the Departmental Representative.
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## **1.8 DEPARTMENTAL REPRESENTATIVE**

- .1 The Departmental Representative for this work shall be Jonathan Nash, Project Manager, Mainland NS Field Unit. Contact information is as follows:  
Phone: 902-426-6139, Cell: 902-402-1743  
Fax: 902-426-4228  
E-mail: [jonathan.nash@pc.gc.ca](mailto:jonathan.nash@pc.gc.ca)

## **1.9 MEASUREMENT AND PAYMENT**

- .1 The Work of this contract is covered by lump sum and shall be measured and paid for as described in the Section Measurement 01 29 01.
- .2 The following is a list of trade Work as taken from the Bid Tender Form Part 2. Scopes of Work to be included in the total prices are listed below each title:
- .1 01 GENERAL REQUIREMENTS
    - .1 Contractors General Requirements
  - .2 01 TEMPORARY FACILITIES INCLUDING SITE HOARDING
  - .3 04 STONE CLEANING
    - .1 Provision of door sill cleaning
  - .4 05 METAL FABRICATIONS
    - .1 Custom metal fabrications for roof anchorage
  - .5 05 METAL FABRICATIONS (WINDOWS AND DOORS)
    - .1 Vented steel plates for doors and windows, standoffs, metal insect screens, expanded mesh at windows, wrought iron repair and restoration
  - .6 06 CARPENTRY (ROOF)
    - .1 Soffits and cladding at Dormers. Carpentry at Roof installation.
  - .7 06 CARPENTRY (DOORS)
    - .1 Restoration of existing wood door and install of metal louvres at windows.
  - .8 06 SHOP FABRICATED WOOD TRUSSES
  - .9 07 ASPHALT SHINGLES
  - .10 07 SHEET METAL FLASHING & TRIM
  - .11 07 ROOF HATCH AND LADDER
  - .12 07 FALL ARREST SYSTEM
    - .1 Supply and Install of Fall arrest system
  - .13 10 MISCELLANEOUS SPECIALTIES

## **1.9 CODES AND STANDARDS**

- .1 Perform work in accordance with latest edition of National Building Code of Canada (NBCC) and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.
- .2 Meet or exceed requirements of contract documents, specified standards, codes and referenced documents.
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- .3 All work shall be carried out in accordance with the Nova Scotia Occupational Health and Safety Act and the Canada Labour Code Part II, and the Canada Occupational Safety and Health Regulations made under Part II of the Canada Labour Code.

#### **1.10 PROJECT MEETINGS**

- .1 Attend project meetings at times and locations requested/approved by the Departmental Representative.
- .2 Notify all parties concerned of meetings.
- .3 Parks will record notes of meetings, and distribute to all parties.

#### **1.11 SETTING OUT OF WORK**

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations required.
- .2 Provide devices needed to lay out and construct work.
- .3 Supply such devices as straight edges and templates required to facilitate the Departmental Representative's inspection of work.
- .4 Supply stakes and other survey markers required for laying out work.
- .5 Do not use spray paint, chalk, etc. that will deface finished, exposed surfaces.

#### **1.12 CUTTING, FITTING AND PATCHING**

- .1 Execute cutting, fitting and patching required to make work fit properly. Maintain historic fabric at all times. Review items to be cut, fitted, patched, etc. with the Departmental Representative and obtain approval before proceeding with the work.
- .2 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work.
- .3 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.
- .4 Fit work airtight to pipes, sleeves, ducts and conduits.
- .5 No historically significant aspects of building or site shall be altered unless as indicated in the contract documents.

#### **1.13 PROTECTION**

- .1 Provide temporary dust screens, barriers, warning signs in locations where work is adjacent to areas used by public or government staff.
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**1.14 NATIONAL PARKS ACT**

- .1 Perform work in accordance with applicable sections of the National Parks Act. A copy of the Act will be made available to bidders by the Owner.

**1.15 PROTECTION OF MATERIALS**

- .1 Store and protect all materials and equipment required in connection with the work until they have been placed in the work and accepted by the Departmental Representative. Immediately remove rejected materials from the site.

**1.16 CLEANING DURING CONSTRUCTION**

- .1 Maintain work area free from accumulations of waste materials and rubbish.

END OF SECTION

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## **PART 1 - GENERAL**

### **1.1 DESCRIPTION**

- .1 It is the intention to provide for a finished piece of work, complete in all essentials and details, including all items reasonably inferable from the drawings and specifications.
- .2 The aggregate of all payments shall constitute full compensation for the entire work of the Contract, as shown, specified and intended, regardless of any omission in the tender documents of any items which are necessary for the completion of the work including temporary facilities, safety, etc.
- .3 Should there be any discrepancy regarding measurement between the Measurement and Payment Section and any other section in the specifications, the Measurement and Payment Section shall overrule the other specification section.
- .4 Unless otherwise specified, all materials necessary to complete the work are to be supplied by the Contractor and the cost of such material is to be included in the Contractor's prices. There will be no measurement for work not authorized, or for work beyond authorized limits as determined by the Departmental Representative.
- .5 Prices shall include all costs applicable to the items, including labour, materials, equipment, transportation, ancillaries and all other applicable and relevant costs as intended and as required to complete the work to the full satisfaction of the Departmental Representative. The prices indicated shall exclude HST.
- .6 All work including shoring, protection measures, etc. required to prevent damage/disturbance to existing structures of any areas damaged as a result of work or access are considered incidental to the work.
- .7 Where disposal of excess material or debris is included in an item this shall include disposal off site in an environmentally approved disposal site.
- .8 Refer to Bid Tender Form Part 2 for breakdown of subcontractors and itemized pricing for the Work.

### **1.2 MEASUREMENT AND PAYMENT**

- .1 General Conditions:
    - .1 There shall be no measurement associated with this item.
    - .2 Payment will be at the lump sum price bid for Item No. 1 in the Bid Tender Form Price Table.
    - .3 The price shall include all costs associated with mobilizing and demobilizing from the site, traffic control, pedestrian and workers safety measures and signage, full
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reinstatement of all disturbed surfaces at completion of the work and provision of all labour, equipment and materials necessary to complete the work as intended but not covered in other pay items.

.2 Temporary Facilities Including Site Fencing and Hoarding:

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 2 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with temporary facilities, including site fencing and hoarding, as indicated.

.3 Stone Cleaning:

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 3 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with provision of door sill cleaning.

.4 Metal Fabrications:

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 4 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with provision of custom metal fabrications for roof anchorage.

.5 Metal Fabrications (Windows and Doors):

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 5 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with provision of vented steel plates for doors and windows, standoffs, metal insect screens, expanded mesh at bird screens, wrought iron repair and restoration.

.6 Carpentry (Roof):

- .1 There shall be no measurement associated with this item.
  - .2 Payment will be at the lump sum price bid for Item No. 6 in the Bid Tender Form Price Table.
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- .3 The price shall include all costs associated with provision of soffits and cladding at dormers, and carpentry at roof installation.

.7 Carpentry (Windows and Doors):

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 8 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with restoration of existing wood door and install of metal louvres assembly at windows. This will include the removal and disposal of the existing window frames, insect screens and wood chutes under the balconies.

.8 Shop Fabricated Wood Trusses:

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 9 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with provision of shop fabricated wood trusses and installation as indicated.

.9 Asphalt Shingles:

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 10 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with provision and install of asphalt shingles as indicated.

.10 Sheet Metal Flashing & Trim:

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 11 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with provision and install of sheet metal flashing and trim as indicated.
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.11 Roof Hatch and Ladder:

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 12 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with provision and install of roof hatch and ladder as indicated.

.12 Fall Arrest System:

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 13 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with the supply and install of the Fall Arrest System.

.13 Miscellaneous Specialties:

- .1 There shall be no measurement associated with this item.
- .2 Payment will be at the lump sum price bid for Item No. 14 in the Bid Tender Form Price Table.
- .3 The price shall include all costs associated with provision and install of all miscellaneous specialties as indicated.

END OF SECTION

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## **PART 1 - GENERAL**

### **1.1 RELATED SECTIONS**

- .1 Section 01 35 29.06 – Health and Safety Requirements.
- .2 Section 01 35 44 - Environmental Protection.

### **1.2 ADMINISTRATIVE**

- .1 Submit to Departmental Representative 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.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

### **1.3 SHOP DRAWINGS AND PRODUCT DATA**

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
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- .2 Submit shop drawings bearing stamp and signature of qualified professional Structural Engineer registered or licensed in Province s of Nova Scotia, Canada.
  - .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
  - .4 Allow 5 days for Departmental Representative to review each submission.
  - .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
  - .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
  - .7 Accompany submissions with transmittal letter, in duplicate, 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.
  - .8 Submissions include:
    - .1 Date and revision dates.
    - .2 Project title and number.
    - .3 Name and address of:
      - .1 Subcontractor.
      - .2 Supplier.
      - .3 Manufacturer.
    - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
    - .5 Details of appropriate portions of Work as applicable:
      - .1 Fabrication.
      - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
      - .3 Setting or erection details.
      - .4 Capacities.
      - .5 Performance characteristics.
      - .6 Standards.
      - .7 Operating weight.
      - .8 Wiring diagrams.
      - .9 Single line and schematic diagrams.
      - .10 Relationship to adjacent work.
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- .9 After Departmental Representative's review, distribute copies.
  - .10 Submit one (1) electronic copy of shop drawings for each requirement requested in specification Sections.
  - .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
  - .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
    - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accordance with specified requirements.
    - .2 Testing must have been within 3 years of date of contract award for project.
  - .13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
    - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
    - .2 Certificates must be dated after award of project contract complete with project name.
  - .14 Submit electronic copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
    - .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.
  - .15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
    - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
  - .16 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
  - .17 Delete information not applicable to project.
  - .18 Supplement standard information to provide details applicable to project.
  - .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, transparency copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
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- .20 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.
- .1 This review shall not mean that Departmental Representative 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.

#### **1.4 SAMPLES**

- .1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative business address.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

#### **1.5 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

END OF SECTION

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## **PART 1 – GENERAL**

### **1.1 SUBMITTALS**

- .1 Submit to Departmental Representative copies of the following documents, including updates:
  - .1 Site Specific Health and Safety Plan.
  - .2 Name and qualifications of person to be retained full time as H&S Coordinator.

### **1.2 COMPLIANCE REQUIREMENTS**

- .1 Comply with the Occupational Health and Safety Act for the Province of Nova Scotia.
  - .1 Occupational Health and Safety Act Chapter 7 of the Act, 1996.
- .2 Comply with Canada Labour Code Part II, and the Canada Occupational Safety and Health Regulations made under Part II of the Canada Labour Code.
- .3 Observe and enforce construction safety measures required by:
  - .1 National Building Code of Canada;
  - .2 Provincial Worker's Compensation Board;
  - .3 Municipal statutes and ordinances.
- .4 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.
- .5 A copy of the Canada Labour Code Part II may be obtained by contacting:

Canadian Government Publishing  
Public Works & Government Services Canada  
Ottawa, Ontario, K1A 0S9  
Tel: (819) 956-4800 (1-800-635-7943)  
Publication No. L31-85/2000 E or F)
- .6 Maintain Workers Compensation Coverage for duration of Contract. Submit Letter of Good Standing to Departmental Representative upon request.

### **1.3 RESPONSIBILITY**

- .1 Be responsible for health and safety of persons on site, of property and for protection of persons and public circulating adjacent to work operations to extent that they may be affected by conduct of the Work.
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- .2 Enforce compliance by all workers, sub-contractors and other persons granted access to work site with safety requirements of Contract Documents, applicable Federal, Provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

#### **1.4 SITE CONTROL AND ACCESS**

- .1 Control work site and entry points to construction areas.
  - .1 Delineate and isolate construction areas from other areas of site Facility by use of appropriate means.
  - .2 Post notices and signage at entry points and at other strategic locations identifying entrance onto site to be restricted to authorized persons only.
  - .3 Signage must be professionally made, bilingual in both official languages or display internationally understood graphic symbols.
- .2 Approve and grant access to site only to workers and authorized persons.
  - .1 Immediately stop non-authorized persons from circulating in construction areas and remove from site.
  - .2 Provide site safety orientation to all persons before granting access. Advise of site conditions, hazards and mandatory safety rules to be observed on site.
- .3 Secure site at night time to extent required to protect against unauthorized entry.
- .4 Ensure persons granted access to site wear appropriate personal protective equipment (PPE) suitable to work and site conditions.
  - .1 Provide such PPE to authorized persons who require access to perform inspections or other approved purposes.

#### **1.5 PROTECTION**

- .1 Carry out work placing emphasis on health and safety of the Public, Facility personnel, construction workers and protection of the environment.
- .2 Erect safety barricades, lights and signage on site to effectively delineate work areas, protect pedestrian and vehicular traffic around and adjacent to work and to create a safe working environment.
- .3 Should unforeseen or peculiar safety related hazard or condition become evident during performance of work, immediately take measures to rectify the situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

#### **1.6 FILING OF NOTICE**

- .1 File Notice of Project and other Notices with Provincial authorities prior to commencement of Work.
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## **1.7 PERMITS**

- .1 Post on site permits, licenses, compliance certificates specified in Division 01.
- .2 Where particular permit or compliance certificate cannot be obtained at the required stage of work, notify Departmental Representative in writing and obtain his/her approval to proceed before carrying out that portion of work.

## **1.8 HAZARD ASSESSMENTS**

- .1 Conduct site specific health and safety hazard assessment before commencing project and during course of the work. Identify risks and hazards resulting from site conditions, weather conditions and work operations.
  - .1 Also, conduct assessment when the scope of work has been changed by Change Order and when potential hazard or weakness in current health and safety practices are identified by Departmental Representative or by an authorized safety Representative.
- .2 Record results in writing and address in Health and Safety Plan.
- .3 Keep copy of all assessments on site.

## **1.9 PROJECT/SITE CONDITION**

- .1 The following are known or potential project related health, environmental and safety hazards at site which must be properly managed if encountered during course of work:
  - .1 Existing hazardous products are:
    - .1 work within and adjacent to roadway .
    - .2 work adjacent to streams and water
- .2 Above list shall not be construed as being complete and inclusive of potential health, and safety hazards encountered during work. Include above items into hazard assessment process.
- .3 Obtain from Departmental Representative, copy of MSDS Data sheets for existing hazardous products stored on site or used by Facility personnel.

## **1.10 HEALTH AND SAFETY MEETINGS**

- .1 Attend pre-construction health and safety meeting conducted by Departmental Representative. Have following persons in attendance:
    - .1 Site Superintendent.
    - .2 Contractor's designated Health and Safety Site Supervisor.
    - .3 Health & Safety Site Coordinator.
    - .4 Departmental Representative will advise of date, time and location.
-

## 1.11 HEALTH AND SAFETY PLAN

- .1 Develop written site-specific Project Health and Safety Plan, based on hazard assessments, prior to commencement of work.
  - .1 Submit copy to Departmental Representative within 5 calendar days of acceptance of bid.
  - .2 Submit updates as work progresses.
- .2 Health and Safety Plan shall contain three (3) parts with following information:
  - .1 Part 1 - Hazards: List of individual health risks and safety hazards identified by hazard assessment process.
  - .2 Part 2 - Safety Measures: engineering controls, personal protective equipment and safe work practices used to mitigate hazards and risks listed in Part 1 of Plan.
  - .3 Part 3a: Emergency Response: standard operating procedures, evacuation measures and emergency response in the occurrence of an accident, incident or emergency.
    - .1 Include response to all hazards listed in Part 1 of Plan.
    - .2 Evacuation measures to complement the Facility's existing Emergency Response and Evacuation Plan. Obtain pertinent information from Departmental Representative.
    - .3 List names and telephone numbers of officials to contact including:
      - .1 General Contractor and all Subcontractors.
      - .2 Federal and Provincial Departments as stipulated by laws and regulations and local emergency resource organizations, as needed based on nature of emergency or accident.
      - .3 Officials from PWGSC and site Facility management. Departmental Representative will provide list.
- .3 Part 3b - Site Communications:
  - .1 Procedures used on site to share work related safety issues between workers, subcontractors, and General Contractor.
  - .2 List of critical tasks and work activities, to be communicated with the Facility Manager, which has risk of affecting tenant operations, or endangering health and safety of Facility personnel and the general public. Develop list in consultation with the Departmental Representative.
- .4 Prepare Health and Safety Plan in a three column format, addressing the three parts specified above, as follows:

Column 1	Column 2	Column 3
Part 1	Part 2	Part 3a/3b
Identified Hazards	Safety Measures	Emergency Response & Site Communications
- .5 Develop Plan in collaboration with subcontractors. Address work activities of all trades. Revise and update Plan as Sub-contractors arrive on site.

- .6 Implement and enforce compliance with requirements of Plan for full duration of work to final completion and demobilization from site.
- .7 As work progresses, review and update Plan. Address additional health risks and safety hazards identified by on-going hazard assessments.
- .8 Post copy of Plan, and updates, on site.
- .9 Submission of the Health and Safety Plan, and updates, to the Departmental Representative is for review and information purposes only. Departmental Representative's receipt, review and any comments made of the Plan shall not be construed to imply approval in part or in whole of such Plan by Departmental Representative and shall not be interpreted as a warranty of being complete and accurate or as a confirmation that all health and safety requirements of the Work have been addressed and that it is legislative compliant. Furthermore, Departmental Representative's review of the Plan shall not relieve the Contractor of any of his legal obligations for Occupational Health and Safety provisions specified as part of the Work and those required by provincial legislation.

## **1.12 SAFETY SUPERVISION AND INSPECTIONS**

- .1 Designate one person to be present on site at all times, responsible for supervising health and safety of the Work.
  - .1 Person to be competent in Occupational Health and Construction Safety as defined in the Provincial Occupational Health and Safety Act.
- .2 Assign responsibility, obligation and authority to such designated person to stop work as deemed necessary for reasons of health and safety.
- .3 Conduct regularly scheduled informal safety inspections of work site on a minimum bi-weekly basis.
  - .1 Note deficiencies and remedial action taken in a log book or diary.
- .4 Keep inspection reports on site.

## **1.13 TRAINING**

- .1 Ensure that all workers and other persons granted access to site are competently trained and knowledgeable on:
    - .1 Safe use of tools and equipment.
    - .2 How to wear and use personal protective equipment (PPE).
    - .3 Safe work practices and procedures to be followed in carrying out work.
    - .4 Site conditions and minimum safety rules to be observed on site, as given at site orientation session.
-

## **1.14 MINIMUM SITE SAFETY RULES**

- .1 Notwithstanding the requirement to abide by federal and provincial health and safety regulations, the following safety rules shall be considered minimum requirements to be obeyed by all persons granted site access:
  - .1 Wear personnel protective equipment (PPE) appropriate to function and task on site; the minimum requirements being hard hat, safety footwear and eye protection.
  - .2 Immediately report unsafe activity or condition at site, near-miss accident, injury and damage.
  - .3 Maintain site in tidy condition.
  - .4 Obey warning signs and safety tags.
- .2 Brief workers on site safety rules and on disciplinary measures to be taken by Departmental Representative for violation or non compliance of such rules. Post rules on site.
- .3 The following actions or conduct by Contractor, workers and subcontractors will be considered as non conformance with the health and safety requirements of the contract for which a Non-Compliance Notification will be issued to the General Contractor by the Departmental Representative:
  - .1 Failure to follow the minimum site safety rules specified above.
  - .2 Negligence resulting in serious injury or major property damage.
  - .3 Deliberate non-compliance with Federal and Provincial Acts and Regulations.
  - .4 Falsification of information in Workers Compensation Reports, safety reports and other health and safety related documents submitted to Departmental Representative or to Authority having jurisdiction.
  - .5 Possession of firearms on site.
  - .6 Possession of non-prescriptive illegal drugs or alcohol.
  - .7 Action, or lack thereof, resulting in the issuance of Warnings, Fines or Stop Work Orders from a Provincial Authority having jurisdiction.
  - .8 Violation of other specified health and safety rules and requirements as determined by Departmental Representative.
- .4 See elsewhere in this section for details on Non-Compliance Notifications and resulting disciplinary measures.

## **1.15 ACCIDENT REPORTING**

- .1 Investigate and report the following incidents and accidents:
    - .1 Those as required by Provincial Occupational Health and Safety Act and Regulations.
    - .2 Injury requiring medical aid as defined in the Canadian Dictionary of Safety Terms-1987, published by the Canadian Society of Safety Engineers (C.S.S.E) as follows:
      - .1 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.
-



- .2 Property damage in excess of \$5000.00,
- .3 Interruption to Facility operations with potential loss to a Federal Dept. in excess of \$5000.00,
- .4 Those which require notification to Workers Compensation Board or other regulatory agencies as stipulated by applicable law or regulations.

.2 Send written report to Departmental Representative for all above cases.

#### **1.16 TOOLS AND EQUIPMENT SAFETY**

- .1 Routinely check and maintain tools, equipment and machinery for safe operation.
- .2 Conduct checks as part of site safety inspections. When requested, submit proof that checks and maintenance have been carried out.
- .3 Tag and immediately remove from site items found faulty or defective.

#### **1.17 HAZARDOUS PRODUCTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
- .2 Keep MSDS data sheets for all products delivered to site. Post on site. Submit copy to Departmental Representative upon receipt.

#### **1.18 CONFINED SPACES**

- .1 Carry out work in confined spaces in compliance with:
  - .1 Provincial Occupational Health and Safety Regulations and;
  - .2 Canada Occupational Safety and Health Regulations (COSH) made under the Canada Labour Code - Part II.
- .2 Conduct hazard assessment and address in Safety Plan before entering confined space.

#### **1.19 POSTING OF DOCUMENTS**

- .1 Post on site safety documentation as stipulated by Authorities having jurisdiction and as specified herein. Place in a common visible location.

#### **1.20 SITE RECORDS**

- .1 Maintain on site a copy of all health and safety documentation and reports specified to be produced as part of the work and received from authorities having jurisdiction.
-

- .2 Upon request, make available to Departmental Representative and to other authorized safety representative for review. Provide copy when directed by Departmental Representative.

## **1.21 NON COMPLIANCE AND DISCIPLINARY MEASURES**

- .1 Immediately address and correct health and safety violations and non-compliance issues.
- .2 Negligence or failure to follow occupational health and safety provisions specified in the Contract Documents and of those of applicable federal and provincial laws and regulations could result in disciplinary measures taken by the Departmental Representative against the General Contractor.
- .3 PWGSC uses a system of Non-Compliance Notifications and Disciplinary Measures on projects as follows:
  - .1 A non-compliance notification will be issued to the General Contractor, by the Departmental Representative, whenever there is a violation or failure to follow any of the project's occupational health and safety requirements by a worker, subcontractor or any other person to whom the Contractor has granted access to the work site.
  - .2 Non-Compliance notifications are progressive in nature resulting in increased disciplinary measures imposed depending on the frequency, nature and severity of the infraction.
  - .3 Disciplinary measures could include:
    - .1 Removal of the offending person or party from site;
    - .2 Financial penalties in the form of progress payment reduction or holdback assessments made against the Contract and;
    - .3 Taking the Work Out of Contractor's Hands in accordance with the General Conditions.
- .4 Departmental Representative will make final decision as to what constitutes a violation and when to issue a Non-Compliance Notification.
- .5 Non-compliance Notifications issued by Departmental Representative shall not be construed as to overrule or disregard warnings, orders and fines levied against Contractor by a regulatory agency having jurisdiction.
- .6 Details of the Non-Compliance Notification and Disciplinary Measures system will be provided by Departmental Representative upon acceptance of bid and prior to commencement of work.
- .7 Further details on the disciplinary system will be provided at the pre-construction Health and Safety meeting.
- .8 Be responsible to fully brief workers and subcontractors on the operation and importance of this system.

END OF SECTION

---

## **PART 1 - GENERAL**

### **1.1 FIRES**

- .1 Fires and burning of rubbish on site shall not be permitted.

### **1.2 DISPOSAL OF WASTES**

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil, paint thinner or herbicides into waterways, storm or sanitary sewers or onto the ground.
- .3 The Contractor shall be fully responsible for safe disposal off the site in an environmentally acceptable manner and in accordance with all applicable regulations.

### **1.3 POLLUTION CONTROL**

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Control emissions from equipment to local authorities emission requirements.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .4 Clean up and remove all blown, excavated or imported material, material packaging, general equipment maintenance containers, general working debris, etc., to the designated dump site from the site daily.

END OF SECTION

---



## **PART 1 - GENERAL**

### **1.1 ACCESS**

- .1 Provide and maintain adequate access to project site.
- .2 Build and maintain temporary roads when approved or directed.
- .3 Use existing roads/paths for access to project site, storage areas or work areas, maintain such roads/paths for duration of contract and make good damage resulting from Contractor's use of roads/paths to Owner's satisfaction.
- .4 Contractor shall accommodate and permit authorized Public Works (PWGSC)/Parks Canada (PC) employees and the Departmental Representative on the site.

### **1.2 CONTRACTOR'S SITE OFFICE**

- .1 N/A

### **1.3 STORAGE SHEDS**

- .1 Provide adequate weathertight sheds with raised floors, for storage of materials, tools and equipment which are subject to damage by weather.

### **1.4 SANITARY FACILITIES**

- .1 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

### **1.5 WATER SUPPLY**

- .1 Arrange, pay for and maintain temporary potable water supply in accordance with governing regulations and ordinances.

### **1.6 POWER**

- .1 Arrange, pay for and maintain temporary electrical power supply as required in accordance with governing regulations and ordinances.
-

**1.7 SIGNS AND NOTICES**

- .1 Signs and notices for safety or instruction to be in English and French languages, or commonly understood graphic symbols.
- .2 Supply all labour, materials and equipment as required to install the furnished signs.

**1.8 FENCING**

- .1 Provide temporary free-standing construction site fencing to enclose the work area. Contractor to maintain fence in good repair for duration of the work.

**1.8 SCAFFOLDING**

- .1 Provide scaffolding to furnish work.
- .2 Scaffolding to be inside secure fenced area.

**1.9 REMOVAL OF TEMPORARY FACILITIES**

- .1 Remove temporary facilities from site when directed by the Departmental Representative.
- .2 If project is closed down at end of construction season keep temporary facilities operational until close down or removal is approved by the Departmental Representative.

END OF SECTION

---

## **PART 1 - GENERAL**

### **1.1 GENERAL**

- .1 Use new material and equipment unless otherwise specified.
- .2 Within 7 days of written request by the Departmental Representative, submit following information for materials and equipment proposed for supply:
  - .1 name and address of manufacturer,
  - .2 trade name, model and catalogue number,
  - .3 performance, descriptive and test data,
  - .4 manufacturer's installation or application instructions,
  - .5 evidence of arrangements to procure.
- .3 Provide material and equipment of specified design and quality , performing to published ratings and for which replacement parts are readily available.
- .4 Use products of one manufacturer for material and equipment of same type or classification unless otherwise specified.

### **1.2 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify the Departmental Representative in writing of any conflict between these specifications and manufacturer's instructions. The Departmental Representative will designate which document is to be followed.

### **1.3 DELIVERY AND STORAGE**

- .1 Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.
  - .2 Prevent damage, adulteration and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from site.
  - .3 Store material and equipment in accordance with supplier's instructions.
  - .4 Touch-up damaged factory finished surfaces to the Owners satisfaction. Use primer or enamel to match original. Do not paint over name plates.
-

#### **1.4 SUBSTITUTION**

- .1 Proposals for substitution may be made in accordance with Instructions To Tenders, Item 7, standard PWGSC documents. Such requests must include statements of respective costs of items originally specified and proposed substitutions.
- .2 Proposals will be considered by the Departmental Representative if:
  - .1 Products selected by tenderer from those specified, are not available, or
  - .2 Delivery date of products selected from those specified would unduly delay completion of Contract, or
  - .3 Alternative products to those specified, which are brought to attention of and considered by the Departmental Representative as equivalent to those specified and will result in credit to Contract amount.
- .3 Should proposed substitution be accepted either in part or in whole, assume full responsibility and costs when substitution affects other work on project. Pay for design or drawing changes required as result of substitution.
- .4 Amounts of all credits arising from approval of substitutions will be determined by the Departmental Representative and Contract price will be reduced accordingly. No substitutions will be permitted without prior written approval of the Departmental Representative.

#### **1.5 CONSTRUCTION EQUIPMENT AND PLANT**

- .1 On request, prove to the satisfaction of the Departmental Representative that the construction equipment and plant are adequate to manufacture, transport, place and finish work to quality and production rates specified. If inadequate, replace or provide additional equipment or plant as directed.
- .2 Maintain construction equipment and plant in good operating order.

END OF SECTION

---



## **PART 1 – GENERAL**

### **1.1 GENERAL**

- .1 Conduct cleaning and disposal operations to comply with local ordinances and antipollution laws.
- .2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .3 Provide adequate ventilation during use of volatile or noxious substances.

### **1.2 MATERIALS**

- .1 Use only cleaning materials recommended by manufacturer for surface to be cleaned, and as recommended by cleaning material manufacturer.

### **1.3 CLEANING DURING CONSTRUCTION**

- .1 Provide on site, dump containers for collection of waste materials, and debris.
- .2 Dispose of waste materials, and debris legally off site. No on site disposal is permitted.
- .3 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet surfaces nor contaminate building systems or be hazardous to the public visiting the site.

### **1.4 FINAL CLEANING**

- .1 Broom clean stone, concrete, top of walls and other hard surfaces.
- .2 Rake clean other surfaces of the grounds, etc.
- .3 Dispose of all debris, legally, off the site.

END OF SECTION

---



The Executed Agreement including General Conditions and Supplementary Conditions, Division 01, applicable drawings and amendments are part of and are to be read in conjunction with this Section.

## **PART 1 - GENERAL**

### **1.1 SUMMARY OF WORK**

- .1 Cleaning of existing stone door sill as indicated on drawing.

### **1.2 REFERENCES**

- .1 CAN/CSA A371-14, Masonry Construction for Buildings.
- .2 CSA S304-14, Design of Masonry Structures.
- .3 Canadian Environmental Assessment Act (CEAA), 2012

### **1.3 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, WHMIS, MSDS sheets, specifications and data sheets in accordance with Section 01 33 00 Submittal Procedures.
  - .2 Provide data on hard water deposit remover used in restoration.

### **1.4 ENVIRONMENTAL REQUIREMENTS**

- .1 Use cleaner on stone at 4°C and above.

### **1.5 DELIVERY, STORAGE AND PROTECTION OF PRODUCT**

- .1 Deliver and store materials in compliance with Section 01 61 00 Common Product Requirements.
- .2 Store restoration cleaner materials in manufacturer's original packaging.
- .3 Do not store flammable or dangerous materials in building.

### **1.6 QUALITY ASSURANCE/QUALITY CONTROL**

- .1 Carefully review product precautions before work commences. Use appropriate PPE safety equipment during applications.
-

## **PART 2 - PRODUCTS**

### **2.1 CLEANING MATERIALS**

- .1 Cleaning Agent: Sure Klean 1261 hard water deposit remover.
- .2 Water: Potable
- .3 Tools and Equipment:
  - .1 Water rinse: 400-1000 PSI power washer with fan spray tip.
  - .2 Cleaner applicator: low pressure (50 PSI max) spray masonry washing brush or deep nap roller.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- .1 Verify that surfaces to be cleaned and restored are ready for work of this section.

### **3.2 PREPARATION OF SUBSTRATE**

- .1 Protect adjacent surfaces not receiving work of this section from damage.
  - .1 Protect people, vehicles, property, plants metal and any acid sensitive surface from exposure to cleaner.
  - .2 Sequence stone cleaning work before other work to minimize chance of damaging new work.

### **3.3 INSTALLATION**

- .1 Carefully review and follow manufacturers recommendations, precautions and procedures for use.
- .2 Use equipment as recommended for application of cleaner and power washing after cleaning process.
- .3 Thoroughly clean and rinse area with pressurized water following cleaner application.

### **3.4 PROTECTION DURING WORK**

- .1 Protect elements surrounding the work of this section from damage or disfiguration. Ensure doors adjacent areas of restoration are protected.
  - .2 Avoid exposing building occupants to fumes.
-

### **3.5           CLEANING**

- .1       Completely rinse stone sill after cleaning with water to manufacturer's recommendations.

END OF SECTION

---



The Executed Agreement including General Conditions and Supplementary Conditions, Division 01, applicable Drawings and amendments are part of and are to be read in conjunction with this Section.

## **PART 1 - GENERAL**

### **1.1 SUMMARY OF SECTION**

- .1 As summarized and described, but not restricted to the following:
  - .1 Provide metal fabrications as noted in Schedule of Miscellaneous Items and as detailed on Drawings.
  - .2 Provide anchorage of metal roof components into existing concrete and stone and associated work as indicated in drawings and specifications.
  - .3 Provide cleaning, repair, consolidation, restoration and refinishing of existing three wrought iron window grates and hardware.
  - .4 Provide metal access ladder to roof hatch as indicated.

### **1.2 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM):
    - .1 ASTM A53/A53M-12, Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
    - .2 ASTM A123/A123M-15, Zinc (Hot Dip Galvanized) Coatings and Iron and Steel Products
    - .3 ASTM A269/A269M-15, Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
    - .4 ASTM A307-14, Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
  - .2 Canadian Standards Association (CSA)
    - .1 CSA G40.20-13/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel.
    - .2 CSA S16-14, Design of Steel Structures.
    - .3 CSA W59-13, Welded Steel Construction (Metal Arc Welding).
  - .3 Canadian Institute of Steel Construction (CISC):
    - .1 CISC/CPMA 1-73
  - .4 Master Painters Institute (MPI)
    - .1 MPI #18, Primer, Zinc Rich, Organic
  - .5 Standards and Guidelines for the Conservation of Historic Places in Canada, Parks Canada
-

### **1.3 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, including installation instructions, MSDS sheets, specifications and data sheets in accordance with Division 01.
- .2 Shop Drawings:
  - .1 Shop Drawings to be submitted in accordance with Division 01.
  - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
- .3 Engineered Shop Drawings:
  - .1 Provide Engineered signed and stamp shop drawings for metal fabrication items that have structural loading and support requirements.
  - .2 Structural Engineer for metal fabrication items must be registered to practice in the province where the Work is located.

### **1.4 WASTE MANAGEMENT**

- .1 The majority of components specified for this Section are shop fabricated. Contractor to verify that all loose ends, components remaining after installation are taken back to shop for possible re-use.
- .2 Separate and recycle waste materials in accordance with Division 01.

### **1.5 DELIVERY, STORAGE AND PROTECTION OF PRODUCT**

- .1 Deliver and store materials in compliance with Division 01.
- .2 Comply with manufacturer's recommendations for handling, storage and protection during installation.
- .3 Protect and store materials off the ground, away from physical damage and from becoming wet, soiled or covered with ice or snow before, during and after installation.
- .4 Label packages to include material name, production date and/or product code.

### **1.6 VERIFICATION OF SITE CONDITIONS**

- .1 Contractor is to verify the site conditions related to the installation of epoxy anchorage as identified on the contract drawings. The contractor is to verify that anchor rods will be installed into sound concrete to the minimum embedment depths indicated on the drawings. Should conditions be different than those indicated, notify Owner's representative for direction.
-



## 1.7 QUALITY ASSURANCE/CONTROL

- .1 Contractors bidding on anchorage of roof structure to existing building to have minimum 5 years of experience and be able to furnish references from 3 similar projects if requested.
- .2 Engineered Metal Fabrication Components: Refer to drawings for design assumptions notes for loading of metal Fabrication components as part of the roofing system. The loads listed are assumptions and need to be reviewed and confirmed by the metal fabrications design engineer design engineer for the Metal Fabrication Work of this Section.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- .1 Steel Sections and Plates:
    - .1 To CAN/CSA-G40.20/G40.21, Grade 300W and 350W.
  - .2 Welding materials:
    - .1 To CSA W59.
  - .3 Bolts and Anchorbolts:
    - .1 To ASTM A307.
  - .4 Stainless Steel Tubing:
    - .1 To ASTM A269 type 302 commercial grade.
  - .5 Grout/Adhesive:
    - .1 Non-shrink, non-metallic, flowable, 24h, 15 MPa min, pull-out strength 7.9 MPa min.
    - .2 Metal Hilti Rod adhesive:
      - .1 Standard of Acceptance: Hilti HY 200 adhesive for masonry, or approved alternate.
  - .6 Screening:
    - .1 Insect Screen:
      - .1 Stainless steel security screening welded mesh.
      - .2 50% open area min.
      - .3 Gauge 24 (minimum)
    - .2 Expanded Metal Mesh:
      - .1 for openings between roof and existing walls/roof and at existing gun slots as indicated
      - .2 Stainless steel
      - .3 12.7 mm x 13 gauge, flattened.
  - .7 Anchor Rods: refer to Structural drawing.
-

- .8 Vented Steel Plate and Standoffs (Windows):
  - .1 Perforated Metal Plate:
    - .1 Standard of Acceptance: Accurate Perforating
    - .2 Pattern type: round straight
    - .3 Size x centers: 12.7 x 25 mm
    - .4 Open area: 20%
    - .5 Thickness of panel: 6 mm  
Finish: Matthews Paint, shop finished
  - .2 Standoffs for Perforated Metal Plate:
    - .1 Stainless steel, 25 mm diameter.
    - .2 38 mm standoff with 12.7 mm cap, complete with rad and bolts to attach metal plate to frame of metal louver vent.
  
- .9 Perforated Metal Plate (Door Screen):
  - .1 Custom Spacing
  - .2 Pattern type: round straight grid, refer to detail on drawings
  - .3 Size x centers: refer to detail on drawings
  - .4 Thickness of panel: 6 mm
  - .5 Finish: Matthews Paint, for exterior metal, complete with primer as required, spray applied, shop finished.
  - .6 Securely attach perforated metal screen to existing metal frame c/w hinge as indicated. Refer to detail on drawings.
  
- .10 Wrought Iron Repair material:
  - .1 Plastic Steel Putty by Devcon.
  
- .11 Low pressure grit blasting:
  - .1 Low-pressure micro-abrasive cleaning system: Jos System

## **2.2 FINISHES - GENERAL**

- .1 Shop Painted Items:
    - .1 Clean all members of loose mill scale, rust, oil, dirt and other foreign matter, prepare and paint to CISC/CPMA 1-73. Red colour to be used.
    - .2 Apply one coat of paint in shop to all steel surfaces except:
    - .3 Surfaces to be encased in concrete.
    - .4 Surfaces and edges to be field welded.
    - .5 Primer: to MPI #18
    - .6 Apply two shop coats of primer to metal items, unless noted otherwise.
    - .7 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7C.
    - .8 Clean surfaces to be field welded; do not paint.
  
  - .2 Paint for Vented Steel Plate:
    - .1 Matthews Paint by PPG, or accepted alternate.
      - .1 Colour: chosen by consultant from full colour range.
-

- .3 Galvanizing:
  - .1 Hot dip galvanizing: Galvanize all structural steel exposed to weather and other steel as indicated on drawings to ASTM A123/A123M. Minimum zinc coating shall be 600 grams per square meter.
- .4 Isolation Coating:
  - .1 Isolate aluminum from following components, by means of isolation coating:
  - .2 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
  - .3 Concrete, mortar and masonry.

### **2.3 FINISHES – HISTORIC WINDOW GRATES**

- .1 Cleaning per part 3.
- .2 Rust Converter: Rust Converter by Eastwood
- .3 Primer: to MPI #18.
- .4 Paint: Matthews Paint by PPG, or accepted alternate.
  - .1 Colour: chosen by consultant from full colour range.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- .1 Verify that field conditions are acceptable and are ready to receive Work.
- .2 Site verify dimensions, tolerances and method of attachment with other Work.

### **3.2 INSTALLATION**

- .1 Provide components for building by other Sections in accordance with Shop Drawings and schedule.
  - .2 Fit and shop assemble items in largest practical Sections, for delivery to site.
  - .3 Continuously seal joined members by continuous welds.
  - .4 Do welding work in accordance with CSA W59 unless specified otherwise.
  - .5 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
  - .6 Provide suitable means of anchorage acceptable to Consultant such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
-

- .7 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .8 Make field connections with high tensile bolts to CSA S16, or weld.
- .9 Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joint butts tight, flush and hairline. Ease exposed edges to small uniform radius.
- .10 Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- .11 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .12 Grout as required.

### **3.3 FABRICATION**

- .1 Tolerances: 3 mm in 3 m
- .2 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .3 Use self-tapping shake-proof flat round oval headed screws on items requiring assembly by screws or as indicated.
- .4 Where possible, fit and shop-assemble work, ready for installation.
- .5 Fabricate with continuously welded joints as required. File or grind exposed welds smooth and flush.
- .6 Prepare items with welds to receive paint so that no blemishes or welds are visible.
- .7 For items specified to be fabricated as bent sheets, ensure radius corners are as small as possible and no greater than 32 mm in diameter.

### **3.4 SCHEDULE**

- .1 Custom galvanized steel base plate for wood support column.
    - .1 Engineered to support new roof trusses.
    - .2 Galvanized or stainless steel fasteners.
    - .3 Refer to drawings for locations and quantities.
  - .2 Custom steel truss anchors for wood support column.
    - .1 Engineered as part of new roof structure system.
    - .2 Steel fasteners.
    - .3 Refer to drawings for locations.
-

- .3 Custom steel framing anchors at wood framing to existing stone parapet cap.
  - .1 Engineered to support wood framing extension.
  - .2 Steel fasteners.
  - .3 Refer to drawings for quantities and locations.
  
- .4 Custom steel collar below cupola connecting steel truss brackets to wood trusses.
  - .1 Steel fasteners.
  - .2 Refer to drawings for location and general intent.
  - .3 Engineered to support wood roof system.
  
- .5 Vented steel plate at exterior of metal louvers with four (4) stainless steel 38 mm standoffs at each plate. Quantity and size as noted on drawings.
  
- .6 Vented steel plate at exterior door as indicated, mounted to existing metal frame as indicated.
  
- .7 Insect Screen: at roof Soffit
  - .1 Refer to drawings for details and locations
  
- .8 Expanded Mesh: at gun slots and as indicated at select areas
  - .1 Refer to drawings for details and locations
  
- .9 Metal Ladder to Roof Access Hatch:
  - .1 Side Rails: steel angles, 75 mm x 13 mm (3" x 1/2") minimum.
  - .2 Steel rungs: 25 mm (1") diameter, weld to stringers at 300 mm (12") o.c.
  - .3 Brackets: angles 75 mm x 13 mm (3" x 1/2") minimum. Sizes and shapes as indicated. Complete with fixing anchors.
  - .4 Refer to drawings for details
  - .5 Finish:
    - .1 Prime paint all interior ladders

### **3.5 HISTORIC WINDOW GRATES**

- .1 Grates may be removed for shop cleaning. Wire fasten identification tags to each grille identifying opening from which it was taken. Top mounting pins are to remain in place on site and repaired in-situ.
  
  - .2 Review grates with the Consultant prior to commencing the work. Make test samples of cleaning and repairs to grilles for review and acceptance by the Consultant. Samples will form the basis for the work.
  
  - .3 Cleaning:
    - .1 The intent of the cleaning is to remove loose paint and friable material back to a sound base, where sound base exists, ready to receive repair work and refinishing while retaining the greatest amount of existing material. It is not the intent of the work to return the grilles to 'original' or like-new states. Sound existing finishes may be retained.
    - .2 Where underlying metal is not sound review with Consultant to determine extent of removal.
-

- .3 Remove loose rust and paint using natural fibre bristle brushes and secondly low pressure grit blasting. Wire brushes may only be used as reviewed with and approved in writing by the Consultant.
- .4 Site clean imbedded hardware.
- .4 Repairs:
  - .1 The intent of the repairs is to bring damaged portions of the grates back to sound condition for refinishing. Repairs should match original profiles and assemblies.
  - .2 Review the extent and methodology of repairs with the Consultant before proceeding.
  - .3 Patch small holes and defects with epoxy steel putty. Fill small indentations where water may stand.
- .5 Finishing:
  - .1 Apply rust converter to remaining portions of rusted surfaces.
  - .2 Feather edges of remaining existing paint finishes with emery paper.
  - .3 Apply two shop coats of primer, brush finish only.
  - .4 Use primer unadulterated, as prepared by manufacturer on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 10C.
  - .5 Apply two coats finish paint. Tint first coat slightly lighter than final finish coat.
- .6 Re-install grates in original locations.

### **3.6 CLEANING**

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

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The Executed Agreement including General Conditions and Supplementary Conditions, Division 01, applicable drawings and amendments are part of and are to be read in conjunction with this Section.

## **PART 1 - GENERAL**

### **1.1 SUMMARY OF SECTION**

- .1 As summarized and described but not restricted to the following:
  - .1 Provide carpentry work from other sections as indicated.
  - .2 Provide carpentry work as indicated in Schedule.
  - .3 Provide accessories to existing wood doors as indicated
    - .1 Refer to drawings for locations.

### **1.2 REFERENCES**

- .1 The standards listed form part of this Specification to the extent of reference. The publications are in the text by the basic designation only.
  - .2 American Society for Testing and Materials International (ASTM):
    - .1 ASTM A653/A653M-15, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process for G-185 fasteners for use with ACQ wood
    - .2 ASTM F1667-11a e1, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
  - .3 American Wood Protection Association (AWPA), Alkaline Copper Quarternary (ACQ) for all pressure treated wood.
  - .4 Canadian Standards Association (CSA):
    - .1 CSA-B111-1974 (R2003), Wire Nails, Spikes and Staples.
    - .2 CSA O80 Series-15, Wood Preservation.
    - .3 CSA O121-08 (R2013), Douglas Fir Plywood.
    - .4 CSA O141-05 (R2014), Softwood Lumber.
    - .5 CSA O151-09 (R2014), Canadian Softwood Plywood.
    - .6 CSA O153-13, Poplar Plywood.
  - .5 National Building Code of Canada (NBC) 2010.
  - .6 National Lumber Grades Authority (NLGA), Standard Grading Rules for Canadian Lumber, latest edition.
-

### **1.3 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, including installation instructions, MSDS sheets, specifications and data sheets in accordance with Division 01.

### **1.4 ENVIRONMENTAL REQUIREMENTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of materials.

### **1.5 WASTE MANAGEMENT**

- .1 Separate wood waste and place in designated areas in the following categories for recycling: Solid wood/ softwood/ hardwood, composite wood, treated, painted, or contaminated wood in containers supplied by the Contractor.
- .2 Set aside damaged wood and dimensional lumber off-cuts for acceptable alternative uses (e.g. bracing, blocking, cripples, bridging, finger-joining, or ties). Store this separated reusable wood waste convenient to cutting station and area of work.

### **1.6 DELIVERY, STORAGE AND PROTECTION OF PRODUCT**

- .1 Deliver and store materials in compliance with Division 01.
- .2 Comply with manufacturer's recommendations for handling, storage and protection during installation.
- .3 Protect and store materials off the ground, away from physical damage and from becoming wet, soiled or covered with ice or snow before, during and after installation.
- .4 Label packages to include material name, production date and/or product code.

### **1.7 QUALITY ASSURANCE/QUALITY CONTROL**

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
  - .2 Plywood identification: by grade mark in accordance with applicable CSA standards.
  - .3 Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the province where the Work is being done.
-



- .4 Contractor to have experience in similar Restoration work and able to supply 3 references if requested.

## **PART 2 - PRODUCTS**

### **2.1 LUMBER MATERIAL**

- .1 Softwood Lumber:
- .1 Softwood, SPF Species, NLGA (124c) No.2 Structural and better.
  - .2 D4S, (dressed four sides)
  - .3 Moisture content 19% or less in accordance with CSA-O141
  - .4 NLGA Standard Grading Rules for Canadian Lumber, latest edition.
- .2 Furring, blocking, nailing strips, cants, curbs, fascia backing and soffits:
- .1 Softwood, SPF Species, NLGA (122c) Standard Light Framing and better.
    - .1 Coordinate stainless bug screen at soffit. Refer to Section 05 50 00 Metal Fabrications.
- .3 Use pressure treated lumber for wood at contact with concrete or stone.

### **2.2 SOFTWOOD PANEL MATERIALS**

- .1 Douglas fir plywood: to CSA O121.
- .2 Canadian Softwood Plywood: to CSA O151.
- .3 Poplar Plywood to CSA O153.
- .4 Use pressure treated panels for roof items in contact with concrete.

### **2.3 FASTENERS**

- .1 Nails, spikes and staples: to CSA B111 and ASTM F1667.
- .2 Hot dipped galvanized fasteners to G-185 standard.
- .3 Bolts: 12.7 mm min. diameter unless indicated otherwise, complete with nuts and washers.
- .4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, 'H' clips, screws and lead or inorganic fiber plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
- .5 Fasteners for ACQ wood must be approved for use with ACQ wood (galvanized to G185 standard as defined in ASTM A653/A653M or stainless steel or ceramic coated).
-

## **2.4 PRESSURE TREATED WOOD**

- .1 Pressure treated (alkaline copper quaternary) treatment in accordance with CAN/CSA O80 Series.

## **2.5 CEMENT BOARD – SOFFITS AND CLADDING**

- .1 Soffits
  - .1 Standard of Acceptance: Allura fibre cement perforated soffit boards or accepted alternate.
  - .2 Thickness: 6 mm
  - .3 Smooth finish
  - .4 Solid colour finish as chosen by Consultant from standard range.
  - .5 Board size as required to provide soffit as indicated in drawings. Minimize cut sections of soffit.
- .2 Cladding: at gable ends of dormers
  - .1 Standard of Acceptance: Allura fibre cement lap siding or accepted alternate.
  - .2 5 ¼" x 12' boards
  - .3 Smooth finish
  - .4 Solid colour finish as chosen by Consultant from standard range.

## **2.6 FIXED LOUVER**

- .1 Fixed Louver: metal louver at cupola and existing window openings; quantity and locations as indicated on drawings.
  - .1 Standard of Acceptance: Airolite 6776, custom sized to suit window openings or accepted alternate.
  - .2 Custom sized to suit window openings.
  - .3 Construction: custom size, welded with exposed joints ground flush and smooth.
  - .4 Material: galvanized steel.
  - .5 Blade: storm-proof pattern with centre watershed in blade, reinforcing bosses and maximum blade length of 1500 mm. Drainable blades, 20 gauge.
  - .6 Frame, head, sill and jamb: 100 mm deep one piece steel, 50 mm wide frame..
  - .7 Blade angle: 43%
  - .8 Fastenings: stainless steel with nuts and resilient neoprene washers between steel and head of bolt, or between nut, stainless steel washer and steel body.
  - .9 Screen: 2 mm aluminum bird screen on inside face of louver.
  - .10 Finish: factory applied enamel. Colour: selected by Consultant from full colour range.

## **2.7 DOOR RESTORATION ACCESSORIES**

- .1 Provide black finished aluminum channel weather stripping with black neoprene gasket flush to stone sill to prevent water ingress at base. Location per drawings.
-

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- .1 Verify that field conditions are acceptable and are ready to receive Work.
- .2 Site verify dimensions, tolerances and method of attachment with other Work.

### **3.2 INSTALLATION**

- .1 Comply with requirements of NBC 2010.
- .2 Provide space framing and furring as indicated.
- .3 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .4 Install backing, nailers and other wood supports as required, secure using ACQ approved fasteners at exterior locations.
- .5 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .6 Countersink bolts where necessary to provide clearance for other work.
- .7 Fastening soffits and wood cladding:
  - .1 Position items accurately, level, plumb, true and fasten or anchor securely.
  - .2 Design and select fasteners to suit size and nature of components being joined.
  - .3 Form joints to conceal shrinkage.
  - .4 Scribe and cut as required, fit to abutting walls, and surfaces. Fit properly into recesses and to accommodate existing irregular surfaces.
- .8 Mechanically fasten sheathing to trusses. Extent of sheathing as indicated on drawings.

### **3.3 SCHEDULE**

- .1 Provide wood roof, cupola, dormers, soffit and fascia framing as indicated on drawings using soft wood framing typical and Pressure Treated wood at concrete or stone connections.
  - .2 Provide vented cement board soffit as indicated. Refer to drawings for details.
  - .3 Provide cement board cladding at gable ends of dormers. Refer to drawings for details.
  - .4 Provide supporting roof framing members as indicated.
  - .5 Coordinate with Wood Trusses Section 06 17 53 at roof system.
  - .6 Coordinate with Asphalt Shingles Section 07 31 13 at roof system.
-

- .7 Metal louvre at existing window openings and cupola
- .8 Provide framed opening and supports for roof hatch.
- .9 Provide anchorage for roof tie off, securely attached and anchored to roof structure.
  - .1 Refer to manufacturers written recommendations for secure backing and anchorage.
- .10 Replace bottom section of doors and frames. Locations and extent as noted on drawings. Review proposed restoration finished product on site with owners representative before starting work.
  - .1 Paint exterior doors to match existing at new work.
  - .2 Use same wood as existing door at new work.

### **3.4 CLEANING**

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

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The Executed Agreement including General Conditions and Supplementary Conditions, Division 01, applicable Drawings and amendments are part of and are to be read in conjunction with this Section.

## **PART 1 – GENERAL**

### **1.1 SUMMARY OF SECTION**

- .1 As summarized and described herein, but not restricted to the following:
  - .1 Provide shop fabricated engineered wood roof trusses and gable trusses.
  - .2 Refer to drawings for locations and details of trusses required.

### **1.2 REFERENCES**

- .1 Canadian Standards Association:
  - .1 CSA O86-09, Consolidation, Engineering Design in Wood
  - .2 CSA O141-05 (R2009), Softwood Lumber.
  - .3 CSA S347-99 (R2009), Test Method for Evaluation of Truss Plates Used in Lumber Joints Format(s).
- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .3 TPIC, Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses (Limit States Design).

### **1.3 SUBMITTALS**

- .1 Product Data:
    - .1 Submit manufacturer's printed product literature, including installation instructions, MSDS sheets, specifications and data sheets in accordance with Division 01.
  - .2 Shop Drawings:
    - .1 Submit shop drawings in accordance with Division 01.
    - .2 Shop drawings submission to be signed and stamped by professional engineer registered or licensed in the Province of construction.
    - .3 Indicate species, sizes, and stress grades of lumber used as truss members.
    - .4 Show pitch, span, camber, configuration and spacing of trusses.
    - .5 Indicate connector types, thicknesses, sizes, locations and design value.
    - .6 Show bearing details.
    - .7 Indicate design load for members and truss reactions.
    - .8 Submit stress diagram or print-out of computer design indicating design load for truss members.
    - .9 Indicate allowable load and stress increase.
    - .10 Show location of lateral bracing for compression members.
-

## **1.4 DESIGN CRITERIA**

- .1 Design metal plate connected wood trusses in accordance with TPIC truss design procedures for wood truss chords and webs in accordance with engineering properties in CSA-O86.
- .2 Design metal plate connected wood trusses in accordance with TPIC truss design procedures for truss joint designs to test engineering properties in accordance with CSA S347 and listed in CCMC Registry of Product Evaluations.
- .3 Design trusses, bracing and bridging in accordance with CSA-O86 for loads indicated on drawings.
- .4 Limit live load deflections to 1/240th of span unless otherwise specified or indicated.

## **1.5 STORAGE AND HANDLING**

- .1 Store trusses on job site in accordance with manufacturer's instructions.
- .2 Provide bearing supports and bracings.
- .3 Prevent bending, warping and overturning of trusses.

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS**

- .1 Lumber: to following standards:
  - .1 CSA-O141.
  - .2 NLGA (National Lumber Grading Association), Standard Grading Rules for Canadian Lumber.
- .2 Fastenings: to CSA-O86.

### **2.2 FABRICATION**

- .1 Fabricate wood trusses in accordance with reviewed shop drawings.

### **2.3 SOURCE QUALITY CONTROL**

- .1 Identify lumber by grade stamp of an agency certified by Canadian Lumber Standards Administration Board.
-

## **PART 3 – EXECUTION**

### **3.1 INSTALLATION**

- .1 Install wood trusses in accordance with reviewed shop drawings.
- .2 Handling, installation, erection, bracing and lifting in accordance with manufacturer's instructions.
- .3 Make adequate provisions for handling and erection stresses.
- .4 Exercise care to prevent out-of-plane bending of trusses.
- .5 Install temporary horizontal and cross bracing to hold trusses plumb and in safe condition until permanent bracing and decking are installed.
- .6 Install permanent bracing in accordance with reviewed shop drawings, prior to application of loads to trusses.
- .7 Do not cut or remove any truss material without approval of Truss Design Engineer.
- .8 Coordinate roof anchors with Roof truss design.

### **3.2 CLEANING**

- .1 Remove excess materials, rubbish, tools and equipment on completion of installation.

END OF SECTION

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The Executed Agreement including General Conditions and Supplementary Conditions, Division 01, applicable Drawings and amendments are part of and are to be read in conjunction with this Section.

## **PART 1 GENERAL**

### **1.1 SUMMARY OF SECTION**

- .1 As summarized and described, but not restricted to the following:
  - .1 Provide asphalt shingles and ice and water shield protection as indicated.
  - .2 Provide roof hatch and accessories as noted.
  - .3 Refer to Metal Fabrications for steel ladder to access roof hatch.

### **1.2 REFERENCES**

- .1 American Society for Testing and Materials (ASTM International).
  - .1 ASTM D228/D228M-15, Standard Test Methods for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing
  - .2 ASTM D1922-15, Standard Test Method for Propagation Tear Resistance of Plastic Film and Thin Sheeting by Pendulum Method
  - .3 ASTM D4977/D4977M-03(2013)e1, Standard Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion
  - .4 ASTM E 108 Fire Resistance: Class A
- .2 Canadian Roofing Contractors' Association (CRCA)
  - .1 CRCA Roofing Specifications manual.
- .3 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.
- .4 Canadian Standards Association (CSA International).
  - .1 CAN3-A123.51-M85 (R2001), Asphalt Shingle Application on Roof Slopes 1:3 and Steeper.
  - .2 CAN3-A123.52-M85 (R2001), Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3.
  - .3 CSA B111-1974 (R1998), Wire Nails, Spikes and Staples.
- .5 Canadian General Standards Board (CGSB)
  - .1 CGSB 37-GP-56M-80b(A1985) Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.

### **1.3 SUBMITTALS**

- .1 Submit Shop Drawings for the following, in accordance with Division 01:
    - .1 Roof Hatch: to show product features and installation details.
    - .2 Roof Anchors: to identify pull out strength and product features.
-

- .2 Product Data: Provide data indicating material characteristics, performance criteria and limitations for shingles, underlayment and ridge vent.
- .3 Samples: Submit two (2) samples of each shingle colour indicating colour range and finish texture/pattern; for colour selection.
- .4 Manufacturer's Instructions: Indicate installation criteria and procedures for installation of asphalt shingles.

#### **1.4 MOCK-UP**

- .1 Provide mock-up of shingle section minimum 3m x 3m to show ridge cap installation.
- .2 Locate where directed by Consultant.
- .3 Allow 48 hours for field review of mock-up by Consultant.
- .4 Contractor to proceed once the testing is complete and written approval has been received by the Consultant.
- .5 When accepted, mock-up will demonstrate minimum standard for this work. Approved mock-up may (if accepted) remain as part of the Work.

#### **1.5 QUALITY ASSURANCE**

- .1 Perform Work in accordance with CRCA Roofing Specifications Manual.
  - .1 Roofing Contractor to have a minimum of five (5) years proven satisfactory experience. When requested, provide a list of last three comparable roofing jobs including, job name and location, and project manager.
  - .2 Roofing manufacturer to have minimum ten (10) years of experience in roofing materials production for products specified.
  - .3 Roof installer to be member of RCANS, Roofing Contractors Association of Nova Scotia.

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

- .1 Deliver, handle, store and protect materials in accordance with manufacturer's written instructions.
  - .2 Provide and maintain dry, off-ground weatherproof storage.
  - .3 Remove only in quantities required for same day use.
-

## 1.7 EXTRA MATERIALS

- .1 Provide one unopened bundle of shingles from same production run and dye lot as shingles installed.
- .2 All unused shingles remain property of Owner.

## 1.8 WARRANTY

- .1 Extended Warranty:
  - .1 Provide 15 year high wind warranty on materials and installation “IKO Iron Clad” warranty.
    - .1 Provide high wind warranty on materials and installation to 130 km/h winds for 15 years.
  - .2 Provide 40 year limited lifetime warranty on asphalt shingles.

## PART 2 - PRODUCTS

### 2.1 ROOFING MATERIALS

- .1 Standard of Acceptance: IKO Cambridge asphalt shingles or accepted alternate.
    - .1 Asphalt Shingles, composed of a fiber glass mat base, ceramic-coated mineral granules embedded in water-resistant asphalt. Shingles to be laminated together with asphaltic cement. Self-sealing adhesive strips.
    - .2 Coverage per bundle: 3.1 m<sup>2</sup> (33.3 ft<sup>2</sup>)
    - .3 Colour: Patriot Slate
    - .4 Technical Standards:
      - .1 Fire Rating: Class A to ASTM E108.
      - .2 Tear Strength: to ASTM D1922, min: 1700, pass.
      - .3 Stabilized Bitumen Weight: to ASTM D228, min: 200 (41) g/m<sup>2</sup>, pass.
      - .4 Granule Retention: to ASTM D4977, min: 86, pass.
      - .5 Width x length: 349 mm x 1038 mm.
  - .2 Ice/Water Protection:
    - .1 Standard of Acceptance: IKO Armour Guard or accepted alternate.
    - .2 Modified bitumen roll roofing product with self-adhesive backing protected by silicone treated release sheet.
    - .3 Non-woven glass fiber mat impregnated and coated with formulated modified bitumen.
    - .4 Sand embedded top surface for non-slip safety surface.
  - .3 Ridge Vent: colour to match roof shingles. Taper width towards cupolas indicated on drawings.
-

## 2.2 ACCESSORIES

- .1 Plastic Cement: to CAN/CGSB-37.5.
- .2 Shingle Nails: to CSA B111, round wire shingle type, hot dip galvanized steel, 10 or 12 gauge, barbed or deformed shank, minimum 9.5 mm head diameter, sufficient length to just penetrate through nailable sheathing.

## 2.3 ROOF HATCH

- .1 Roof Hatch in Asphalt Shingle Roof
  - .1 Standard of Acceptance: Bilco S-20 Roof Hatch, or accepted alternate.
    - .1 Roof Hatch Cover: 14 gauge G-90 galvanized steel.
      - .1 3" (75 mm) beaded flange with formed reinforcing members.
      - .2 Heavy duty extruded EPDM rubber gasket bonded to the cover interior for continuous weather seal when closed to top surface of curb.
      - .3 Fiberglass insulation, 1" (25 mm) with protective metal liner in 22 gauge, paint bond G-90 galvanized steel.
      - .4 Size: 2'-6" (760 mm) wide x 3'-0" (915 mm) long.
    - .2 Curb: 12" (300 mm) high, 14 gauge G-90 galvanized steel, factory formed, insulated with 1" (25 mm) fibreboard.
      - .1 Provide curb flashing system integrated with ice and water shield and shingles. Flash and slope water away from roof hatch.
    - .3 Hardware:
      - .1 Lift mechanism: compression spring operators enclosed in telescopic tubes to provide smooth operating open and closing hatch. Manufactured of anti-corrosive materials.
      - .2 Heavy duty hinges, zinc plated and chromate sealed.
      - .3 Spring latch with interior and exterior turn handles, zinc plated & chromate sealed.
      - .4 Provide interior and exterior padlock hasps.
      - .5 Latch strike; stamped component bolted to curb assembly.
      - .6 Cover hardware to be bolted to heavy gauge channel reinforcing, welded to underside of cover and concealed within insulation space.
    - .4 Approved Alternate Manufacturer:
      - .1 Construction Specialties

## 2.4 ROOF ANCHOR

- .1 Roof Anchor for Fall Protection Equipment:
    - .1 Standard of Acceptance: DBI SALA permanent roof anchor with cap or accepted alternate.
      - .1 For use with fall protection equipment.
      - .2 Weathertight cap protects anchor from corrosion and hides anchor
      - .3 For light commercial use
-

- .4 Rated for 5000 lbs for use with personal fall arrest system
  - .1 Engineered and tested for 5000 lb weight when installed per manufactures recommended installation details.
- .5 Securely install to manufacturers recommendations
- .6 Refer to drawings for locations and quantities
- .7 Purpose made for use with wood and wood truss roof system.

## **2.5 CARPENTRY MATERIALS**

- .1 Refer to Section 06 10 00 Carpentry.

## **PART 3 – EXECUTION**

### **3.1 EXAMINATION**

- .1 Verify roof openings are correctly framed.
- .2 Verify deck surfaces are dry, free of ridges, warps, or voids.

### **3.2 PREPARATION**

- .1 Fill knot holes and surface cracks with latex filler at areas of bonded eave protection. Cover knot holes with sheet metal.
- .2 Broom clean deck surfaces under ice and water shield.

### **3.3 INSTALLATION - ICE AND WATER PROTECTION**

- .1 Place eave drip edge and gable drip edge metal flashings tight with fascia boards. Weather lap joints 50 mm and seal with plastic cement. Secure flange with nails spaced 4 mm on centre.
- .2 Install self-adhering eave protection in accordance with manufacturer's written instructions.
- .3 Lap joints minimum 150 mm.

### **3.4 SHINGLE APPLICATION**

- .1 Do asphalt shingle work in accordance with CAN3-A123.51, CAN3-A123.52 and CRCA Specification except where specified otherwise.
-

- .2 Install shingles in accordance with manufacturer's written instructions using nails. Staples not acceptable.
- .3 Apply daub of adhesive to underside of shingle tab along rake and ridge of roof during installation.
- .4 Install shingle starter strip in accordance with manufacturer's written instructions.
- .5 Project first course of shingles 19 mm beyond fascia boards.
- .6 Install ridge cap at areas indicated on drawings to full length of roof ridges.
- .7 Complete installation to provide weather tight service.

### **3.5 PROTECTION OF FINISHED WORK**

- .1 Do not permit traffic over finished roof surface.

END OF SECTION

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The Executed Agreement including General Conditions and Supplementary Conditions, Division 01, applicable drawings and amendments are part of and are to be read in conjunction with this Section.

## **PART 1 - GENERAL**

### **1.1 SUMMARY OF SECTION**

- .1 As summarized and described, but not restricted to the following:
  - .1 Provide cap flashings for areas where roofing membrane abuts vertical wall surfaces.
  - .2 Provide metal flashing trim in areas as noted on the drawings.
  - .3 Provide metal fascia and counter flashings as detailed.

### **1.2 REFERENCES**

- .1 The Aluminum Association Inc. (AA):
  - .1 Aluminum Sheet Metal Work in Building Construction, latest edition.
- .2 American Society for Testing and Materials International (ASTM):
  - .1 ASTM C920-14a, Standard Specification for Elastomeric Joint Sealants.
  - .2 ASTM D523-14, Test Method for Specular Gloss.
  - .3 ASTM D822/D822M-13, Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
  - .4 ASTM F1667-11a<sup>1</sup>, Driven Fasteners: Nails, Spikes, and Staples.
- .3 Canadian General Standards Board:
  - .1 CAN/CGSB 51.32-M77, Sheathing Membrane, Breather Type CPL.
- .4 Canadian Roofing Contractors Association (CRCA):
  - .1 Roofing Specifications Manual, latest edition.

### **1.3 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, including installation instructions, MSDS sheets, specifications and data sheets in accordance with Division 01.
- .2 Samples:
  - .1 Submit 50 mm x 50 mm samples of each type of sheet metal material, colour and finish for consultant's selection.

### **1.4 WASTE MANAGEMENT**

- .1 Separate and recycle waste materials in accordance Division 01.
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## **1.5 DELIVERY, HANDLING AND PROTECTION OF PRODUCT**

- .1 Refer to Division 01 for transportation, handling, storage and protection of products.
- .2 Stack materials to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to facilitate drainage.
- .3 Prevent contact with materials which may cause discolouration or staining.

## **1.6 QUALITY ASSURANCE/QUALITY CONTROL**

- .1 Perform Work to CRCA Manual standard details and requirements.
- .2 Fabricator Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .3 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS - PREFINISHED SHEET STEEL**

- .1 Prefinished steel with factory applied silicone modified polyester coating:
    - .1 Class F1S.
    - .2 Colour to complement adjacent materials, i.e. asphalt shingles. Consultant to choose colour from full colour range.
    - .3 Specular gloss: 30 units +/- 5 in accordance with ASTM D523.
    - .4 Coating thickness: not less than 25 micrometres.
    - .5 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822 as follows:
      - .1 Outdoor exposure period 1000 hours.
      - .2 Humidity resistance exposure period 1000 hours.
  - .2 Thickness steel: Minimum 20 gauge for flashings over 2440 mm above grade, 22 gauge for sill flashings below 2440 mm above grade and 20 gauge for flashings at or near grade.
  - .3 Break formed prefinished steel to profiles indicated.
    - .1 Flashing to have 50 mm vertical leg.
    - .2 Flashings should have a positive slope, 5 degrees or greater unless noted otherwise.
  - .4 Minimum of 50% recycled content in prefinished steel.
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## **2.2 ACCESSORIES**

- .1 Isolation Coating: alkali resistant bituminous paint.
- .2 Underlay for metal flashing: dry sheathing to CAN/CGSB-51.32.
- .3 Silicone Sealant:
  - .1 100% Silicone sealant to ASTM C920, Type S, Grade NS Class 50; colour selected by Consultant from standard range.
  - .2 Standard of Acceptance based on Dow Corning ® Contractors Concrete Sealant (CCS) or acceptable alternate.
    - .1 Approved alternates: Tremco Sealant and Waterproofing, Sika Canada Inc.
- .4 Cleats: of same material as flashing specified, and temper as sheet metal, minimum 50 mm wide. Thickness 20 gauge.
- .5 Fasteners: of same material as sheet metal, to ASTM F1667, ring thread flat head roofing nails of length and thickness suitable for metal flashing application.
- .6 Washers: soft neoprene washers.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION OF SUBSTRATE**

- .1 Provide underlay under sheet metal. Secure in place and lap joints 100 mm.
- .2 Install starter, edge strips and cleats before starting installation.
- .3 Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

### **3.2 INTERFACE WITH OTHER SYSTEMS**

- .1 Apply isolation coating to metal surfaces to be embedded in concrete.
- .2 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs. Flash joints using S-lock forming tight fit over hook strips.
- .3 Coordinate with ice and water shield and asphalt roofing installation, Section 07 31 13 Asphalt Shingles.

### **3.3 INSTALLATION**

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series detail.
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- .2 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.
- .3 Hem exposed edges on underside. Miter and seal corners with sealant.
- .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .5 Form flashings, copings to profiles indicated on drawings.
- .6 Use concealed fastenings except where approved before installation; fasteners should be installed at 600 mm o.c.
- .7 Lock end joints and caulk with sealant.
- .8 Caulk flashing at reglet cap with sealant.
- .9 Cut triangle or diagonal joint to minimize cut joint.

END OF SECTION

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The Executed Agreement including General Conditions and Supplementary Conditions, Division 01, applicable Drawings and amendments are part of and are to be read in conjunction with this Section.

## **PART 1 - GENERAL**

### **1.1 SUMMARY OF SECTION**

- .1 As summarized and described, but not restricted to the following:
  - .1 Provide the following Interior Specialties:
    - .1 Interior lights and bulbs.

### **1.2 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, including installation instructions, MSDS sheets, specifications and data sheets in accordance with Section 01 33 00 Submittal Procedures.
  - .2 Interior light sand bulbs

### **1.3 ENVIRONMENTAL REQUIREMENTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of materials.

### **1.4 DELIVERY, STORAGE AND PROTECTION OF PRODUCT**

- .1 Deliver and store materials in compliance with Section 01 61 00 Common Product Requirements.
- .2 Comply with manufacturer's recommendations for handling, storage and protection during installation.
- .3 Protect and store materials off the ground, away from physical damage and from becoming wet, soiled or covered with ice or snow before, during and after installation.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- .1 Light String:
    - .1 Standard of Acceptance: 100 foot Lumapro 6YF72 Light String by Grainger
    - .2 Light String with plastic dome protectors for lights
    - .3 Lamp type: Incandescent, (LED screw in bulbs to be used).
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- .4 Number of lamp heads: 10
- .5 Voltage: 120 VAC, lamp watts: 150
- .6 Colour: Yellow/Black
- .7 Base style: String

## **2.2 LAMPS**

- .1 Quantity: 10 bulbs
- .2 1100 Lumen LED bulbs. Screw in bulbs for use in lamp string detailed above.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- .1 Verify surfaces are ready to receive Lights.

### **3.2 INTERFACE WITH OTHER SYSTEMS**

- .1 Coordinate Work with wall outlets provided by separate contract from Owner.
- .2 Install at end of work to avoid damage to lights.

### **3.3 INSTALLATION**

- .1 Securely attach light string with heavy duty plastic zip ties in circle to wood truss base for overall lighting in circle layout.
- .2 Coordinate with location of hatch/ladder/outlet for lights.
- .3 Install new LED light bulbs at end of job

### **3.4 ADJUSTMENT**

- .1 Verify under Work of this Section that installed products function properly, and adjust them accordingly to ensure satisfactory operation.

END OF SECTION

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