

Specifications

100% tender submission – July 7, 2017

ROOF REPLACEMENT, BUILDING #5

SPRINGHILL INSTITUTION

SPRINGHILL, NS

PWGSC PROJECT NO. R.084537.001

CSC PROJECT NO. 210-3604B

**Public Works and Government Services Canada
Atlantic Region**

Roof Replacement
Building 6
Springhill Institution
Springhill, NS
Project No. R.84536.001

Specifications
Approval Signatures

Section 00 00 01
Page 1 of 1
2017-07-07

DISCIPLINE

SIGNATURE

DATE

STAMP

Structural
Specifications:


APPROVED

2017/07/07
DATE



Tender
PWGSC Project Manager:


APPROVED

2017/07/12
DATE

<u>Section</u>	<u>Title</u>	<u>Pages</u>
<u>Division 00 - Procurement and Contracting Requirements</u>		
00 00 01	Specifications Approval Signatures	1
00 01 10	List of Contents	1
00 01 12	List of Drawings	1
<u>Division 01 - General Requirements</u>		
01 10 10	General Instructions	6
01 14 10	Scheduling and Management of Work	9
01 16 11	Material and Equipment	3
01 33 00	Submittal Procedures	8
01 35 24	Special Procedures on Fire Safety Requirements	6
01 35 25	Special Procedures on Lockout Requirements	7
01 35 28	Health and Safety Requirements	16
01 35 43	Environmental Procedures	1
01 35 59	Security Requirements at Correctional Service Canada Facilities	16
01 45 00	Testing and Quality Control	3
01 50 00	Temporary Facilities	7
01 61 00	Common Product Requirements	5
01 74 11	Cleaning	2
01 74 22	Construction/Demolition Waste Management and Disposal	3
01 77 00	Closeout Procedures	2
01 78 00	Closeout Submittals	4
<u>Division 02 - Existing Conditions</u>		
02 41 18	Selective Demolition	4
<u>Division 06 - Wood, Plastics, and Composites</u>		
06 10 00	Rough Carpentry	4
<u>Division 07 - Thermal and Moisture Protection</u>		
07 52 16	Modified Bituminous Membrane Roofing	18
07 62 00	Sheet Metal Flashing and Trim	6
07 71 50	Roof Anchors	5
07 92 00	Joint Sealant	3

Roof Replacement	List of Drawings	Section 00 01 12
Building 5		Page 1 of 1
Springhill Institution		2017-07-07
Springhill, NS		
Project No. R.84537.001		

<u>Drawings No.</u>	<u>Title</u>	<u>Date</u>
S1 of 4	Existing Conditions, Plan and Details	July 2017
S2 of 4	Roofing Plan, Sections and Details	July 2017
S3 of 4	Roofing Sections and Details	July 2017
S4 of 4	Roofing Sections and Details	July 2017

PART 1 - GENERAL

1.1 Description of Work

- .1 In general, the work under this contract consists of:
 - .1 The replacement of Building 5 roof system on Level 1 above the original building section.
 - .2 The installation of a new cap sheet over the entire roof of the 2004 addition (Levels 2 to 7).
- .2 The areas and extent of the work are as described below and as shown on accompanying drawings S1, S2, S3 and S4, as prepared for this project.
- .3 Work is to consist of, but not necessarily be limited to, the following:
 - .1 Removal, transportation and disposal of existing stone ballast, concrete pavers, flashings, single-ply EPDM roof membrane system and all related materials down to the existing vapour barrier and as required to prepare the deck substrate in areas to receive new roofing system.
 - .2 Supply and installation of new SBS Modified Bitumen roofing system on Level 1, complete with vapour barrier, flat and tapered insulation, cover board, roofing and flashing membranes and all related components for a complete installation. The supply and installation of a new SBS Modified Bitumen cap sheet and related components over the entire remaining roof areas on Levels 2 to 7.
 - .3 Installation of retrofit roof drains in locations indicated.
 - .4 Localized repair of drain sumps and building up of low spots in locations indicated.
 - .5 Installation of new flashings in areas indicated.
 - .6 Removal and reinstatement of existing flashings where indicated.
 - .7 Replacement of ten (10) existing roof travel restraint anchors in areas indicated on Level 1.

.8 Removal and reinstatement of wall cladding and related flashings where indicated and where required to install new cap sheet and flashings.

.9 All deconstruction, removals and reinstatements as required to properly complete the work.

.10 All required fall protection equipment and procedures in accordance with authorities having jurisdiction and as required to safely carry out the work.

.11 Disposal of all materials required to be removed for the installation of the new roofing system and related components, and not designated for reinstatement.

.4 Location of work is Building 5, Springhill Institution, Springhill, N.S.

1.2 Familiarization
with Site

.1 Before submitting a bid, it is recommended that bidders visit, inspect and examine the site and its surroundings and satisfy themselves as to the form, nature and extent of the work and materials necessary for the completion of the work, the means of access and the temporary facilities, and, in general, shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. No allowance shall be made subsequently in this connection on account of error or negligence to properly observe and determine the conditions that will apply.

.2 Obtain prior permission from the Departmental Representative before carrying out such site inspection.

1.3 Codes and
Standards

.1 Perform work in accordance with the 2010 National Building Code of Canada and any other code of provincial or local application including all amendments up to project tender closing date provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.

- .2 Materials and workmanship must meet or exceed requirements of specified standards, codes and referenced documents.

1.4 Interpretation of Documents

- .1 Supplementary to the Order of Precedence article of the General Conditions, the Division 01 Sections take precedence over the technical specification sections in other Divisions of the Specifications Manual.

1.5 Term Engineer

- .1 Unless specifically stated otherwise, the term Engineer where used in the Specifications and on the Drawings shall mean the Departmental Representative as defined in the General Conditions of the Contract.

1.6 Cost Breakdown

- .1 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price. Required forms will be provided for application of progress payment.
- .2 List items of work numerically following the same division/section number system of the specification manual and thereafter sub-divide into major work components and building systems as directed by Departmental Representative.
- .3 Upon approval, cost breakdown will be used as basis for progress payment.

1.7 Documents Required

- .1 Maintain at the job site, one copy each of the following:
 - .1 Contract Drawings
 - .2 Specifications
 - .3 Addenda
 - .4 Reviewed Shop Drawings
 - .5 List of outstanding Shop Drawings
 - .6 Change Orders
 - .7 Other modifications to Contract
 - .8 Field Test Reports
 - .9 Copy of Approved Work Schedule

.10 Health and Safety Plan and other safety related documents.

.11 Other documents as stipulated elsewhere in the Contract Documents.

1.8 Permits

- .1 In accordance with the General Conditions, obtain and pay for building permit, certificates, licenses and other permits as required by municipal, provincial and federal authorities.
- .2 Provide appropriate notifications of project to municipal and provincial inspection authorities.
- .3 Obtain compliance certificates as prescribed by legislative and regulatory provisions of municipal, provincial and federal authorities as applicable to the performance of work.
- .4 Submit to Departmental Representative, copy of application forms and approval documents received from above referenced authorities.

1.9 Alterations, Additions or Repairs to Existing Building

- .1 Execute work with least possible interference or disturbance to building operations and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.
- .2 Where security has been reduced by work of Contract, provide temporary means to maintain security.
- .3 Provide temporary dust screens, barriers, warning signs in locations where renovation and alteration work is adjacent to areas which will be operative during such work.

1.10 Cutting, Fitting and Patching

- .1 Ensure that cutting and patching required by all trades is included in total bid price submitted for the work.
 - .2 Execute cutting, fitting and patching required to make work fit properly.
-

- .3 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work. This includes patching of openings in existing work resulting from removal of existing services.
- .4 Do not cut, bore, or sleeve load-bearing members, except where specifically approved by Departmental Representative.
- .5 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.
- .6 Fit work airtight to pipes, sleeves ducts and conduits.

1.11 Existing
Services

- .1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum disturbance to facility operations.
 - .2 Before commencing work, establish location and extent of service lines in area of work and notify Departmental Representative of findings.
 - .3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility. This includes disconnection of electrical power and communication services to facility's operational areas. Adhere to approved schedule and provide notice to affected parties.
 - .4 Provide temporary services when directed by Departmental Representative to maintain critical systems.
 - .5 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
 - .6 Protect, relocate or maintain existing active services as required. When inactive services are
-

Roof Replacement
Building 5
Springhill Institution
Springhill, NS
Project No. R.84537.001

General Instructions

Section 01 10 10
Page 6 of 6
2017-07-07

encountered, cap off in manner approved by
authorities having jurisdiction over service.
Record locations of maintained, re-routed and
abandoned service lines.

1.12 Building Smoking
Environment

- .1 Comply with smoking restrictions.

PART 1 - GENERAL

1.1 Submittals

- .1 Upon acceptance of bid and prior to commencement of work, submit to Departmental Representative the following work management documents:
 - .1 Work Schedule as specified herein.
 - .2 Shop Drawing Submittal Schedule specified in Section 01 33 00.
 - .3 Hot Work Procedures specified in Section 01 35 24.
 - .4 Lockout Procedures specified in Section 01 35 25.
 - .5 Health and Safety Plan specified in Section 01 35 28.
 - .6 Environmental Plan specified in Section 01 35 43.
 - .7 List of workers requiring security clearance and those to be placed on Site Security Control list as specified in Section 01 35 59.
 - .8 Dust Control Plan specified in Section 01 50 00.
 - .9 Waste Management Plan specified in Section 01 74 22.

1.2 Work Schedule

- .1 Upon acceptance of bid submit:
 - .1 Preliminary work schedule within 7 calendar days of contract award.
 - .2 Detailed work schedule within 14 calendar days of contract award.
- .2 Provide sufficient details in preliminary schedule to clearly illustrate entire implementation plan, depicting efficient coordination of tasks and resources, to achieve completion of work on time and permit effective monitoring of work progress in relation to established milestones.

- .3 Preliminary work schedule content to include as a minimum the following:
 - .1 Bar (GANTT) Charts, indicating all work activities, tasks and other project elements, their anticipated durations, planned dates for achieving key activities and major project milestones supported with;
 - .2 Written narrative on key elements of work illustrated in bar chart, providing sufficient details to demonstrate a reasonable implementation plan for completion of project within designated time.
 - .3 Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.
 - .4 Work schedule must take into consideration and reflect the work phasing, required sequence of work, special conditions and operational restrictions as specified below and indicated on drawings.
 - .5 Schedule work in cooperation with the Departmental Representative. Incorporate within Work Schedule, items identified by Departmental Representative during review of preliminary schedule.
 - .6 Completed schedule shall be approved by Departmental Representative. When approved, take necessary measures to complete work within scheduled time. Do not change schedule without Departmental Representative's approval.
 - .7 Ensure that all subtrades and subcontractors are made aware of the work restraints and operational restrictions specified.
 - .8 Schedule Updates:
 - .1 Submit when requested by Departmental Representative.
-

.2 Provide information and pertinent details explaining reasons for necessary changes to implementation plan.

.3 Identify problem areas, anticipated delays, impact on schedule and proposed corrective measures to be taken.

.9 Departmental Representative will make interim reviews and evaluate progress of work based on approved schedule. Frequency of such reviews will be as decided by Departmental Representative. Address and take corrective measures on items identified by reviews and as directed by Departmental Representative. Update schedule accordingly.

.10 In every instance, change or deviation from the Work Schedule, no matter how minimal the risk or impact on safety or inconvenience to tenant or public might appear, will be subject to prior review and approval by the Departmental Representative.

1.3 Operational Restrictions

.1 The Contractor must recognize that building occupants will be affected by implementation of this contract. The Contractor must perform the work with utmost regard to the safety and convenience of building occupants and users. All work activities must be planned and scheduled with this in mind. The Contractor will not be permitted to disturb any portion of the building without providing temporary facilities as necessary to ensure safe and direct passage through disturbed or otherwise affected areas.

.2 Contractor to communicate with the Departmental Representative on a weekly basis to identify intended work areas, activities and scheduling for the coming week.

.3 Off Hours: means a period of time which is outside the daily operational hours of the facility. For the purposes of this contract, Off-Hours are defined as follows:

.1 Weeknight Off-Hours: between the hours of

18:00 and 07:00 for each weekday Monday to Thursday inclusive.

.2 Weekend Off-Hours: between the hours of 18:00 Friday evening to 07:00 Monday morning.

.3 Dependent on the nature and location of the construction activity and due to an unanticipated operational requirement of the facility, certain off-hour periods may be redefined by adjusting the start and end time periods or cancellation of a specific off-hour workshift during the course of the Work.

.4 Unless otherwise instructed by the Departmental Representative the following work shall be performed during Off-Hours:

.1 Erection and dismantling of dust barriers, hoarding or other protective devices to separate areas of facility occupied and under use from work areas;

.2 Erection of site enclosure fencing and temporary hoarding at building entrances and fire exits to keep them operational during work;

.3 Work which requires the use of products controlled by WHMIS and for which MSDS sheets indicate toxic or hazardous materials requiring special handling and application procedures;

.4 Use of materials having high solvent content or other content emitting strong noxious fumes or odours;

.5 Removal of demolition debris from the building;

.6 Cleaning and preparing of occupied areas for daytime use immediately following an off-hour workshift;

.7 Work which requires the temporary disconnection of power and communication services to occupied areas;

.8 Work which creates excessive noise or vibration creating interference with facility operations.

.5 Departmental Representative reserves the right to stop certain daytime work activities, if the nature of that activity generates excessive noise or dust and have Contractor re-schedule

that particular work to be performed during the Off-Hour period.

- .6 Ensure that all trades are aware of the "Off-Hour" requirements of this contract and ensure that any extra costs incurred as a result is included in the Contractor's bid price for the work. No extra cost will be paid due to failure by General Contractor or his sub-contractors to recognize the off-hour requirements and other restrictions specified herein and to include all necessary allowances within their bids.
 - .7 See Section 01 35 59 in regards to:
 - .1 Special security requirements which must be observed in the course of work.
 - .2 Provision of security personnel by Contractor as part of the Work.
 - .8 Limit manoeuvring space onsite to areas approved by Departmental Representative. Staging area for placement of construction trailer, goods storage and portable toilet will be in the location designated by the Departmental Representative.
 - .9 Facility circulation maintained:
 - .1 Ensure that entrances, corridors, ramps, stairwells, fire exits and other circulation routes are maintained free and clear providing safe and uninterrupted passage for facility users and public at all times during the entire work.
 - .2 Maintain those areas clean and free of construction materials and equipment. Provide temporary dust barriers and other suitable enclosures to ensure users are not exposed to construction activities and are protected from exposure to dust, noise and hazardous conditions.
 - .3 Provide temporary corridors, walkways, passageways, etc., when required due to nature of work.
 - .4 Maintain fire escape routes accessible and firefighting access open all times for the duration of the project.
-

.5 Do not under any circumstances block fire exit doors. Do not leave construction materials or debris at building entrances and exits.

.10 Safety Signage:

.1 Provide onsite, and erect as required during progress of work, proper bilingual signage, mounted on self-supporting stands, warning the public and building occupants of construction activities in progress and alerting need to exercise caution in proceeding through disturbed areas to access the facility, and directing building occupants through any detours which may be required.

.2 Signage to be professionally printed and mounted on wooden backing, coloured and to express messages as directed by the Departmental Representative.

.3 Generally maximum size of sign should be in the order of 1.0 square meters. Number of signs required will be dependent on number of areas in facility under renovation at any one time.

.4 Include costs for the supply and installation of these signs in the bid price.

.11 Dust and Dirt Control:

.1 See Section 01 50 00 and 01 74 11 for dust control and cleaning requirements.

.2 Effectively plan and implement dust control measures and cleaning activities as an integral part of all construction activities. Review all measures with the Departmental Representative before undertaking work, especially for major dust generating activities.

.3 Do not allow demolition debris and construction waste to accumulate on site and contribute to the propagation of dust.

.4 As work progresses, maintain construction areas in a tidy condition at all times. Remove gross dust accumulations by cleaning and vacuuming immediately following the completion of any major dust generating activity.

.5 Immediately remove all debris and dust from within occupied areas as generated by work

therein during a given workshift.

.6 Disconnect and seal-off ductwork of HVAC servicing the construction area to stop spread of dust into other areas of the facility.

.7 Avoid situations and practises which results in dust and dirt being brought from the construction areas or from the exterior and tracked into occupied areas of the building.

.8 Stop workers with soiled footwear from entering building.

.9 Inform workers and make them sensitive to the need for dust and dirt control. Stringently enforce rules and regulations, immediately address non-compliance.

.12 Ensure that all sub-trades are made aware of and abide by the contents of this Section and in particularly the work restrictions specified herein due to facility operational requirements.

1.4 Project Meetings

.1 Schedule and administer project meetings, held on a minimum bi-weekly basis, for entire duration of work and more often when directed by Departmental Representative as deemed necessary due to progress of work or particular situation.

.2 Prepare agenda for meetings.

.3 Notify participants in writing 4 days in advance of meeting date.

.1 Ensure attendance of all subcontractors.

.2 Departmental Representative will provide list of other attendees to be notified.

.4 Hold meetings at project site or where approved by Departmental Representative.

.5 Preside at meetings and record minutes.

.1 Indicate significant proceedings and decisions. Identify action items by parties.

.2 Distribute to participants by mail or by facsimile within 3 calendar days after each meeting.

.3 Make revisions as directed by Departmental Representative.

.4 Departmental Representative will advise whether submission of minutes by Email is acceptable. Decision will be based on compatibility of software among participants.

1.5 Work Coordination

.1 The General Contractor is responsible for coordinating the work of the various trades and predetermining where the work of such trades interfaces with each other.

.1 Designate one person from own employ having overall responsibility to review contract documents and shop drawings, plan and manage such coordination.

.2 The General Contractor shall convene meetings between trades whose work interfaces and ensure that they are fully aware of the areas and the extent of where interfacing is required.

.1 Provide each trade with the plans and specs of the interfacing trade, as required, to assist them in planning and carrying out their respective work.

.2 Develop coordination drawings when deemed required illustrating potential interference between work of various trades and distribute to all affected parties including structural trade.

.1 Pay particularly close attention to overhead work above ceilings and within or near to building structural elements.

.2 Coordination drawings to identify all building elements, services lines, rough-in points and indicate from where various services are coming.

.3 Review coordination drawings at purposely called meetings. Have subcontractors sign-off on drawings and publish minutes of each meeting.

.4 Plan and coordinate work in such a way to minimize quantity of service line offsets.

.5 Submit copy of coordination drawings and meeting minutes to Departmental Representative for information purposes.

- .3 Submission of shop drawings and ordering of prefabricated equipment or prebuilt components shall only occur once coordination meeting for such items has taken place between trades and all conditions affecting the work of the interfacing trades has been made known and accounted for.
- .4 Work Cooperation:
 - .1 Ensure cooperation between trades in order to facilitate the general progress of the work and avoid situations of spatial interference.
 - .2 Ensure that each trade provides all other trades reasonable opportunity for the completion of the work and in such a way as to prevent unnecessary delays, cutting, patching and the need to remove and replace completed work.
- .5 No extra costs to the Contract will be considered by the Departmental Representative as a result of Contractor's failure to effectively coordinate all portions of the Work. Disputes between the various trades as a result of their not being informed of the areas and extent of interface work shall be the sole responsibility of the General Contractor to be resolved at own cost.

PART 1 - GENERAL

1.1 General

- .1 All materials are to be new, unopened, in original containers and within usage dates specified.
- .2 Alternative products will not be approved unless all the products to be incorporated into the works have a single source of manufacturer and are of equal or better quality. The intent of this item is to eliminate compatibility problems which are associated with intermixing different manufacturers' products. Submissions for equals must be submitted 10 days before close of tender and must have all the required information, description, history and test data by which an approval can be based on.
- .3 All materials are to be stored in such a manner as to prevent spoilage, segregation, freezing, heat damage, and moisture infiltration. Facilities may be available on site but prior approval and security issues will have to be addressed with the appropriate authorities. Any costs associated with this are considered incidental to the work.

1.2 Manufacturer's Instructions

- .1 All products will be stored, handled, applied, installed and cured in strict accordance with the most recent printed data. A letter is required from the supplier/manufacturer and bidder verifying that the required information was supplied and reviewed.
 - .2 Immediate notification of any perceived and/or actual discrepancy will be required in written form to the Departmental Representative.
 - .3 Manufacturer's technical representative will be required to visit the works to verify the suitability of the materials and procedures for the work.
-

1.3 Fasteners

- .1 Provide and install fasteners where required. For falsework and safety aspects, fasteners must be suitable in quality and quantity for the intended use. Charts and ratings shall be supplied for each fastener if requested by the Departmental Representative.
- .2 All fasteners not to be incorporated into the works will be removed and disturbed surfaces suitably patched.
- .3 Fasteners that spall or chip will be prohibited.
- .4 Powder actuated tools and fasteners will not be permitted.

1.4 Delivery/Storage

- .1 All materials will be delivered, stored and handled as per manufacturer's instructions.
- .2 Storage on site will require approval from the appropriate authorities. Bidder should also be aware that he may have to supply suitable facilities outside the compound, but within the facility, no extra cost will be entertained for delays experienced with the movement from storage to inside the compound. Bidder should be aware that this is a secure facility and movements of workers and materials will be heavily scrutinized. It will be incumbent for the contractor to plan activities to lessen the impact.

1.5 Alternative Materials

- .1 All alternative materials must be approved by Departmental Representative.
- .2 No alternative materials will be permitted unless the manufacturer provides a complete package of products that are suitable for the work and have all the pertinent supporting data, testing, and historical evidence to prove the product suitability and performance in the environment that it is intended to be used and must meet or exceed the acceptable standard.

- .3 Submit all pertinent data and aforementioned requirements a minimum of 10 working days prior to close of tender.

1.6 Conformance

- .1 All materials and equipment must meet or exceed approved standards. Equipment must conform to applicable CSA standards including all operational and safety aspects.

1.7 Equipment and Plant

- .1 If requested, bidder will prove to authorities that the equipment and plant to be used are adequate and in good working order with all required maintenance and operational records. Bidder is to ensure that the equipment is operated in accordance with applicable standards and all personnel operating said equipment have been fully instructed in their performance and safety requirements. When instructed, provide engineer records of all certificates and/or instructional training. Supply updated training if required by provincial or federal standards.

PART 1 - GENERAL

- | | |
|---|--|
| <u>1.1 Section Includes</u> | .1 Shop drawings and product data. |
| | .2 Samples. |
| | .3 Certificates. |
| <u>1.2 Related Sections</u> | .1 Section 01 45 00 - Testing and Quality Control. |
| | .2 Section 01 78 00 - Closeout Submittals. |
| <u>1.3 Submittal General Requirements</u> | .1 Submit to Departmental Representative for review requested submittals specified in various sections of the specifications including shop drawings, samples, permits, compliance certificates, test reports, work management plans and other data required as part of the work. |
| | .2 Submit with reasonable promptness and in orderly sequence so as to allow for Departmental Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed. |
| | .3 Do not proceed with work until relevant submissions are reviewed by Departmental Representative. |
| | .4 Present shop drawings, product data, samples and mock-ups in SI Metric units. |
| | .5 Where items or information is not produced in SI Metric units, provide soft converted values. |
-

- .6 Review submittals prior to submission to Departmental Representative. Ensure during review that necessary requirements have been determined and verified, required field measurements or data have been taken, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.
 - .1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Departmental Representative and considered rejected.
 - .7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
 - .8 Verify field measurements and affected adjacent Work are coordinated.
 - .9 Contractor's responsibility for errors, omissions or deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
 - .10 Submittal format: paper originals, or alternatively clear and fully legible photocopies of originals. Facsimiles are not acceptable, except in special circumstances pre-approved by Departmental Representative. Poorly printed non-legible photocopies or facsimiles will not be accepted and be returned for resubmission. Electronic submittal submissions in PDF (Portable Document Format) are also acceptable. Each submittal is to be issued as a separate file. PDF submittals to be generated at a suitable scanned resolution so that they can be read easily and interpreted without ambiguity. Optimize the size of the files to allow for reasonable electronic transmission while maintaining the clarity of the drawing.
-

.11 Make changes or revision to submissions which Departmental Representative may require, consistent with Contract Documents and resubmit as directed by Departmental Representative. When resubmitting, notify Departmental Representative in writing of any revisions other than those requested.

.12 Keep one reviewed copy of each submittal document on site for duration of Work.

1.4 Shop Drawings and
Product Data

.1 The term "shop drawings" means fabrication drawings, erection drawings, diagrams, illustrations, schedules, performance charts, technical product data, brochures, specifications, test reports, installation instructions and other data which are to be provided by Contractor to illustrate compliance with specified materials and details of a portion of work.

.2 Number of Shop Drawings: submit sufficient copies of shop drawings which are required by the General Contractor and sub-contractors plus 2 copies which will be retained by Departmental Representative. Ensure sufficient numbers are submitted to enable one complete set to be included in each of the maintenance manuals specified in 01 78 00.

.3 Shop Drawing Submittal Schedule:

.1 Submit, within 15 working days of contract award, in format acceptable to Departmental Representative, a submittal schedule listing all shop drawings to be submitted for project as specified in various sections of the Specifications.

.2 Schedule to indicate proposed submission date of each shop drawing, status of review status and anticipated product delivery date to site. Track all submissions for entire project.

.3 As work progresses, revise schedule identifying those items which have been reviewed and finalized and indicating list of outstanding shop drawings.

- .4 Submit schedule updates at stipulated dates or project time intervals as predetermined and agreed upon between Contractor and Departmental Representative at commencement of Work.
- .4 Shop Drawings Content and Format:
- .1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where items or equipment attach or connect to other items or equipment, confirm that all interrelated work have been coordinated, regardless of section or trade from which the adjacent work is being supplied and installed.
- .2 Shop Drawings Format:
- .1 Opaque white prints or photocopies of original drawings or standard drawings modified to clearly illustrate work specific to project requirements. Maximum sheet size to be 1000 x 707 mm.
- .2 Product Data from manufacturer's standard catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products, to be original full colour brochures, clearly marked indicating applicable data and deleting information not applicable to project.
- .3 Non or poorly legible drawings, photocopies or facsimiles will not be accepted and returned not reviewed.
- .4 Electronic PDF submittals are also acceptable.
- .3 Supplement manufacturer's standard drawings and literature with additional information to provide details applicable to project.
- .4 Delete information not applicable to project on all submittals.
- .5 Allow 14 calendar days for Departmental Representative's review of each submission.
-

- .6 Adjustments or corrections made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, advise Departmental Representative in writing prior to proceeding with Work.
 - .7 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections and comments are made, fabrication and installation may proceed upon receipt of shop drawings. If shop drawings are rejected and noted to be Resubmitted, do not proceed with that portion of work until resubmission and review of corrected shop drawings, through same submission procedures indicated above.
 - .8 In accordance with article 17.2 of the General Conditions "C", costs and expenses incurred by Departmental Representative to conduct more than one review of incorrectly prepared shop drawing submittal for a particular material, equipment or component of work will be assessed against the Contractor in the form of a financial holdback to the Contract.
 - .9 Accompany each submissions with transmittal letter, in duplicate, containing:
 - .1 Date.
 - .2 Project title and project number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
 - .6 Electronic PDF transmittal is acceptable.
 - .10 Submissions shall include:
 - .1 Date and revision dates.
 - .2 Project title and project 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 Cross references to particular details of specifications section number for which shop drawing submission addresses.
 - .6 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 Relationship to adjacent work.
 - .11 After Departmental Representative's review, distribute copies.
 - .12 The review of shop drawings by Public Works and Government Services Canada (PWGSC) or its authorized Consultant is for sole purpose of ascertaining conformance with general concept. This review shall not mean that PWGSC approves the detail design inherent in the 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 all requirements of the construction and Contract Documents. 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 all sub-trades.
-

1.5 Samples

- .1 Submit for review samples as specified in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples to PWGSC Project Manager's office or to other address as directed by Departmental Representative. Do not drop off samples at construction site except for special circumstances previously approved by Departmental Representative.
- .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.

1.6 Schedules, Permits and Certificates

- .1 Upon award of contract, submit to Departmental Representative copy of Work Schedule and various other schedules, permits, certification documents and project management plans as specified in other sections of the Specifications.
- .2 Submit copy of permits, notices, compliance Certificates received by Regulatory Agencies having jurisdiction and as applicable to the Work.

Roof Replacement	Submittal Procedures	Section 01 33 00
Building 5		Page 8 of 8
Springhill Institution		2017-07-07
Springhill, NS		
Project No. R.84537.001		

- .3 Submission of above documents to be in accordance with Submittal-General Requirements procedures specified in this section.

PART 1 - GENERAL

- | | |
|-----------------------------|--|
| <u>1.1 Section Includes</u> | <ul style="list-style-type: none">.1 Fire Safety Requirements..2 Hot Work Permit..3 Existing Fire Protection and Alarm Systems. |
| <u>1.2 Related Work</u> | <ul style="list-style-type: none">.1 Section 01 35 25 - Special Procedures on Lockout Requirements..2 Section 01 35 28 - Health and Safety Requirements. |
| <u>1.3 References</u> | <ul style="list-style-type: none">.1 Fire Protection Standards issued by Fire Protection Services of Human Resources Development Canada as follows:<ul style="list-style-type: none">.1 FCC No. 301-June 1982 Standard for Construction Operations..2 FCC No. 302-June 1982 Standard for Welding and Cutting. |
| <u>1.4 Definitions</u> | <ul style="list-style-type: none">.1 Hot Work defined as:<ul style="list-style-type: none">.1 Welding work.2 Cutting of materials by use of torch or other open flame devices.3 Grinding with equipment which produces sparks..4 Use of open flame torches such as for roofing work. |
| <u>1.5 Submittals</u> | <ul style="list-style-type: none">.1 Submit copy of Hot Work Procedures and sample of Hot Work permit to Departmental Representative for review, within 14 calendar days after contract award..2 Submit in accordance with Section 01 33 00 - Submittal Procedures. |
-

1.6 Fire Safety
Requirements

- .1 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code
 - .2 Fire Protection Standards FCC 301 and FCC 302.
 - .3 Federal and Provincial Occupational Safety Acts and Regulations as specified in Section 01 35 28 - Health and Safety Requirements.
- .2 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.

1.7 Hot Work
Authorization

- .1 Obtain Departmental Representative's written "Authorization to Proceed" before conducting any form of Hot Work on site.
- .2 To obtain authorization submit to Departmental Representative:
 - .1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
 - .2 Description of the type and frequency of Hot Work required.
 - .3 Sample Hot Work Permit to be used.
- .3 Upon review and confirmation that effective fire safety measures will be implemented during performance of hot work, Departmental Representative will provide authorization to proceed as follows:
 - .1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
 - .2 Separate work, or segregate certain parts of work, into individual entities. Each entity requiring a separately written "Authorization to Proceed" from Departmental Representative. Follow Departmental Representative's directives in this regard.

- .4 Requirement for individual authorization based on:
 - .1 Nature or phasing of work;
 - .2 Risk to Facility operations;
 - .3 Quantity of various trades needing to perform hot work on project or;
 - .4 Other situation deemed necessary by Departmental Representative to ensure fire safety on premises.
- .5 Do not perform any Hot Work until receipt of Departmental Representative's written "Authorization to Proceed" for that portion of work.
- .6 In tenant occupied Facility, coordinate performance of Hot Work with Facility Manager through the Departmental Representative. When directed, perform Hot Work only during non-operative hours of Facility. Follow Departmental Representative's directives in this regard.

1.8 Hot Work
Procedures

- .1 Develop and implement safety procedures and work practises to be followed during the performance of Hot Work.
 - .2 Procedures to include:
 - .1 Requirement to perform hazard assessment of site and immediate Hot Work area for each Hot Work event in accordance with the requirements of Section 01 35 28 - Health and Safety Requirements.
 - .2 Permit required for each Hot Work event.
 - .3 Permit shall be issued by Contractor's site Superintendent, or other authorized person designated by Contractor, granting permission to specific worker or subcontractor to proceed with Hot Work.
 - .4 Provision of a designated person to carry out a Fire Safety Watch for a minimum of 60 minutes immediately upon completion of the Hot Work.
-

.5 Compliance with fire safety codes and standards specified herein and occupational health and safety regulations specified in Section 01 35 28 - Health and Safety Requirements.

.6 Comply with site specific rules and procedures in force at the site.

.3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Clearly label as being the Hot Work Procedures applicable to this contract.

.4 Hot Work Procedures shall clearly establish worker instructions and allocate responsibilities of:

- .1 Worker performing Hot Work,
- .2 Person issuing the Hot Work Permit,
- .3 Fire Safety Watcher,
- .4 Subcontractor(s) and Contractor.

.5 Brief all workers and subcontractors on Hot Work Procedures and Permit system established for project. Stringently enforce compliance.

.1 Failure to comply with the established procedures may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 28 - Health and Safety Requirements.

1.9 Hot Work Permit

.1 Hot Work Permit to include, as a minimum, the following data:

- .1 Project name and project number;
 - .2 Building name, address and specific room or area where hot work will be performed;
 - .3 Date when permit issued;
 - .4 Description of hot work type to be performed;
 - .5 Special precautions required, including type of fire extinguisher needed;
-

- .6 Name and signature of person authorized to issue the permit;
 - .7 Name of worker (clearly printed) to which the permit is being issued;
 - .8 Time Duration that permit is valid (not to exceed 8 hours). Indicate start time & date and completion time & date;
 - .9 Worker signature with date and time upon hot work termination;
 - .10 Specified time period requiring safety watch;
 - .11 Name and signature of designated Fire Safety Watcher, complete with time & date when safety watch terminated, certifying that surrounding area was under his continual surveillance and inspection during the full watch time period specified in Permit and commenced immediately upon completion of Hot Work.
- .2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.
- .3 Each Hot Work Permit to be completed in full and signed as follows:
- .1 Authorized person issuing Permit before Hot Work commences;
 - .2 Worker upon completion of Hot Work;
 - .3 Fire Safety Watcher upon termination of safety watch;
 - .4 Returned to Contractor's Site Superintendent for safe keeping.
- 1.10 Fire Protection and Alarm Systems
- .1 Fire protection and alarm systems shall not be:
 - .1 Obstructed.
 - .2 Shut-off, unless approved by Departmental Representative.
 - .3 Left inactive at the end of a working day or shift.
 - .2 Do not use fire hydrants, standpipes and hose
-

systems for purposes other than fire fighting.

- .3 Costs incurred, from the fire department, Facility owner and tenants, resulting from negligently setting off false alarms will be charged to the Contractor in the form of financial progress payment reductions and holdback assessments against the Contract.

1.11 Documents On Site

- .1 Keep Hot Work Permits and Hazard assessment documentation on site for duration of Work.
- .2 Upon request, make available to Departmental Representative or to authorized safety representative for inspection.

PART 1 - GENERAL

- | | | |
|-----------------------------|----|---|
| <u>1.1 Section Includes</u> | .1 | Procedures to isolate and lockout electrical facility or other equipment from energy source. |
| <u>1.2 Related Work</u> | .1 | Section 01 35 24 - Special Procedures on Fire Safety Requirements. |
| | .2 | Section 01 35 28 - Health and Safety Requirements. |
| <u>1.3 References</u> | .1 | CSA C22.1-15 - Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations. |
| | .2 | CSA C22.3 No.1-15 - Overhead Systems. |
| | .3 | CSA C22.3 No.7-15 - Underground Systems. |
| | .4 | COSH, Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code. |
| <u>1.4 Definitions</u> | .1 | Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons. |
| | .2 | Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment is isolated. |
| | .3 | De-energize: in the electrical sense, that a piece of equipment is isolated and grounded, e.g. if the equipment is not grounded, it cannot be considered de-energized (DEAD). |
-

- .4 Guarded: means that an equipment or facility is covered, shielded, fenced, enclosed, inaccessible by location, or otherwise protected in a manner that, to the extent that is reasonably practicable, will prevent or reduce danger to any person who might touch or go near such item.
- .5 Isolate: means that an electrical facility, mechanical equipment or machinery is separated or disconnected from every source of electrical, mechanical, hydraulic, pneumatic or other kind of energy that is capable of making it dangerous.
- .6 Live/alive: means that an electrical facility produces, contains, stores or is electrically connected to a source of alternating or direct current of an amperage and voltage that is dangerous or contains any hydraulic, pneumatic or other kind of energy that is capable of making the facility dangerous to persons.

1.5 Compliance Requirements

- .1 Perform lockouts in compliance with:
 - .1 Canadian Electrical Code.
 - .2 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 28 - Health and Safety Requirements.
 - .3 Regulations and code of practise as applicable to mechanical equipment or other machinery being de-energized.
 - .4 Procedures specified herein.
- .2 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.

1.6 Submittals

- .1 Submit copy of proposed Lockout Procedures and sample form of lockout permit or lockout tags for review.
-

- .2 Submit documentation within 14 calendar days of contract award. Do not proceed with work until submittal has been reviewed by Departmental Representative.
- .3 Submit above documents in accordance with the submittal requirements specified in Section 01 33 00 - Submittal Procedures.
- .4 Resubmit Lockout Procedures with noted revisions as may result from Departmental Representative's review.

1.7 Isolation of
Existing Services

- .1 Obtain Departmental Representative's written authorization prior to conducting work on an existing active, energized service or facility required as part of the work and before proceeding with lockout of such services or facility.
- .2 To obtain authorization, submit to Departmental Representative following documentation:
 - .1 Written Request for Isolation of the service or facility and;
 - .2 Copy of Contractor's Lockout Procedures.
- .3 Make a Request for Isolation for each event, unless directed otherwise by Departmental Representative, and as follows:
 - .1 Fill-out standard forms in current use at the Facility when so directed by Departmental Representative or;
 - .2 Where no form exist at Facility, make request in writing identifying:
 - .1 Identification of system or equipment to be isolated, including it's location;
 - .2 Time duration, indicating Start time & date and Completion time & date when isolation will be in effect.
 - .3 Voltage of service feed to system or equipment being isolated.
 - .4 Name of person making the request.
 - .3 Document to be in typewritten format.

- .4 Do not proceed until receipt of written notification from Departmental Representative granting the Isolation Request and authorization to proceed with the isolation of designated equipment or facility. Departmental Representative may designate other individual at the Facility as the person authorized to grant the Isolation Request.
- .5 Conduct safe, orderly shut down of equipment or facilities, de-energize and isolate power and other sources of energy and lockout items in accordance with requirement of clause 1.8 below.
- .6 Plan and schedule shut down of existing services in consultation with the Departmental Representative and the Facility Manager. Minimize impact and downtime of facility operations.
- .7 Determine in advance, as much as possible, in cooperation with the Departmental Representative, the type and frequency of situations which will require a Request for Isolation. Follow Departmental Representative's directives in this regard.
- .8 Conduct hazard assessment as part of the planning process of isolating existing equipment and facilities. Hazard Assessments to conform with requirements of Section 01 35 28 - Health and Safety Requirements.

1.8 Lockouts

- .1 Isolate and lockout electrical facilities, mechanical equipment and machinery from all potential energy sources prior to starting work on such items.
 - .2 Develop and implement lockout procedures to be followed on site as an integral part of the Work.
-

- .3 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.
 - .4 Use industry standard lockout tags.
 - .5 Provide appropriate safety grounding and guards as required.
 - .6 Prepare Lockout Procedures in writing. Describe safe work practices, work functions and sequence of activities to be followed on site to safely isolate all potential energy sources and lockout/tagout facilities and equipment.
 - .7 Include within procedures a system of worker request and issuance of individual lockout permit by a person, employed by Contractor, designated to be "in-charge" and being responsible for:
 - .1 Controlling issuance of permits or tags to workers.
 - .2 Determining permit duration.
 - .3 Maintaining record of permits and tags issued.
 - .4 Submitting a Request for Isolation to Departmental Representative when required in accordance with Clause 1.7 above.
 - .5 Designating a Safety Watcher, when one is required based on type of work.
 - .6 Ensuring equipment or facility has been properly isolated, providing a Guarantee of Isolation to worker(s) prior to proceeding with work.
 - .7 Collecting and safekeeping lockout tags, returned by workers, as a record of the event.
 - .8 Clearly establish, describe and allocate, within procedures, the responsibilities of:
 - .1 Workers.
 - .2 Designated person controlling issuance of lockout tags/permits.
-

.3 Safety Watcher.

.4 Subcontractors and General Contractor.

.9 Procedures shall meet the requirements of Codes and Regulations specified in clause 1.5 above.

.10 Generic procedures, if used, must be edited, supplemented with pertinent information and tailored to reflect specific project conditions. Clearly label as being the procedures applicable to this contract.

.1 Incorporate site specific rules and procedures established by Facility Manager and in force at site. Obtain such procedures through Departmental Representative.

.11 Procedures to be in typewritten format.

.12 Submit copy of Lockout Procedures to Departmental Representative, in accordance with submittal requirements of clause 1.6 herein, prior to commencement of work.

1.9 Conformance

.1 Ensure that lockout procedures, as established for project on site, are stringently followed. Enforce use and compliance by all workers.

.2 Brief all persons working on electrical facilities, mechanical and other equipment fed by an energy source on requirements of this Section.

.3 Failure to follow lockout procedures specified herein may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 28 - Health and Safety Requirements.

1.10 Documents On Site

.1 Post Lockout Procedures on site in common location for viewing by workers.

Roof Replacement
Building 5
Springhill Institution
Springhill, NS
Project No. R.84537.001

Special Procedures on
Lockout Requirements

Section 01 35 25
Page 7 of 7
2017-07-07

- .2 Keep copies of Request for Isolation submitted to Departmental Representative and lockout permits or tags issued to workers during the course of work for full project duration.
- .3 Upon request, make such data available to Departmental Representative or to authorized safety representative for inspection.

PART 1 - GENERAL

1.1 Related Work

- .1 Section 01 35 24 - Special Procedures on Fire Safety Requirements.
- .2 Section 01 35 25 - Special Procedures on Lockout Requirements.

1.2 Definitions

- .1 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.
- .2 Competent Person: means a person who is:
 - .1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;
 - .2 Knowledgeable about the provisions of occupational health and safety statutes and regulations that apply to the Work and;
 - .3 Knowledgeable about potential or actual danger to health or safety associated with the Work.
- .3 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.
- .4 PPE: personal protective equipment
- .5 Work Site: where used in this section shall mean areas, located at the premises where Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.

1.3 Submittals

- .1 Submit to Departmental Representative copies of the following documents, including updates:
 - .1 Site Specific Health and Safety Plan.

- .2 Building Permit, compliance certificates and other permits obtained.
- .3 Reports or directions issued by Federal and Provincial Inspectors and other Authorities having jurisdiction.
- .4 Accident or Incident Reports.
- .5 MSDS data sheets.
- .6 Name of Contractor's representative designated to perform full time health and safety supervision on site.

- .2 Medical Surveillance: Obtain and maintain worker medical surveillance documentation for work posing a potential health hazard to workers as stipulated in Federal or Provincial Occupational Safety and Health Regulations. Upon request, submit copy of documentation to Departmental Representative.
- .3 Upon request by Departmental Representative, submit reports and other documentation as stipulated to be produced and maintained by Federal and Provincial Occupational Health and Safety Regulations and as specified herein.
- .4 Submit above documents in accordance with Section 01 33 00 - Submittal Procedures.

1.4 Compliance Requirements

- .1 Comply with the Occupational Health and Safety Act for the Province of New Brunswick, and the General Regulations made pursuant to the Act.
 - .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 2010 National Building Code of Canada, Part 8;
 - .2 Provincial Worker's Compensation Board;
-

- .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.

1.5 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.
- .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.

1.6 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 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.
- 1.7 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.
 - .1 Erect fences, hoarding protective barriers and temporary lighting as required.
 - .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.
-

-
- | | | |
|-------------------------------------|----|--|
| <u>1.8 Filing of Notice</u> | .1 | File Notice of Project and other Notices with Provincial authorities prior to commencement of Work.

.1 Departmental Representative will assist in locating address for Filing Notice of Project if needed. |
| <u>1.9 Permits</u> | .1 | Obtain building permit, licenses, compliance certificates and other permits as required. |
| | .2 | Where particular permit or compliance certificate cannot be obtained at the required stage of work, notify Departmental Representative in writing and obtain Departmental Representative's approval to proceed prior to carrying out that portion of work. |
| <u>1.10 Hazard Assessments</u> | .1 | Conduct site specific health and safety hazard assessment before commencing project and during course of work identifying risks and hazards resulting from site conditions, weather conditions and work operations.

.1 Perform on-going assessments addressing new risks and hazards as work progresses including when new subtrade or sub-contractor arrives on site.

.2 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. |
| <u>1.11 Project/Site Conditions</u> | .1 | The following are potential project related health, environmental and safety hazards at site which must be properly managed if encountered during the course of work: |
-

- .1 Working from heights on sloped roofs and scaffolding or lifts.
- .2 Handling of construction panel materials subject to wind.
- .3 Facility on-going operations:
 - .1 Contact with inmates. Ensure that employees follow CSC security requirements as indicated in the tender specifications.

- .2 Above lists shall not be construed as being complete and inclusive of potential safety and health hazards encountered during work. Include above items into the hazard assessment process.

1.12 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.
- .2 Conduct health and safety meetings and tool box briefings on site. Hold on a regular and pre-scheduled basis during entire work in accordance with requirements and frequency as stipulated in provincial occupational health and safety regulations.
 - .1 Keep workers informed of potential hazards and provide safe work practices and procedures to be followed.
 - .2 Take written minutes and post on site.

1.13 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 7 calendar days of Contract Award.
 - .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 practises 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 of authorities having jurisdiction and local emergency resource organizations, as needed base on nature of emergency.
 - .3 Officials from PWGSC and site Facility management. Departmental Representative will provide list.
 - .4 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.
-

- .3 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	Safety	Emergency Response &
Hazards	Measures	Site Communications

- .4 Develop Plan in collaboration with subcontractors. Address work activities of all trades. Revise and update Plan as Sub-contractors arrive on site.
- .5 Implement and enforce compliance with requirements of Plan for full duration of work to final completion and demobilization from site.
- .6 As work progresses, review and update Plan. Address additional health risks and safety hazards identified by on-going hazard assessments.
- .7 Post copy of Plan, and updates, on site.
-

- .8 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 hold 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 or those which would otherwise be applicable to the site of the work.

1.14 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 Cooperate with Facility's Health and Safety Site Coordinator responsible for the entire site, should one be designated by Departmental Representative.
- .5 Keep inspection reports on site.
-

1.15 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.
- .2 Maintain employee records and evidence of training received. Make training records available to Departmental Representative upon request.

1.16 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.

1.17 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 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 is issued to the General Contractor, by the Departmental Representative, whenever there is a violation or non-compliance of the project's health and safety requirements and of those of Provincial and Federal regulations by any worker, subcontractor or other person to whom the Contractor has granted access to the work site.
 - .2 Non-Compliance notifications are progressive in nature resulting in 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 Document "C".
 - .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 contract award and prior to commencement of work.

1.18 Accident
Reporting

- .1 Investigate and report the following incidents and accidents:
 - .1 Those as required by Provincial Occupational Safety and Health Act and Regulations.
 - .2 Injury requiring medical aid.
 - .3 Property damage in excess of \$5000.00.
 - .4 Interruption to Facility operations with potential loss to a Federal Dept. in excess of \$5000.00,
 - .5 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.

1.19 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.
- .4 Maintain written documentation on each inspection. Make readily available to Departmental Representative upon request.

1.20 Hazardous
Products

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
 - .2 Keep MSDS data sheets for all products delivered to site.
-

- .1 Post on site.
- .2 Submit copy to Departmental Representative upon receipt.

- .3 Where work is adjacent to occupied areas, located data sheets in a public location accessible to tenant employees.

1.21 Powder Actuated
Devices

- .1 Use powder actuated fastening devices only after receipt of written permission from Departmental Representative.

1.22 Confined Spaces

- .1 Carry out work in confined spaces in compliance with:
 - .1 Provincial Occupational Safety and Health 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.
- .3 Obtain "Entry Permit" from Facility management before entering a Facility's known confined space in accordance with Part XI, Section 11.3, of COSH Regulations. Keep copy of permits received.
- .4 Provide and maintain equipment and PPE as required for the safety and emergency evacuation of persons entering confined spaces.
- .5 Provide training to persons who will be entering and to those persons who will be assisting in the confined space entry process. Training to be specialized instructions beyond (basic confined space entry information) as required to suit type and conditions of confined space.

.6 Safety for Inspectors:

.1 Upon request, provide PPE and training to Departmental Representative and to other authorized persons, for the purpose of entering confined space to conduct inspections.

.2 Be responsible for the efficacy of the equipment and safety of such persons during their entry and occupancy in the confined space.

1.23 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.

1.24 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, or authorized safety representative, for review. Provide copy when directed by Departmental Representative.

1.25 Health and Safety Site Coordinator

.1 Obtain and employ, as part of the Work, the services of a competent person to be designated as the Health and Safety Site Coordinator.

.2 Health and Safety Site Coordinator shall have the following duties and responsibilities:

.1 Monitor activities of other General Contractors, and their subcontractors, who are performing work concurrently at the site or Facility to ensure a continued safe work environment on site at all times.

.2 Verify that activities of a particular contractor do not conflict with other contractors, posing a health risk or creating a safety hazard to workers, Facility employees and the general public at the site.

.3 Assist Departmental Representative and Contractors in the coordination of various on-going construction activities as they relate to maintaining health and safety on site. Follow Departmental Representative's directives in this regard.

.4 Communicate pertinent and critical information between various Contractors, Building Manager and Tenant representatives to maintain a safe work place.

.5 Report to Departmental Representative outstanding health and safety issues and concerns, not addressed by Contractor(s).

.6 Assist Departmental Representative and Contractors in the process of granting and controlling site access to only persons so authorized. Help Contractors in the provision of site safety orientation sessions.

.7 Report incidents and accidents to Departmental Representative. Assist with investigations of accidents and incidents when directed by Departmental Representative.

.8 When delegated by Departmental Representative, review and issue to requesting Contractors the following:

.1 Written authorization to proceed with Hot Work in accordance with requirements of Section 01 35 24 - Special Procedures on Fire Safety Requirements and;

.2 Written authorization of Request for Isolation in accordance with requirements of Section 01 35 25 - Special Procedures on Lockout Requirements.

.3 Health and Safety Site Coordinator knowledge and qualifications requirements:

.1 Have minimum 2 years of site related working experience specific to activities associated with construction safety,

.2 Have working knowledge of occupational health and safety act and regulations,

.3 Successful completion of an oral interview and/or written exam given PWGSC to evaluate qualifications as deemed required by Departmental Representative.

.4 Be present on site at frequency intervals

Roof Replacement
Building 5
Springhill Institution
Springhill, NS
Project No. R.84537.001

Health and Safety
Requirements

Section 01 35 28
Page 16 of 16
2017-07-07

of 2 weeks during execution of work, and report
to Departmental Representative.

- .4 Within 7 days after contract award, submit to
Departmental Representative for review, Site
Coordinator's name, and information to
substantiate qualifications specified in above
clause.

PART 1 - GENERAL

1.1 Definitions

- .1 Hazardous Materials: Product, substance, or organism that is used for its original purpose; and that is either dangerous good or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.

1.2 Fires

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

1.3 Hazardous Material Handling

- .1 Handle and store hazardous materials on site in accordance with WHMIS procedures and requirements.
- .2 Store all hazardous liquids in location and manner to prevent their spillage into the environment.
- .3 Maintain written inventory of all hazardous materials kept on site. List product name, quantity and storage date.
- .4 Keep MSDS data sheets on site for all items.

1.4 Disposal of Waste

- .1 Do not bury rubbish and waste materials on site unless approved by Departmental Representative.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

PART 1 - GENERAL

1.1 General

- .1 Work of this Contract must not disrupt the daily operations of the Institution and shall be carried out in such a way to ensure that security at the Institution is maintained at all times.
- .2 Abide by all rules and procedures specified herein and with all directives given by the Director.

1.2 Definitions

- .1 Where used, the following terms shall be deemed to have the meaning stated herein.
 - .2 Institution: means the Penitentiary or Correctional Facility where the Work will be carried out.
 - .3 Director: means the person in charge of the Correctional Institution or Penitentiary where the Work will be carried out and includes any authorized person at the Facility, as designated by the Director, to provide directions on his/her behalf.
 - .4 Contraband: means any of the following:
 - .1 An intoxicant, including alcoholic beverages, drugs and narcotics;
 - .2 A weapon or a component thereof, ammunition for a weapon, and any other object that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization;
 - .3 An explosive or a bomb or a component thereof;
 - .4 Currency over the prescribed limit of 25.00 dollars and;
-

.5 Any other item, as deemed by the Director, to pose a risk to the security of a Penitentiary or to the safety of persons, when that item is possessed without prior authorization from the Director.

.5 Unauthorized smoking items: means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing or snuffing tobacco, cigarette making machines, matches and lighters.

.6 Commercial vehicle: means any motor vehicle used to transport materials, equipment and tools to the site as required for construction purposes.

.7 CSC: means the Department of Correctional Service Canada.

.8 Construction employee: means any person working for the General Contractor or subcontractor(s), commercial vehicle or equipment operator, material supplier and personnel from testing, inspection or regulatory agencies who needs to circulate on the Institution's property as part of the Work.

.9 Departmental Representative: means the person as defined in the General Conditions of the Contract for projects managed by Public Works and Government Services Canada (PWGSC) or the Project Manager for projects managed by Correctional Service Canada (CSC).

.10 Perimeter: means the fenced or walled area of the Institution that restrains the movement of the inmates.

.11 Construction zone: means the area as shown on the contract drawings and as described below where the Contractor will be allowed to work. This area may or may not be isolated from the security area of the Institution.

.1 In general, Contractor's work activities and movement is limited to Building 5.

1.3 Preliminary
Proceedings

- .1 Prior to commencement of work, the Contractor shall meet with the Director to:
 - .1 Discuss the nature and extent of all activities involved in the work of this contract.
 - .2 Obtain security rules, regulations and procedures in force at the Institution and directives to be followed by Contractor and all construction employees during the entire course of the work.
- .2 The Departmental Representative will coordinate a pre-construction meeting between Contractor, the Director and Facility security personnel who will provide details on site security requirements.
- .3 The Contractor shall:
 - .1 Ensure that all construction employees are aware of the CSC security requirements.
 - .2 Ensure that a copy of the CSC security requirements is prominently displayed at the work site at all times.
 - .3 Co-operate with Institutional staff in ensuring that security requirements and procedures are stringently followed by all construction employees.
- .4 Any infraction of site security requirements by the Contractor or by a construction employee could result in the immediate removal of the offending party or person from the site.

1.4 Worker Security
Clearance

- .1 Security clearance must be obtained from Correctional Service Canada (CSC) for all construction employees who needs to circulate on the Institution's property during the course of the Work.
 - .1 Applicable security application forms will be provided by the Departmental Representative.
 - .2 Have forms filled out by each worker.

-
- .2 Submit to the Director:
 - .1 A list of the names with date of birth of all construction employees;
 - .2 Completed security clearance form for each person.
 - .3 No person will be admitted inside the Institution without a valid CSC Security Clearance in place and a recent picture identification, such as a provincial driver's permit, to show proof of his identity.
 - .1 Security clearances obtained from other CSC Institutions are not valid at the Institution where the work of this contract will take place.
 - .4 Allow two (2) weeks for processing of security clearances.
 - .5 Be aware that facial photographs of security cleared construction employees may be taken as deemed required by the Director.
 - .1 These photographs may be posted for display at appropriate locations in the Institution or placed into an electronic database for identification purposes.
 - .2 Photo ID cards may also be issued to each construction employee to be donned while on site. ID cards will be left at the designated security entrance to be picked by each person upon arrival at the Institution and must be prominently displayed on the person's clothing at all times.
 - .6 CSC Security Clearance will be denied and entry into the Institution will be refused to any person which the Director has reason to believe may be a security risk to the Facility's operations.
 - .1 Also, a person will be subject to the immediate removal from the Institution if he/she:
 - .1 Appears to be under the influence of alcohol, drugs or narcotics.
-

.2 Behaves in an unusual disorderly manner.

.3 Is found in possession of contraband.

.7 Facilitate security clearance application process:

.1 Provide copy of security clearance form to all workers including those of sub-contractors.

.2 Provide a list of names and birth dates for all persons who require security clearance to the Departmental Representative.

.3 Coordinate and expedite submissions from the various subcontractors.

.4 Brief and assist applicants in preparing and submitting the required application form and related documentation.

.5 Review application form of each applicant for completeness before submission.

.6 Have each worker keep a copy of their completed application form in case the initial submission gets lost.

.7 Submit documentation in an organized manner with transmittal letter clearly identifying the project for which worker security clearance is being requested.

.8 Send submission(s) to the approved mailing address provided by the Departmental Representative.

1.5 Vehicles

.1 All unattended vehicles on the Institution's property shall have their windows, doors and trunks closed and locked at all times. Keys must be removed and kept securely in the possession of the vehicle's owner or with an employee of the Contractor or subcontractor who owns the vehicle.

.2 The Director may limit at any time the number and type of vehicles allowed within the Institution.

.3 Drivers of vehicles simply delivering materials to the site do not require security clearance but shall remain inside their vehicle for the entire duration that the vehicle is on the Institution's property. This is of particular importance for vehicles entering the Institution's secure perimeter area in which case the vehicle must be escorted by Institutional staff or Commissionaires while in that area.

.4 If the Director permits office and/or storage trailers to be left inside the secure perimeter area of the Institution, their exterior doors shall be kept locked at all times and windows securely locked when trailer is unoccupied. Additionally, windows shall be covered with expanded metal mesh secured in place. All storage trailers, whether inside and outside of the secure perimeter area must be kept locked when not in use.

1.6 Parking of Vehicles

.1 Director will designate a location on site, outside the secure perimeter area, where construction employee vehicles may be parked during workshifts.

.2 All other areas are prohibited and vehicles are subject to being removed by the Institution with towing costs borne by their owner.

1.7 Shipments

.1 All shipments of materials, equipment and tools shall be clearly marked, addressed to the attention of the project title and Contractor's name to avoid confusion with the Institution's own shipments.

.2 Contractor shall have designated employee(s) on site to receive and take possession of all deliveries and shipments.

.3 Under no circumstances will personnel of the Institution accept delivery of materials, equipment and tools designated for use by the Contractor in the Work.

1.8 Telephones

- .1 Telephone landlines, facsimile machines and computers with internet connections are not permitted within the secure perimeter of the Institution unless prior approval is obtained from the Director.
- .2 If approved, locate telephones, facsimile machines and computers with internet connections only where designated by the Director and in such location where they are not accessible to Inmates.
 - .1 Equip all computers with approved password protection features which will block internet connection to unauthorized computer users.
- .3 Wireless cellular and digital telephones, including but not limited to devices for telephone messaging, pagers, BlackBerries, telephone used as 2-way radios, are not permitted within the secure perimeter of the Institution unless prior approval is obtained from the Director.
 - .1 Should wireless cellular telephones be permitted, the owner/user of such device shall not permit its use by any Inmate.
- .4 The Director may approve but limit the use of two way radios.

1.9 Work Hours

- .1 Be aware that for security reasons the days and hours which Contractor will be permitted to perform work at the site are limited to:
 - .1 Weekdays only from Monday to Friday and between the hours of 08:00 and 16:00.
 - .2 No work will be permitted during evenings, nighttime, weekends and on statutory holidays. These are considered off-hour periods at the Institution.
-

- .3 The work day and hour restrictions specified above will only be waved for special situations and certain aspects of the Work deemed necessary and where off-hour work is determined to be the least disruptive approach to the operations of the Institution as determined by the Director.

.1 A minimum of 7 days advance notice is required to obtain permission for off-hour work.

.2 In case of an emergency, the advanced notification may be waived by the Director.

1.10 Overtime Work

- .1 No overtime work will be allowed at the end of a workshift.

- .2 Where overtime work is deemed necessary at the end of a workshift to complete a critical component of the work, it shall be planned and requested a minimum of 48 hours beforehand for approval by the Director.

- .3 Should unplanned overtime work occur due to an emergency situation, such as to complete a concrete pour or to make the work site safe and secure, the Contractor shall immediately advise the Director of this pending situation and stringently follow all directions given by the Director.

- .4 Extra Costs: Note that when overtime work or off-hour work on weekends and statutory holidays is approved by the Director, be aware that extra CSC security staff or commissionaires may need to be posted at the Institution to maintain security surveillance. The costs for such service will be charged to the Contractor in the form of a financial assessment to the Contract.

1.11 Tools and Equipment

- .1 Make a complete list of all tools and equipment brought on site for use in the work. Provide copy of the list to the Director and to Departmental Representative.

- .2 Maintain and update list during the entire course of the Work.

- .3 Keep all tools and equipment under constant supervision. This is of particular importance for power-driven and cartridge-driven tools, cartridges, files, saw blades, rod saws, wire, rope, ladders as well as all types of jacking devices.
- .4 Store all tools and equipment in lockable tool boxes and place in approved and secure locations.
- .5 Lock tool boxes when not in use. Keys shall remain in the possession of employees designated by Contractor.
- .6 Scaffolding: Store and securely lock scaffolding components when not erected. When erected, secure against unauthorized disassembly in manner approved by the Director.
- .7 Immediately report to the Director any missing tools and equipment.
- .8 Tool Check: Be aware that CSC security personnel will conduct tool/equipment checks during the course of the Work against the list provided by Contractor. Frequency of checks to be as follows:
 - .1 At commencement and completion of the project.
 - .2 Weekly basis when the construction period is greater than 1 week.
- .9 Controlled items: entry and use of certain tools and equipment, such as cartridges and hacksaw blades, are highly controlled at the Institution. The Director will determine and advise which items are to be controlled.
 - .1 Controlled items will be given to the Contractor at the beginning of each workday in quantities as required for 1 day's work.

.2 All controlled items must be returned to CSC security personnel at the end of each day including used blades, cartridges etc.

- .10 When propane or natural gas is used as fuel for construction heaters, the Contractor shall provide an employee to supervise that work site during non-working hours.

1.12 Keys

.1 Security Hardware Keys:

.1 Arrange and ensure that keys for security door hardware are delivered directly by the hardware Supplier/Installer to the Institution's designated Security Maintenance Officer (SMO).

.2 The SMO will provide written receipt to Contractor for security keys received.

.3 Provide a copy of such receipt to the Departmental Representative.

.2 Construction Keys:

.1 Supply and install construction cylinders on all new doors and keep such doors locked during the entire construction period.

.2 Instruct construction employees on the care and safekeeping of keys assigned to them to ensure safe custody of construction keys.

.3 Construction cylinders shall only be removed and be replaced with operational cylinders at such time as deemed appropriate by the Director. The SMO will, in conjunction with the lockset manufacturer:

.1 Prepare an operational keying schedule.

.2 Accept the operational keys and cylinders directly from the lockset manufacturer.

.3 Arrange for removal and return of the construction cylinders and install the operational cylinders in all locks.

.4 Upon putting operational security keys into use, an approved security escort designated by the Director will thereafter obtain specific keys from the SMO and open those doors as required by Contractor to access work areas.

.5 Contractor shall issue instructions to all construction employees advising them that all security keys must always remain with the security escort.

1.13 Security Hardware

- .1 Turn over to Director all security hardware removed as part of the work. This includes all items intended for disposal as well as those for temporary safekeeping until ready for reinstallation as part of the work.

1.14 Prescription
Drugs

- .1 Construction employees who are required to take prescription drugs during the workday shall obtain approval from the Director beforehand and shall only bring on site a one days supply each day.

1.15 Smoking
Restrictions

- .1 Contractor and construction employees are not permitted to:
- .1 Smoke inside the Institution or outdoors within the secure perimeter of the Facility and;
 - .2 Must not possess unauthorized smoking items within the secure perimeter of the Institution.
- .2 All persons found in violation of this directive shall immediately cease smoking and dispose of any unauthorized smoking items. If violation persist, such persons will be removed from the Institution's property.
- .3 Smoking on the Institution's property is only permitted outdoors, outside of the secure perimeter of the Institution and in a location designated by the Director.

1.16 Contraband

- .1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are considered contraband by the Institution and are strictly prohibited on the Institution's property.

- .2 The discovery of contraband on the construction site and the identification of the person(s) responsible for the contraband shall be reported immediately to the Director.
- .3 Contractor shall be vigilant with all construction employees and suppliers in ensuring that no contraband items are brought on site. Advise all persons that the discovery of contraband will result in the cancellation of their security clearance and their immediate removal from the site. Serious infractions may result in the removal of the Contractor or subcontractor from the Institution's property for the duration of the Contract.
- .4 Presence of arms and ammunition found in vehicles owned by Contractor, subcontractors, suppliers and construction employees will result in the immediate cancellation of security clearance for the driver of that vehicle.

1.17 Searches

- .1 All vehicles and persons entering Institutional property may be subject to search.
- .2 When the Director suspects, on reasonable grounds, that a construction employee is in possession of contraband, he/she may order that person to be searched.
- .3 Be aware that persons entering the Institution may be subject to screening of personal effects for traces of contraband drug residue.

1.18 Off-Hours Site Access

- .1 Construction personnel and commercial vehicles will not be permitted access to the Institution outside of the stipulated work hours specified, unless approved by the Director.

1.19 Movement of
Vehicles

- .1 Be aware that commercial vehicles will only be allowed to enter or leave the secure perimeter of the Institution (ie: pass through the designated vehicle security gate) between the following hours of each day:
 - .1 From 07:45 AM to 11:00 AM and;
 - .2 From 13:00 PM to 15:30 AM.
- .2 Vehicles shall not be allowed to leave the Institution until an inmate count has been completed.
- .3 Vehicles must be escorted by approved CSC Staff or Commissionaire while inside the secure perimeter of the Institution.
- .4 Contractor shall provide 24 hours advance notice to the Director of the arrival of heavy equipment such as excavator, cranes, concrete trucks, etc. to the site.
- .5 Vehicles being loaded with soil or other debris at site, or any vehicle considered impossible to search, must be under continuous supervision by Institutional staff or Commissionaires working under the authority of the Director.
- .6 Commercial vehicles will only be allowed access onto the Institution's property when their contents are certified by the Contractor, or his representative, as being strictly necessary to the execution of the work.
- .7 Vehicles shall be refused access to Institutional property if, in the opinion of the Director, they contain any article which jeopardizes the security of the Institution.
- .8 Private vehicles of construction employees will NOT be allowed inside the secure perimeter area of a medium or maximum security Institution, except for a special situation as may be authorized by the Director.

.9 Subject to approval from the Director, a vehicle may be used in the morning and evening of each day to transport construction employees to and from work areas inside the secure perimeter of the Institution. However, the vehicle shall not be allowed to remain parked inside that area during the remainder of the workday.

.10 Subject to prior approval from the Director, certain construction equipment may be permitted to remain in the work areas during nighttime or weekend provided such equipment is securely locked and has its battery removed. The Director may also require that the equipment be tied by chain and padlocked to a solid unmovable object.

1.20 Movement of
Persons at the
Institution

.1 Subject to the requirements of good security, the Director will permit the Contractor and construction employees as much freedom of action and movement in the work areas of the site as is possible.

.2 Notwithstanding the above clause, the Director will:

.1 Prohibit or restrict access to certain parts of the Institution.

.2 Require that access to certain areas of the Institution, (either for the entire duration of the work or for certain specific time periods} be only allowed under escort by a member of CSC security staff or a commissionaire.

.3 During lunch and coffee breaks, all construction employees shall remain within the construction work areas of the site. No person shall be permitted to eat in the Officer's lounge or the dining room of the Institution.

1.21 Surveillance and
Inspection

.1 Construction activities and all related movement of personnel and vehicles will be subject to surveillance and inspections by the Institution's security staff to ensure that established security requirements and procedures are followed.

- .2 CSC staff members will ensure that an understanding of the need to carry out surveillance and inspections, as specified above, is established among construction employees and maintained throughout the duration of the entire Work.

1.22 Stoppage of Work

- .1 The Director may, at any given time during the course of this contract, stop Contractor and workers from entering the Institution or order their immediate departure from the site due to an emergency security situation occurring at the Institution.

.1 Should this occur, Contractor's Superintendent shall obtain the name of the Institution's staff member issuing the Order, note the date and time the notification was given and immediately obey the order as quickly as possible.

- .2 The Contractor shall advise the Departmental Representative within 24 hours of receipt of such notification from the Institution.

1.23 Contact with Inmates

- .1 Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any construction employee doing any of the above will be removed from the site and his security clearance revoked.

- .2 Note that cameras are not allowed on CSC property.

- .3 Notwithstanding the above clause, if the Director approves the use of cameras, it is strictly forbidden to take pictures of Inmates, CSC staff members or of any part of the Institution other than those areas under renovations as part of the Work.

Roof Replacement
Building 5
Springhill Institution
Springhill, NS
Project No. R.84537.001

Security Requirements at
Correctional Service
Canada Facilities

Section 01 35 59
Page 16 of 16
2017-07-07

1.24 Completion of the
Work

- .1 Upon completion of the work and/or prior to takeover and occupancy of the Facility, remove all materials, waste, tools and equipment that are not specified to remain at the Institution as part of the Work.

PART 1 - GENERAL

1.1 Inspection

- .1 Give timely notice requesting inspection of Work designated for special tests, inspections or approvals by Departmental Representative or by inspection authorities having jurisdiction.
- .2 In accordance with the General Conditions, Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.
- .3 If Contractor covers or permits to be covered Work designated for special tests, inspections or approvals before such is made, uncover Work until particular inspections or tests have been fully and satisfactorily completed and until such time as Departmental Representative gives permission to proceed.
- .4 Pay costs to uncover and make good work disturbed by inspections and tests.

1.2 Testing

- .1 Tests on materials, equipment and building systems as specified in various sections of the Specifications is the responsibility of the Contractor except where stipulated otherwise.
 - .1 Provide all necessary instruments, equipment and qualified personnel to perform tests.
- .2 At completion of tests, turn over 2 sets of fully documented tests reports to the Departmental Representative. Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Obtain additional copies for inclusion of a complete set in each of the maintenance manuals specified in Section 01 78 00 - Closeout Submittals.

- .3 Unspecified tests may also be made by Departmental Representative, at the discretion of the Departmental Representative. The costs of these tests will be paid for by the Departmental Representative.
- .4 Where tests or inspections reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests and inspections incurred by Departmental Representative as required to verify acceptability of corrected work.

1.3 Independent
Inspection Agencies

- .1 Departmental Representative may engage and pay for service of Independent Inspection and Testing Agencies for purpose of inspecting and testing portions of Work except for the following which remain part of Contractor's responsibilities:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment and balancing of mechanical and electrical equipment and other building systems.
 - .4 Performance verification tests before building commissioning procedures commences.
 - .5 Mill tests and certificates of compliance.
 - .6 Tests as specified within various sections designated to be carried out by Contractor under the supervision of Departmental Representative.
 - .7 Additional tests as specified in Clause 1.2.4 above.
- .2 Provide sufficient advance notice to Departmental Representative of time when the Work will be ready for testing by designated Testing Agency in order for Departmental Representative to make attendance arrangements with such Agency. When directed by Departmental Representative notify the Agency directly.

- .3 When specified or directed, submit Representative samples of materials, in required quantities, to Testing Agency for testing purposes. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
- .4 Provide labour and facilities to obtain, handle and deliver samples.
- .5 Provide sufficient space on site for Testing Agency's exclusive use to store equipment and cure test samples.
- .6 Employment of Independent Inspection and Testing Agencies by Departmental Representative does not relax responsibility to perform Work in accordance with Contract Documents.

1.4 Rejected Work

- .1 Remove and replace defective Work, whether result of poor workmanship, use of defective or damaged products and whether incorporated in Work or not, which has been identified by Departmental Representative as failing to conform to Contract Documents.
- .2 Make good damages to new and existing construction and finishes resulting from removal or replacement of defective work.

PART 1 - GENERAL

- | | | |
|-------------------------------------|----|--|
| <u>1.1 Site Access and Parking</u> | .1 | The Departmental Representative will designate Contractor's access to project site as well as parking facilities for workers. The Contractor is advised that while parking and storage facilities for his workers and sub-contractors will be on property, such facilities may be remote from the actual site of the work. In any case, follow all instructions from the Departmental Representative in regards to parking and storage facilities. |
| <u>1.2 Building Access</u> | .1 | Use only access doors, and circulation routes within building as designated by Departmental Representative to access interior work. |
| <u>1.3 Contractor's Site Office</u> | .1 | Be responsible for and provide own site office, if required, including electricity, heat, lights and telephone. Locate site office as directed by Departmental Representative, outside the perimeter fence. |
| <u>1.4 Material Storage</u> | .1 | Locate site storage trailers where directed by Departmental Representative. Place in location outside of perimeter fence in location directed by Departmental Representative. |
| | .2 | Material storage space on site is limited. Coordinate delivery to minimize storage period on site before being needed for incorporation into work. |
| <u>1.5 Site Enclosures</u> | .1 | Provide temporary fence to enclose various construction areas of work site. |
| | .2 | Make all gates lockable and provide keyed padlocks. |
| | .3 | Obtain Departmental Representative's approval beforehand of location and layout of all temporary fence enclosures. |

- .4 Provide battery powered lanterns around the perimeter of the site enclosure to clearly mark its location at night.
- .5 Provide warning signs affixed to all fenced areas, identifying those enclosed areas as "Construction Zones" with access restricted to only those persons so authorized by General Contractor.
- .6 Do not construe fencing as an acceptable replacement for pedestrian walkway and hoarding requirements specified below.

1.6 Pedestrian
Walkways and Hoarding

- .1 Ensure maximum safety and security to facility users during the course of work.
- .2 Be responsible for and provide temporary 2.4 metre high plywood construction hoarding when work is adjacent to exterior sidewalks and circulation routes used by facility employees and inmates.
- .3 Maintain access and egress to building entrances and fire exits designated by Departmental Representative to remain in use. Provide enclosed walkways when work is adjacent to such doors as follows:
 - .1 Erect wooden pedestrian walkway complete with roof and side covers.
 - .2 Install walkways as soon as work is in the vicinity of entrance and exit doors and poses a potential danger to facility users.
 - .3 Construct to approximate size of 2.0 metre wide x 2.1 metre high x length as required to fully clear danger zone.
 - .4 Provide signage and lighting.
 - .5 Submit details of walkway size, location, layout and construction to Departmental Representative beforehand and obtain approval.
- .4 Adequately frame and brace hoarding to resist wind, and other weather or site conditions.

1.7 Interior Dust
Control and Dust
Barriers

- .5 Erect such protective devices during Facility's non-operational off hour periods.
- .6 Obtain Departmental Representative's concurrence prior to removal of hoarding and walkways.
- .1 Control creation and spread of dust and dirt to building interior and in particular to areas within premises still under use by occupants.
- .2 Develop and implement a dust control plan, addressing effective measures to carry out work with least amount of dust being created and propagated.
 - .1 Carefully evaluate the type of work to be undertaken and the physical layout of each work area on site.
 - .2 Provide specifically tailored strategy for each work area.
 - .3 Pre-determine location and placement of dust barriers to confine resulting dust to immediate work area.
 - .4 Inform Departmental Representative of the proposed dust control measures to be followed at each work area and for each major dust generating activities. Obtain Departmental Representative's approval before proceeding with work.
- .3 Dust control plan to incorporate as a minimum the following dust protection and cleaning requirements:
 - .1 Erect dustproof partitions completely around work area to fully isolate construction from other parts of the building.
 - .2 Construct dust partitions as follows:
 - .1 Use 10 mm polyethylene installed and sealed tightly to abutting walls, ceilings and floor with continuous duct tape along all edges and seams. Support in position with 38 x 89 wood framing at 400 mm o.c. Locate seams only at framing members and overlap sheeting by minimum of 150 mm.

- .3 Provide a "dust tight" and lockable access door(s) within dust partition or between rooms for worker entry into work area. This is of particular importance for situations where excessive dust will be generated.
 - .4 Provide additional dust barriers, placed tightly to underside of the floor/roof deck above, in locations where existing walls are used as part of the dust barrier system but simply terminate at the finished ceiling level resulting in an open space above, or other similar condition, permitting dust to migrate beyond the construction areas.
 - .5 Make all dust barriers airtight, effectively blocking and stopping all dust migration.
 - .6 Inspect dust barriers at various intervals during each work shift.
Immediately fix tears, unsealed edges and maintain barriers effectively sealed for the entire work duration.
 - .7 Shut down existing ventilation system feeding construction space, or disconnect and seal-off supply and return air ducts to stop dust from contaminating other areas.
 - .8 Immediately clean areas in use by occupants and public contaminated by work.
 - .1 Vacuum carpets, wash floors and walls. Remove accumulated dust from all surfaces. Clean and remove smears, scuffs and marks.
 - .4 Meager attempts at controlling dust will not be tolerated. Failure to provide effective dust control during work and to perform satisfactory cleaning thereafter will result in Departmental Representative to proceed and obtain a separate cleaning service agency to perform cleaning to tenant's satisfaction with cost for such services being charged against this Contract in the form of financial holdbacks.
 - .5 Obtain Departmental Representative's approval before erecting any dust partitions simply to underside of finish ceiling.
-

- .6 Construction of dust barriers, enclosures and placement of temporary protective devices to be performed during Facility non-operational off-hour periods.

1.8 Sanitary
Facilities

- .1 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.
- .3 Sanitary facilities are available at the site and may be used by Contractor's work force. Make arrangements for the use of such facilities through the Departmental Representative.

1.9 Enclosure of
Structure

- .1 Provide temporary weathertight enclosures and protection for exterior openings until permanently enclosed.
- .2 Provide weathertight and heated enclosures to conduct exterior work during inclement weather conditions. Erect to allow accessibility for installation of materials and working inside of enclosure.
- .3 Design enclosures to withstand wind pressure.

1.10 Power

- .1 Power supply is available and will be provided for construction usage at current cost rates.
 - .1 Make arrangements for the use of such services through the Departmental Representative.
 - .2 Departmental Representative will designate and approve each location of existing power source to which connections can be made to obtain temporary power service.
 - .3 Connect to existing power supply in accordance with Canadian Electrical Code.

- .2 Provide and pay all costs to supply and install temporary cabling, panelboards, switching devices and other equipment as required to connect into power source, provide adequate ground fault protection and extend power supply from existing source to work areas. Perform work and make all connections in accordance with the Canadian Electrical Code, in compliance with the federal and provincial Occupational Health and Safety Regulations, as specified in Section 01 35 28 - Health and Safety Requirements, and to lockout requirements specified in Section 01 35 25 - Special Procedures on Lockout Requirements.

1.11 Water Supply

- .1 Water supply is available in existing building and on site and will be provided for construction usage at no cost. Make arrangements for the use and transportation of such services to work area through the Departmental Representative.

1.12 Scaffolding

- .1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with CSA Z797-09 (R2014), Code of Practice for Access Scaffold.
- .2 Erect scaffolding independent of walls. Remove when no longer required.

1.13 Construction Sign and Notices

- .1 Contractor or subcontractor advertisement signboards are not permitted on site.
- .2 Safety and Instruction Signs and Notices:
 - .1 Signs and notices for safety and instruction shall be in both official languages or commonly understood graphic symbols conforming to CAN3-Z321-95.
- .3 Maintenance and Disposal of Site Signs:
 - .1 Maintain approved signs and notices in good condition for duration of project and dispose of offsite on completion of project or earlier if directed by Departmental Representative.

Roof Replacement	Temporary Facilities	Section 01 50 00
Building 5		Page 7 of 7
Springhill Institution		2017-07-07
Springhill, NS		
Project No. R.84537.001		

1.14 Removal of <u>Temporary Facilities</u>	.1	Remove temporary facilities from site when directed by Departmental Representative.
--	----	--

PART 1 - GENERAL

1.1 General

- .1 Use new material and equipment unless otherwise specified.
- .2 Within 7 days of written request by Departmental Representative, submit following information for any materials and products proposed for supply:
 - .1 Name and address of manufacturer.
 - .2 Trade name, model and catalogue number.
 - .3 Performance, descriptive and test data.
 - .4 Compliance to specified standards.
 - .5 Manufacturer's installation or application instructions.
 - .6 Evidence of arrangements to procure.
 - .7 Evidence of manufacturer delivery problems or unforeseen delays.
- .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 equipment or material of same type or classification unless otherwise specified.
- .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.2 Product Quality

- .1 Contractor shall be solely responsible for submitting relevant technical data and independent test reports to confirm whether a product or system proposed for use meets contract requirements and specified standards.
-

- .2 Final decision as to whether a product or system meets contract requirements rest solely with the Departmental Representative in accordance with the General Conditions of the Contract.

1.3 Acceptable
Materials and
Alternatives

- .1 Acceptable Materials: When materials specified include trade names or trademarks or manufacturer's or supplier's name as part of the material description, select and only use one of the names listed for incorporation into the work.
- .2 Alternative Materials: Submission of alternative materials to trade names or manufacturer's names specified must be done during the bidding period following procedures indicated in the Instructions to Bidders.
- .3 Substitutions: After contract award, substitution of a specified material will be dealt with as a change to the Work in accordance with the General Conditions of the Contract.

1.4 Manufacturer's
Instructions

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods to be used. Do not rely on labels or enclosure provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing of any conflict between these specifications and manufacturer's instructions, so that Departmental Representative will designate which document is to be followed.

1.5 Availability

- .1 Immediately notify Departmental Representative in writing of unforeseen or unanticipated material delivery problems by manufacturer. Provide support documentation as per clause 1.1.2 above.
-

1.6 Workmanship

- .1 Ensure quality of work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed.
- .2 Remove unsuitable or incompetent workers from site as stipulated in the General Conditions of the Contract.
- .3 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision on site at all times.
- .4 Coordinate work between trades and subcontractors. See section 01 14 10 in this regard.
- .5 Coordinate placement of openings, sleeves and accessories.

1.7 Fastenings -
General

- .1 Provide metal fastenings and accessories in same texture, colour and finish as base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work and in humid areas.
- .2 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage. Wood or organic material plugs not acceptable.
- .3 Keep exposed fastenings to minimum, space evenly and lay out neatly.
- .4 Fastenings which cause spalling or cracking of material to which anchorage is made, are not acceptable.
- .5 Do not use explosive actuated fastening devices unless approved by Departmental Representative. See section on 01 35 28 - Health and Safety Requirements.

1.8 Fastenings -
Equipment

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur and, use resilient washers with stainless steel.

1.9 Storage, Handling
and Protection

- .1 Deliver, handle and store materials in manner to prevent deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled materials in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work. Provide additional cover where manufacturer's packaging is insufficient to provide adequate protection.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Immediately remove damaged or rejected materials from site.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

PART 1 - GENERAL

1.1 General

- .1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution 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. Use of building ventilation systems is not permitted for this purpose.

1.2 Materials

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

1.3 Cleaning During Construction

- .1 Maintain work site and work areas in a tidy condition, free from accumulations of waste material and debris. Clean areas on a daily basis.
 - .2 Keep existing building entrances used by workers in clean dust free condition at all times. Conduct thorough cleaning of these areas at end of each work shift.
 - .3 Provide on-site containers for collection of waste materials and debris. Locate where approved and directed by Departmental Representative.
 - .4 Use separate collection bins, clearly marked as to purpose, for collection of waste and demolition debris intended for source separation and recycling process of waste management procedures specified in Section 01 74 22 - Construction/Demolition Waste Management and Disposal.
-

Roof Replacement
Building 5
Springhill Institution
Springhill, NS
Project No. R.84537.001

Cleaning

Section 01 74 11
Page 2 of 2
2017-07-07

- .5 Remove waste materials, and debris from site on a daily basis.

1.4 Final Cleaning

- .1 In preparation for acceptance of the project on an interim or final certificate of completion perform final cleaning.

PART 1 - GENERAL

1.1 Definitions

- .1 Hazardous Material: Product, substance, or organism that is used for its original purpose, and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.

1.2 Waste Management

- .1 Incorporate environmental and sustainable practices in managing waste resulting from work.
- .2 Divert as much waste as possible from landfill.
- .3 Coordinate work of subtrades and subcontractors to ensure all possible waste reduction and recycling opportunities are taken. Follow waste management requirements specified in trade sections of the Specifications.
- .4 Reduce waste during installation of new materials. Undertake practices which will optimize full use of materials and minimize waste.
- .5 Develop innovative procedures to reduce quantity of waste generated by construction such as by delivering materials to site with minimal packaging etc.
- .6 Provide on-site facilities to collect, handle and store anticipated quantities of reusable, salvageable and recyclable materials.
- .7 During demolition and removal work separate materials and equipment at source, carefully dismantling, labelling and stockpiling alike items for the following purposes:
- .1 Reinstallation into the work where indicated.
-

- .2 Salvaging reusable items not needed in project which Contractor may sell to other parties.
 - .3 Sending as many items as possible to locally available recycling facility.
 - .4 Segregating remaining waste and debris into various individual waste categories for disposal in a "non-mixed state" as recommended by waste processing/landfill sites.
 - .8 Isolate product packaging and delivery containers from general waste stream. Send to recycling facility or return to supplier/manufacturer.
 - .9 Send leftover material resulting from installation work for recycling whenever possible.
 - .10 Establish methods whereby hazardous and toxic materials, and their containers used on site are properly handled, stored and disposed in accordance with applicable federal, provincial and municipal laws and regulations.
-
- 1.3 Disposal Requirements
-
- .1 Burying or burning of rubbish and waste materials is prohibited.
 - .2 Disposal of volatile materials, mineral spirits, oil, paint, and other hazardous materials into waterways, storm, or sanitary sewers is prohibited.
 - .3 Dispose of waste only at approved waste processing facility or landfill sites approved by authority having jurisdiction.
-

- .4 Contact the authority having jurisdiction prior to commencement of work, to determine what, if any, demolition and construction waste materials have been banned from disposal in landfills and at transfer stations. Take appropriate action to isolate such banned materials at site of work and dispose in strict accordance with provincial and municipal regulations.
- .5 Transport and dispose of waste intended for waste processing plant or landfill facility in separated condition and to Operator's rules and recommendations in support of their effort to recycle, reduce and divert certain waste stream from general landfill.
- .6 Collect, bundle and transport salvaged materials to be recycled in separated categories and condition as directed by recycling facility. Ship materials only to approved recycling facilities.
- .7 Sale of salvaged items by Contractor to other parties not permitted on site.

PART 1 - GENERAL

- | | | |
|---------------------------------------|----|--|
| <u>1.1 Section Includes</u> | .1 | Administrative procedures preceding inspection and acceptance of Work by Departmental Representative. |
| <u>1.2 Related Sections</u> | .1 | Section 01 78 00 - Closeout Submittals. |
| <u>1.3 Inspection and Declaration</u> | .1 | Contractor's Inspection: Coordinate and perform, in concert with subcontractors, an inspection and check of all Work. Identify and correct deficiencies, defects, repairs and perform outstanding items as required to complete work in conformance with Contract Documents.

.1 Notify Departmental Representative in writing when deficiencies from Contractor's inspection have been rectified and that Work is deemed to be complete and ready for Departmental Representative's inspection of the completed work. |
| | .2 | Departmental Representative's Inspection: Accompany Departmental Representative during all interim and final inspections of the Work.

.1 Address defects, faults and outstanding items of work identified by such inspections.
.2 Advise Departmental Representative when all deficiencies identified have been rectified. |
| | .3 | Note that Departmental Representative will not issue a Certificate of Substantial Performance of the work until such time that Contractor performs following work and turns over the specified documents:

.1 Project record as-built documents;
.2 Final Operations and Maintenance manuals;
.3 Compliance certificates from applicable authorities;
.4 Reports resulting from designated tests;
.5 Manufacturer's Guarantee certificates. |
-

Roof Replacement
Building 5
Springhill Institution
Springhill, NS
Project No. R.84537.001

Closeout Procedures

Section 01 77 00
Page 2 of 2
2017-07-07

- .4 Correct all discrepancies before Departmental Representative will issue the Certificate of Completion.

PART 1 - GENERAL

1.1 Section Includes

- .1 Requirements for:
 - .1 Project Record Documents.
 - .2 Operations and Maintenance data.

1.2 Project Record Documents

- .1 Departmental Representative will provide 2 white print sets of contract drawings and 2 copies of Specifications Manual specifically for "as-built" purposes.
- .2 Maintain at site one set of the contract drawings and specifications to record actual as-built site conditions.
- .3 Maintain up-to-date, real time as-built drawings and specifications in good condition and make available for inspection by the Departmental Representative upon request.
- .4 As-Built Drawings:
 - .1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of work, neatly transfer notations to second set (also by use of red ink).
 - .2 Submit both sets to Departmental Representative prior to application for Certificate of Substantial Performance.
 - .3 Stamp all drawings with "As-Built Drawings". Label and place Contractor's signature and date.
 - .4 Show all modifications, substitutions and deviations from what is shown on the contract drawings or in specifications.
 - .5 Record following information:
 - .1 Field changes of dimension and detail;
 - .2 All design elevations, sections, floor plans and details dimensioned and marked-up to consistently report finished installation conditions;

.3 Any details produced in the course of the contract by the Departmental Representative to supplement or to change existing design drawings;

.4 All change orders issued over the course of the contract must be documented on the finished as-built documents, accurately and consistently depicting the changed condition as it applies to all affected drawing details.

.5 As-built Specifications: legibly mark in red each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly items substituted from that specified.

.2 Changes made by Addenda and Change Orders.

.3 Mark up both copies of specifications; stamp "as-built", sign and date similarly to drawings as per above clause.

.6 Maintain As-built documents current as the contract progresses. Departmental Representative will conduct reviews and inspections of the documents on a regular basis. Failure to maintain as-built current and complete to satisfaction of the Departmental Representative shall be subject to financial penalties in the form of progress payment reductions and holdback assessments.

1.3 Reviewed Shop Drawings

.1 Provide a complete set of all shop drawings reviewed for project to incorporate into each copy of the Operations & Maintenance manuals.

.2 Submit full sets at same time and as part of the contents of the Operation and Maintenance manuals specified.

1.4 Operations and
Maintenance Manual

- .1 O&M Manual - Definition: an organized compilation of operating and maintenance data including detailed technical information, documents and records describing operation and maintenance of individual products or systems as specified in individual sections of the specifications.
 - .2 Manual Language: final manuals to be in English.
 - .1 Upon review and acceptance by Departmental Representative, submit 3 final copies; plus, one (1) CD with O&M manuals in PDF format. Interim copies are not to be considered as part of the final copies unless they have been fully revised and are identical to the final approved version.
 - .3 Submission Date: submit complete operation and maintenance manual to Departmental Representative 3 weeks prior to application for Certificate of Substantial Performance of the work.
 - .4 Binding:
 - .1 Assemble, coordinate, bind and index required data into Operation and Maintenance Manual.
 - .2 Use vinyl, hard covered, 3 "D" ring binders, loose leaf, sized for 215 x 280 mm paper, with spine pocket.
 - .3 Where multiple binders are needed, correlate data into related consistent groupings.
 - .4 Identify contents of each binder on spine.
 - .5 Organize and divide data following same numerical system as the section numbers of the Specification Manual.
 - .6 Dividers: separate each section by use of cardboard dividers and labels. Provide tabbed fly leaf for each individual product and system and give description of product or component.
 - .7 Type lists and notes. Do not handwrite.
 - .8 Drawings, diagrams and manufacturers' literature must be legible. Provide with reinforced, punched binder tab. Bind in with
-

text; fold larger drawings to size of text pages.

.5 Manual Contents:

.1 Cover sheet containing:

.1 Date submitted.

.2 Project title, location and project number.

.3 Names and addresses of Contractor, and all Sub-contractors.

.2 Table of Contents: provide full table of contents in each binder(s), clearly indicate which contents are in each binder.

.3 List of maintenance materials.

.4 Original or certified copy of warranties and product guarantees.

.5 Copy of approval documents and certificates issued by Inspection Authorities.

.6 Copy of reports and test results performed by Contractor as specified.

.7 Product Information (PI Data) on materials as specified in various sections of the specifications.

.6 Shop drawings:

.1 Include complete set of reviewed shop drawings into each copy of the operations and maintenance manual.

.2 Fold and bind material professionally in a manner that corresponds with the specification section numbering system.

.3 When large quantity of data is submitted, place into separate binders of same size as O&M binders.

PART 1 - GENERAL

1.1 Description of Work

- .1 In general, the work of this section consists of:
 - .1 Removal of existing asphalt roofing system and related flashings, fasteners, trim and underlay.
 - .2 Removal and disposal of existing roof anchors where designated for replacement.
 - .3 Removal, relocation and reinstallation of various materials and equipment shown and as required and;
 - .4 Cutting and patching as necessary to carry out work of this contract.

1.2 Related Sections

- .1 Section 07 52 16 - Modified Bituminous Membrane Roofing.
- .2 Section 07 62 00 - Sheet Metal Flashing and Trim.
- .3 Section 07 71 50 - Roof Anchors.
- .4 Section 07 92 00 - Joint Sealant.

1.3 Examination

- .1 Carefully examine the site and contract documents to determine the nature and extent of the work.

1.4 Equipment

- .1 Provide all necessary scaffolding, chutes, ramps, and ladders to carry out the work.

1.5 Disposal

- .1 Materials and equipment removed and not specifically designated to be turned over to Departmental Representative or to be reinstalled becomes shall be disposed of off property.
- .2 Carry out disposal of material debris and removed roofing materials in accordance with Section 01 10 10 - General Instructions.

- .3 Do not encumber the site with stockpiled materials. Immediately remove waste and debris from site on a daily basis.
- .4 Contaminated or dangerous materials, as defined by authorities having jurisdiction relating to environmental protection, which is encountered in the process of demolition and removal work, shall be immediately removed and disposed of in a safe manner in accordance with applicable regulations.

1.6 Building
Operations

- .1 Carry out the work of this Section as expeditiously as possible with minimum interference to on-going facility operations.
- .2 Schedule and coordinate work with the Departmental Representative in accordance with the approved Construction Schedule and restrictions specified in Section 01 10 10 - General Instructions.

PART 2 - PRODUCTS

2.1 Materials and
Equipment

- .1 Supply all materials and equipment necessary and required to carry out work of this Section.

PART 3 - EXECUTION

3.1 General Removals

- .1 Remove all items indicated on drawings, and as required to complete the work.
 - .2 Carry out demolition work using methods which minimizes creation of dust.
 - .3 Remove all existing materials required to allow new work and upon completion of work, patch and make good all adjacent surfaces and finishes disturbed.
-

- .4 Remove existing roof-mounted equipment, services, and obstacles where required to allow for roofing removal work, installation of new roofing and flashings, and all related work of this contract. Replace same as work progresses. This includes all disconnections and reconnections of mechanical and electrical equipment. Work to be performed by tradespersons qualified and licensed in the field of item being disconnected and reconnected.

3.2 Removal of Items
for Reinstallation or
Storage

- .1 Carefully remove those items designated to be turned over to Departmental Representative or to be reinstalled and store in locations as directed by the Departmental Representative.
- .2 Damage to these items, resulting from removal or reinstallation, shall be made good at the Contractor's expense. The decision as to whether damaged items any be repaired or must be replaced with new material shall be the Departmental Representative's decision.

3.3 Protection of
Surfaces to Remain or
to be Reinstalled

- .1 Carefully protect all existing structures, finishes and materials that are to remain or be reinstated from damage during removal work and make good at own expense any damage thereto.
- .2 Protect electric, telephone, other wires, and plumbing services traversing premises at work area.

3.4 General Patching

- .1 Patch damaged or otherwise disfigured surfaces caused by removal work and installation of new work using materials and finishes which match existing.

3.5 Cleaning

- .1 Prior to reinstallation of existing materials or equipment, thoroughly clean those areas of items which may be inaccessible after installation.
-

Roof Replacement
Building 5
Springhill Institution
Springhill, NS
Project No. R.84537.001

Selective Demolition

Section 02 41 18

Page 4 of 4

2017-07-07

- .2 After installation, give all reinstalled items a thorough cleaning to satisfaction of the Departmental Representative.

PART 1 - GENERAL

- | | | |
|------------------------------|----|--|
| <u>1.1 Related Sections</u> | .1 | Section 07 52 16 - Modified Bituminous Membrane Roofing. |
| | .2 | Section 07 62 00 - Sheet Metal Flashing and Trim. |
| <u>1.2 References</u> | .1 | American Society for Testing and Materials (ASTM)
.1 ASTM A123/A123M-15, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
.2 ASTM D1761-12, Standard Test Methods for Mechanical Fasteners in Wood.
.3 ASTM D5456-14b, Standard Specification for Evaluation of Structural Composite Lumber Products.
.4 ASTM E84-16, Standard Test Method for Surface Burning Characteristics of Building Materials. |
| | .2 | Canadian Standards Association(CSA)
.1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
.2 CSA O121-08 (R2013), Douglas Fir Plywood.
.3 CSA-0141-05 (R2014), Softwood Lumber.
.4 CSA O151-09 (R2014), Canadian Softwood Plywood. |
| | .3 | National Lumber Grades Authority (NLGA)
.1 NLGA-2014, 2014 Standard Grading Rules for Canadian Lumber. |
| | .4 | National Fire Protection Association (NFPA)
.1 NFPA 255, Standard Test Method for Surface Burning Characteristics of Building Materials. |
| <u>1.3 Quality Assurance</u> | .1 | Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board. |

- | | | |
|--|----|--|
| | .2 | Plywood identification: by CANPLY (Canadian Plywood Association) certification stamp and in accordance with applicable CSA standards. |
| <u>1.4 Waste Management and Disposal</u> | .1 | Separate and recycle waste materials in accordance with Section 01 74 22 - Construction/Demolition Waste Management and Disposal. |
| | .2 | Separate metal, plastic, wood and corrugated cardboard-packaging in accordance with the Waste Management Plan and place in designated areas for recycling. |
| | .3 | Do not burn scrap at the project site. |
| | .4 | Fold up metal banding, flatten, and place in designated area for recycling. |

PART 2 - PRODUCTS

- | | | |
|----------------------------|----|---|
| <u>2.1 Lumber Framing</u> | .1 | Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
.1 All framing lumber to be S4S. |
| | .2 | Finger jointed lumber is not acceptable for work on this project. |
| <u>2.2 Panel Materials</u> | .1 | Canadian softwood plywood (CSP): to CSA 0151, exterior grade, thickness as indicated, grade stamped in accordance with CANPLY. |
| <u>2.3 Accessories</u> | .1 | Nails, spikes and staples: to CSA B111. |
| | .2 | Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers, galvanized. |
| | .3 | Proprietary fasteners: toggle bolts, expansion |
-

shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, or other devices as recommended for purpose by manufacturer.

2.4 Fastener Finishes

- .1 Galvanizing: to ASTM A123/A123M. Use galvanized fasteners for all exterior work, for use in all treated wood, and as indicated on plans.

2.5 Wood Preservative

- .1 Pressure impregnated wood preservative: preservative to be vacuum/pressure impregnated in accordance with CSA O80.2 to an average net retention of 4.0 kg/m³ of C.A. (Copper Azole) preservative or ACQ preservative, arsenic free.
- .2 End cut treatment: preservative as recommended by treated wood manufacturer.
- .3 All fasteners used in the installation of pressure treated wood to be either hot dipped galvanized or stainless steel.

PART 3 - EXECUTION

3.1 Installation

- .1 Comply with requirements of NBCC 2010, Division B, Part 9 supplemented by following paragraphs:
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.
- .4 Install spanning members with "crown-edge" up.
- .5 Install wood fascia backing, nailers, and other wood supports as required and secure using galvanized fasteners.
- .6 Pressure preservative treated material to be used for all wood components for cants, fascia backing, curbs, nailers, sleepers, etc. on roof.

Roof Replacement
Building 5
Springhill Institution
Springhill, NS
Project No. R.84537.001

Rough Carpentry

Section 06 10 00
Page 4 of 4
2017-07-07

3.2 Erection

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts, where necessary, to provide clearance for other work.

PART 1 - GENERAL

- | | | |
|-----------------------------|----|--|
| <u>1.1 Section Includes</u> | .1 | Requirements for the supply and installation of materials for the modified bituminous membrane roofing for the roof system replacement and repairs. |
| <u>1.2 Related Sections</u> | .1 | Section 06 10 00 - Rough Carpentry. |
| | .2 | Section 07 62 00 - Sheet Metal Flashing and Trim. |
| | .3 | Section 07 92 00 - Joint Sealant. |
| <u>1.3 References</u> | .1 | American Society for Testing and Materials International, (ASTM).
.1 ASTM C1396/C1396M-14a, Standard Specification for Gypsum Board.
.2 ASTM D2556-14, Standard Test Method for Apparent Viscosity of Adhesives Having Shear-Rate-Dependent Flow Properties Using Rotational Viscometry.
.3 ASTM D6162/D6162M-16, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fibre Reinforcements.
.4 ASTM D6163/D6163M-16, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fibre Reinforcements.
.5 ASTM D6164-16, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
.6 ASTM E84-16, Standard Test Method for Surface Burning Characteristics of Building Materials. |
| | .2 | Canadian General Standards Board (CGSB).
.1 CGSB-37-GP-56M, Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing. |
-

- .3 Canadian Roofing Contractors Association (CRCA).
 - .1 CRCA Roofing Specifications Manual.
- .4 Department of Justice Canada (Jus).
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .5 Factory Mutual (FM Global).
 - .1 FM Approvals - Roofing Products.
- .6 Health Canada / Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .7 Transport Canada (TC).
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .8 Underwriters Laboratories' of Canada (ULC).
 - .1 CAN/ULC-S701-11, Thermal Insulation, Polystyrene, Boards and Pipe Covering.
 - .2 CAN/ULC-S704-11, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced.
 - .3 CAN/ULC-S770-09, Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams.

1.4 Performance Requirements

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

1.5 Submittals

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of most recent technical roofing components data sheets describing materials' physical properties.
-

- .3 Submit WHMIS MSDS - Material Safety Data Sheets.
 - .1 Indicate VOC content for:
 - .1 Primers.
 - .2 Adhesives.
 - .3 Sealers.
 - .4 Resin flashings.
- .4 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .5 Indicate flashing and tapered insulation details.
- .6 Provide layout for tapered insulation.
- .7 Manufacturer's Installation Instructions: indicate special precautions required for seaming the membrane.
- .8 Manufacturer's Certificate: certify that products meet or exceed specified requirements.
- .9 Manufacturer's Field Report: in accordance with 01 45 00 - Quality Control.
- .10 Reports: indicate procedures followed, ambient temperatures and wind velocity during application.

1.6 Storage and Handling

- .1 Provide and maintain dry, off-ground weatherproof storage.
 - .2 Store rolls of membrane in upright position. Store membrane rolls with selvage edge up.
 - .3 Remove from storage only in quantities required for same day use.
-

- .4 Place plywood runways over completed Work to protect from damage and enable movement of material and other traffic.
- .5 Store sealants at +5°C minimum.
- .6 Store insulation protected from daylight, weather and deleterious materials.
- .7 Handle roofing materials in accordance with manufacturer's written directives, to prevent damage or loss of performance.

1.7 Protection

- .1 Fire Extinguishers: maintain one cartridge operated type or stored pressure rechargeable type with hose and shut-off nozzle, ULC labeled for A, B and C class protection. Size 14 kg, one on roof per torch applicator, within 6 m of torch applicator.
- .2 Maintain fire watch for 1 hour after each day's roofing operations cease.
- .3 Use a hand infrared thermometer to monitor temperatures and identify any areas of smoldering or concealed fire.

1.8 Waste Management and Disposal

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 22 - Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.

- .4 Separate for reuse and recycling and place in designated containers waste in accordance with Waste Management Plan.
- .5 Place materials defined as hazardous or toxic in designated containers.
- .6 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.
- .7 Ensure emptied containers are sealed and stored safely.
- .8 Divert unused metal materials from landfill to recycling facility as approved by Departmental Representative.
- .9 Unused adhesive, sealant and asphalt materials must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.
- .10 Fold up metal banding, flatten and place in designated area for recycling.

1.9 Environmental Requirements

- .1 Do not install roofing when temperature remains below -18°C for torch application.
 - .2 Minimum temperature for solvent-based adhesive is -5°C.
 - .3 Install roofing on dry deck, free of snow and ice. Use only dry materials and apply only during weather that will not introduce moisture into roofing system.
-

1.10 Warranty

- .1 For the modified bituminous membrane roofing system, the one (1) year warranty period is extended as follows:
 - .1 Fifteen (15) year materials and workmanship warranty against leaks and blowoff.
 - .2 The membrane manufacturer will issue a written document in the owner's name, valid for a 15 year period, stating that it will repair any leaks in the roofing membrane to restore the roofing system to a dry and watertight condition, to the extent that manufacturing or installation defects caused such water infiltration. The warranty must cover all roofing components from the deck up to the finish cap sheet and flashings and the total cost of repair(s) during the entire warranty period. The warranty is to be transferable, at no extra cost, to subsequent building owners. The warranty certificate must reflect these requirements.
 - .3 Warranty described in 1.10.1.1 and 1.10.1.2 to apply to replacement roof system on the original building section, (Level 1), and the resurfacing of the 2014 addition, (Levels 2 to 7).
- .2 Warranty will commence on the termination of the standard one-year warranty under this Contract and shall be an extension of these same provisions.

PART 2 - PRODUCTS

2.1 Roof Board (for
Localized Roof Repair
at Sumps on Metal Deck)

- .1 Roof Board:
 - .1 Fibre reinforced gypsum panel, moisture and mold resistant core and surface. Impact resistant, fiber reinforced. Nominal size 1220 mm x 4880 mm. Square edges. Flexural strength parallel per ASTM C473: 161 lbs min. for 5/8".
 - .2 Compressive strength = 1800 psi. Spanability per ASTM E661: 10" for 5/8" thick. Permeance, 24 perms per ASTM E96 for 5/8" thickness.

.1 Primer composed of SBS synthetic rubber adhesive enhancing resins and volatile solvents. Used as primer to improve the adhesion of self-adhesive membranes.

.1 Self-Adhesive Vapour Barrier: Self-adhesive membrane composed of SBS modified bitumen, with a surface scrim made of high-density polyethylene laminated between two layers of polyethylene films. The self-adhesive underface to be protected with a silicone plastic release film. Sanded on top side.

- .1 Base sheet: to CGSB- 37-GP-56M (Draft 9):
 - .1 Styrene-Butadiene-Styrene (SBS) elastomeric polymer prefabricated sheet, polyester reinforcement, having nominal weight of 180 g/m².
 - .2 Type 2, fully adhered.
 - .3 Class C - plain surfaced.
 - .1 Grade 2 - heavy duty service.
 - .2 Top and bottom surfaces:
 - .1 Polyethylene/polyethylene.
 - .4 Properties:
 - .1 Strain energy, MD/XD: 9.0/7.0 kN/m.
 - .2 Breaking strength, MD/XD: 17.0/12.5 kN/m.
 - .3 Ultimate elongation, MD/XD: 60/65 %.
 - .4 Tear resistance: 60 kN.
 - .5 Static puncture resistance: 400 N.
 - .6 Dimensional stability, MD/XD: -0.3/0.3 %.
 - .7 Plastic flow: 115°C.
 - .8 Cold bending at -30°C: No cracking.
 - .5 Base sheet and cover board can be supplied as a composite product consisting of an equivalent base sheet factory bonded to a cover board meeting specifications under clause 2.5 below.

- .2 Cap sheet membrane: to CGSB 37-GP-56M (Draft 9).
 - .1 Styrene-Butadiene-Styrene(SBS) elastomeric polymer prefabricated sheet, polyester reinforcement, having nominal weight of 250 g/m².
 - .2 Type 1, fully adhered.
 - .3 Class A-granule surfaced.
 - .1 Colour for granular surface: gray.
 - .4 Grade 2 heavy duty service.
 - .5 Bottom surface polyethylene.
 - .6 Properties:
 - .1 Strain energy, MD/XD: 10/10 kN/m.
 - .2 Breaking strength, MD/XD: 17/16 kN/m.
 - .3 Ultimate elongation: 60/65 %.
 - .4 Tear resistance: 75 N.
 - .5 Static puncture resistance: 420 N.
 - .6 Dimensional stability, MD/XD: -0.8/-0.2 %.
 - .7 Plastic flow: 110°C.
 - .8 Cold bending at -30°C: No cracking.
 - .9 Lap adhesion:
 - Initial: 27 kN/m;
 - 5 days at 50°C: 27 kN/m;
 - 14 days at 70°C: 27 kN/m.
 - .3 Base Flashing Membrane:
 - .1 Material properties matching Base Sheet.
 - .2 Fire-Retardent for all areas where applied over wood or other flammable components.
 - .3 Self-adhesive.
 - .4 Cap Flashing Membrane:
 - .1 Material properties matching Cap Sheet.
- 2.5 Cover Board
- .1 Cover Board:
 - .1 Semi-rigid roofing substrate board.
-

.2 Mineral fortified asphaltic core formed between two fiberglass reinforcing plies designed for compatibility with heat welded, cold-adhered or self-adhered assemblies.

.3 Water absorption to ASTM D994: 0.25%.

.4 Compressive strength to ASTM C472: 1641 kPa (238 psi).

.5 Puncture resistance to ASTM E154: 500 N.

.6 A composite product consisting of a base sheet, factory laminated onto a cover board, is an acceptable alternate to the supply of these components separately. Top surface to be thermofusible. Side lap to be part adhesive and part thermofusible.

2.6 Insulation

.1 Polyisocyanurate Insulation - Flat.

.1 Description: Flat Polyisocyanurate insulation that meets CAN/ULC S-704, 1200mm x 1200mm minimum size, shiplap edge, top and bottom face finished with a fibre reinforced felt.

.2 Resistance Rating LTTR-6 per inch: to CAN/ULC-S704.

.3 Shiplap edges.

.4 The insulation thicknesses shown on drawings are based on R-4.14 per inch. Adjust roof details as required for other thermal ratings. Equivalency based on 5 year aged R-value. Submit verification of equivalency.

.2 Polyisocyanurate Insulation - Tapered.

.1 Description: Tapered polyisocyanurate insulation that meets CAN/ULC S-704, square edge. 2% Slope.

.2 Resistance Rating LTTR-6 per inch: to CAN/ULC-S704.

.3 Square edges.

.4 The insulation thicknesses shown on drawings are based on R-4.14 per inch. Adjust roof details as required for other thermal ratings. Equivalency based on 5 year aged R-value. Submit verification of equivalency.

- .3 Sump Insulation Board for Drain Locations
 - .1 Description: Sump insulation panel made of polyisocyanurate designed to facilitate proper drainage around drain. 1200mm x 1200mm size, square edge, top and bottom face finished with a fibre reinforced felt.
- .4 All insulation to be approved for I-90 Windstorm Classifications.

2.7 Accessory
Membranes

- .1 Cover Strip.
 - .1 Description: Membrane strip made of SBS modified bitumen with a composite reinforcement. Both faces covered with a plastic thermofusible film. The strip to be applied to laps for water-tightness.
 - .2 In conformance with: ASTM D6162.

2.8 Fasteners

- .1 Membrane fasteners:
 - .1 Fasteners for use to install roof boards at localized roof repair at sumps on metal deck of 2004 building addition.
 - .2 Pre-assembled fasteners with #14 self-tapping screws, with washer of 50 mm (2 in) diameter.
 - .3 In conformance with: FM 4470 Approvals standard.

2.9 Waterproofing
Mastic

- .1 Multi-purpose mastic composed of SBS modified bitumen, fibres, aluminium pigments, mineral fillers and solvents.

2.10 Sealing Compound

- .1 Bitumen/polyurethane waterproofing mono-component resin and polyester reinforcement.

2.11 Retrofit Roof
Drain

- .1 One piece aluminum body, heavy duty cast aluminum strainer dome and clamping ring. To have depressed sump. To incorporate U-Flow Seal technology for mechanical watertight connection to existing drain pipe. Sizes to be field confirmed.

-
- 2.12 Roof Penetration Flashings (Level 1) .1 Provide new flashings at all active vents in areas to receive new modified bituminous membrane roofing system. To be Thaler, or approved alternate, complete with cap, insulation, sealants and aluminum stack extended to suit vent height. The cap to be adhered with waterproofing mastic. The installation of the cap with screws will not be permitted.
- 2.13 Resin Flashing System .1 Resin Flashing System: Polyurethane/bitumen resin, single component, moisture cured. Used in combination with flexible, non-woven, polyester fabric reinforcement to field construct seamless flashings at irregular shaped and/or non-removable existing rood penetrations and/or projections.
- .1 Resin Properties (nominal values):
- .1 Density at 25 °C (77 °F): 1.07 kg/L.
- .2 Solids content: 80 %.
- .3 Softening point: 150 °C (302 °F).
- .4 Ultimate elongation as per ASTM D412: 500 %.
- .5 Breaking strength as per ASTM D412: 1.35 MPa.
- .6 Tear resistance as per ASTM D903: 102.3 N (23 lbf).
- .7 Tear resistance as per ASTM D 5147, section 7: 253.5 N (57 lbf).
- .8 Water vapour permeance as per ASTM E96 (procedure B): < 30 ng/Pa•s•m² (<0.47 perm).
- .9 Peel adhesion after water immersion as per ASTM C836: 792 N/m.
- .10 Drying time: Ready to recoat after 2 hours, dry: 12 hours (remains tacky to touch).
- .11 Fully cured: 3 days.
- .2 Flashing Properties (nominal values):
- .1 Average thickness: 0.6 mm (25 mil).
- .2 Average net weight: 100 g/m² (3 ounce per square yard).
- .3 Tensile strength as per ASTM D1682: 393 kPa (57 psi).
-

- .4 Elongation as per ASTM D1682: 62 %.
- .5 Tear strength as per ASTM D1117: 71 N (16 lbf).
- .6 Mullen burst as per ASTM D3786: 783 N (176 lbf).

- .2 Field constructed resin flashings to be included under roofing system warranty.

2.14 Adhesive

- .1 Low rise, two-component polyurethane adhesive having the following properties:
 - .1 Viscosity, Brookfield at 25°C (77°F) Part A, 350 CP to ASTM D2556. Part B, 3,200 CP to ASTM D2556.
 - .2 Cream time: 10 seconds.
 - .3 Rise time: 90 seconds.
 - .4 Curing time: 30 minutes.

2.15 Cant Strips

- .1 Cut from prefabricated fibreglass material, to measure 140 mm on slope, unless otherwise indicated.

2.16 Walkways

- .1 Walkways to consist of one additional ply of cap sheet membrane. Colour to be as selected by Departmental Representative.

PART 3 - EXECUTION

3.1 Workmanship

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

3.2 Examination of Roof Decks

- .1 Inspect deck conditions including parapets, construction joints, roof drains, plumbing vents and ventilation outlets to determine readiness to proceed with roofing and immediately inform Departmental Representative in writing of any defects.

- .2 Prior to start of roofing work, inspect and review deck conditions with Departmental Representative. To include slopes and wood grounds as well as flashings at parapets, roof drains, plumbing vents, ventilation outlets and construction joints. If necessary, a non-conformity notice will be issued to the contractor so that required corrections can be carried out. The start of roofing work will constitute acceptance of conditions for work completion to specifications and warranty requirements.
- .3 Do not begin any portion of work before surfaces are clean, smooth, dry, and free of ice and debris. Do not use calcium or salt for ice or snow removal.
- .4 Be sure plumbing, carpentry and all other works have been duly completed.
- .5 No materials are to be installed during rain or snowfall.
- .6 Prior to beginning of work ensure:
 - .1 Decks are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris.
 - .2 Curbs have been built.
 - .3 Roof retrofit drains have been installed at proper elevations relative to finished roof surface.
 - .4 Plywood and lumber nailer plates have been installed to deck, walls and parapets as indicated and as required.

3.3 Method of Execution

- .1 Roofing work must be completed in a continuous fashion as surfaces are readied and as weather conditions allow.
 - .2 Seal all joints that are not covered by a cap sheet membrane the same day. Additional cap
-

sheet cannot be installed if any moisture is present in joints.

- .3 Maintain roof in waterproof condition at all times, including protection during installation work by other trades. Provide all necessary temporary protection as work progresses at vents, drains, roof anchors, flashings, etc.

3.4 Protection

- .1 Cover walls, walks and adjacent work where materials are hoisted or used to access work area.
- .2 Use warning signs and barriers. Maintain in good order until completion of Work.
- .3 Clean off drips and smears of bituminous material immediately.
- .4 Dispose of rain water off roof and away from face of building until roof drains are installed and connected.
- .5 Protect roof from traffic and damage. Comply with precautions deemed necessary by Departmental Representative.
- .6 At end of each day's work, or when stoppage occurs due to inclement weather, provide protection for completed work and materials out of storage.

3.5 New SBS Modified Bituminous Roofing (Level 1)

- .1 Remove existing EPDM roofing down to top of existing vapour barrier.
- .2 Inspect and repair all deck concrete surfaces, and advise Departmental Representative, if damaged.
- .3 Patch all localized damaged areas of existing vapour barrier. Patch over damaged areas using vapour retarder. Adhere to existing.

- .4 Install continuous layer of vapour retarder membrane, torched or adhered, to entire surface of existing.
- .5 Adhere insulation to build-up to slopes indicated.
- .6 Install 12 mm cover board on insulation, using adhesive.
- .7 Install base sheets and cap sheets and related joint strips and base and cap flashings, etc. in strict accordance with roofing manufacturer's written instructions.
- .8 Composite base sheet, factory bonded to cover board, may be substituted for field installation of individual components.

3.6 New SBS Modified
Bituminous Cap Sheet
and Related Roof
Repairs (Levels 2 to 7)

- .1 Localized repairs to roof system at roof drains:
 - .1 Remove existing modified bitumen roofing system down to top of metal roof deck.
 - .2 Install 16 mm thick roof board on roof deck. Mechanically fasten with minimum 16 screws per sheet.
 - .3 Make new vapour barrier continuous with that of existing roofing system.
 - .4 Install retrofit drain and new sump insulation.
 - .5 Install base and cap sheets and cap sheet flashing at drain.
 - .2 New cap sheet installation:
 - .1 Remove all debris and organics from roof system.
 - .2 Remove all loose granules off of existing cap sheet surface.
 - .3 Remove metal flashings and trims as required to install new cap flashings.
 - .4 Install new cap sheets and cap flashings.
-

-
- | | | |
|--|----|---|
| | .5 | Install flashings and related accessories at vents, stacks, curbs and parapets. |
| <u>3.7 Resin Flashing System</u> | .1 | Obtain Departmental Representative's approval for locations of use and method of installation. |
| | .2 | Prepare area and install to manufacturer's written directions. |
| <u>3.8 Retrofit Roof Drains</u> | .1 | Remove upper portion of existing drain, strainer dome and clamping ring. |
| | .2 | Remove additional drain components as required to allow retrofit drain to lie flush on roof membrane. |
| | .3 | Set retrofit roof drain and install compression ring seal. |
| | .4 | Fasten retrofit drain flange to roof deck/nailer. |
| | .5 | Install flashing membrane. |
| <u>3.9 Installation of Reinforcing Gussets</u> | .1 | Install reinforcing gussets at all inside and outside corners. |
| | .2 | Heat-weld or adhere the gussets in place after installing base sheet membrane. |
| <u>3.10 Installation of Walkways</u> | .1 | Install walkways if and where indicated or directed by the Departmental Representative, in compliance with requirements previously stipulated for cap sheet installation. Apply primer to cap sheet before installing walkways. |
| <u>3.11 Roof Work Coordination</u> | .1 | Advise Department Representative 24 hours before installing any roof unit on roof curbs. |
| | .2 | Department Representative to inspect and give written approval of all roof curb construction, |
-

size and location prior to installation of any roof units.

- .3 Roof unit may only be installed upon approval of Department Representative.

3.12 Roof Curbs

- .1 Repair, move, resize or perform any work to roof curbs as described, directed or deemed necessary to suite site conditions (or construction details) by Department Representative.
- .2 Additional work required to suite site conditions or construction details will be performed at no extra cost.
- .3 Ensure the Roof Inspection Firm identified by the Department Representative is informed of construction schedule 24 hours in advance of request for inspection.

3.13 Roof/Wall Junction

- .1 The Department Representative is to be notified 24 hours prior to covering thru-wall flashings to allow for inspection.
- .2 Inspect with Department representative and examine thru-wall flashing and report in writing any defects in structure or differences from details. Inspection will review water tightness of membrane at thru-wall prior to installing siding material or masonry and metal flashings.

3.14 Field Quality Control

- .1 Inspection and testing of roofing application will be carried out by testing laboratory designated by Departmental Representative.
- .2 Department Representative will pay for tests as specified in Section 01 45 00 - Quality Control.

3.15 Cleaning

- .1 Remove bituminous markings from finished surfaces.
- .2 In areas where finished surfaces are soiled caused by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- .3 Repair or replace defaced or disfigured finishes caused by work of this section.

PART 1 - GENERAL

- | | | |
|-----------------------------|----|---|
| <u>1.1 Section Includes</u> | .1 | Requirements for supply and installation of all roof edge, wall, and parapet cap flashings necessary for the proper and complete installation of the new roofing work. |
| <u>1.2 Related Sections</u> | .1 | Section 06 10 00 - Rough Carpentry. |
| | .2 | Section 07 52 16 - Modified Bituminous Membrane Roofing. |
| <u>1.3 References</u> | .1 | American National Standards Institute (ANSI)
.1 ASME B18.6.4-1998 (R2005), Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws - Inch. |
| | .2 | American Society for Testing and Materials (ASTM)
.1 ASTM A653/A653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process. |
| | .3 | Canadian General Standards Board (CGSB)
.1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type. |
| | .4 | Canadian Roofing Contractors Association (CRCA)
.1 Roofing Specifications Manual. |
| | .5 | Canadian Standards Association(CSA)
.1 CSA A123.3-05 (R2015), Asphalt Saturated Organic Roofing Felt.
.2 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
.3 CSA S136-12, North American Specification for the Design of Cold-Formed Steel Structural Members. |
-

- .6 Canadian Sheet Steel Building Institute (CSSBI)
 - .1 CSSBI 10M-13, Standard for Steel Roof Deck.
 - .2 CSSBI 20M-16, Standard for Sheet Steel Cladding for Industrial, Commercial and Institutional Building Applications.

1.4 Submittals

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature for sheet metal flashing systems materials, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit WHMIS MSDS in accordance with Section 01 35 28 - Health and Safety Requirements and Section 01 35 43 - Environmental Procedures.
- .3 Shop Drawings:
 - .1 Indicate dimensions, profiles, attachment methods, trim and closure pieces, fascia, and related work.
- .4 Samples:
 - .1 Submit two 50 x 50 mm samples of metal thickness and paint finish colour intended to confirm colour match with existing.

1.5 Delivery, Storage and Handling

- .1 Materials shall be delivered, handled and stored by methods approved by the manufacturer.
- .2 Installers are to wear cotton gloves to minimize the amount of final cleaning required.

1.6 Site Conditions

- .1 Environmental Requirements:
 - .1 Do not install the work of this Section during inclement weather.
-

.2 Do not install the work of this Section when moisture from rain or other moisture source is present, forecasted or expected.

- .2 At the end of each work day and when weather threatens, provide water cut-offs that are proven effective in providing weather-tight seals and in preventing moisture penetration.

1.7 Waste Management
and Disposal

- .1 Separate and recycle waste materials in accordance with Section 01 74 22 - Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.

PART 2 - PRODUCTS

2.1 Sheet Metal
Materials

- .1 Steel sheet: Minimum 0.64 mm (22 gauge) base metal thickness. The core will be formed from Grade 230 steel, having a minimum yield stress of 230 MPa and a maximum allowable stress resistance of 144 MPa.
- .2 Fasteners & Clips: Stainless steel, corrosion free; supplied in accordance with manufacturer's recommendations to meet the load requirements specified and maintain a weather-tight installation.
- .3 Accessories: As required to complete the project, in accordance with material and manufacturer's recommendations. To meet minimum CRCA standard specification requirements.
-

2.2 Metal Flashing
Materials

- .1 Steel sheet: Minimum 0.64 mm (22 gauge) base metal thickness. The core will be formed from Grade 230 steel, having a minimum yield stress of 230 MPa and a maximum allowable stress resistance of 144 MPa.
- .2 Protective coating: zinc coated sheet steel to Z-275 (G90) designation in accordance with ASTM A653/A653M.
- .3 Top coat finish:
 - .1 Top coat finish to be equal to Barrier Series, or better, with polyvinyl chloride and plasticol resins. Minimum coating thickness, 22 micrometres.
 - .2 To match gloss and texture on existing building metal siding system.
 - .3 Colour: to match existing metal system colour where applicable, or colour as selected by Departmental Representative.

2.3 Accessories

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB-37.5.
- .3 Sealants: in accordance with Section 07 92 00 - Joint Sealant, colour to be to the approval of the Departmental Representative.
- .4 Cleats: of same material and temper as sheet metal, minimum 50mm wide. Thickness to be one gauge heavier than sheet metal being secured.
- .5 Fasteners: hidden fasteners of same material as sheet metal, to CSA B111, flat head roofing nails of length and thickness suitable for metal flashing application. All exposed fasteners to be stainless steel and meet the ANSI B18.6.4 and CSA B-35.31962 specifications. Exposed fasteners to be #12 self-tapping screws. Screw heads to match colour of siding/trim.

- .7 Washers: of same material as sheet metal, 1mm thick with rubber packings.
- .8 Touch-up paint: as recommended by prefinished material manufacturer.

2.4 Fabrication

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series specifications.
- .2 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.
- .3 Hem exposed edges on underside 19 mm. Mitre 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 Apply isolation coating to dissimilar metal surfaces where they are in contact.

PART 3 - EXECUTION

3.1 Installation

- .1 Install sheet metal work in accordance with CRCA FL series details and specifications and as detailed.
- .2 Use concealed fastenings except where approved before installation. Cleats to be fastened at maximum 300 mm.
- .3 Provide underlay under sheet metal. Secure in place and lap joints 100 mm.
- .4 Flash joints using S-lock forming tight fit over hook strips and as detailed.
- .5 Counterflash bituminous flashings at intersections of roof with vertical surface and curbs.

- .6 Remove, store and reinstate all prefinished metal parapet and curb flashings where indicated. Replace all damaged flashings or flashing components that will not fit over new work. Departmental Representative will be the sole judge of the suitability of the existing flashing for re-use.
- .6 'S' lock all joints and caulk with sealant.
- .7 Clean all sealant and markings from finish product. Wipe clean with dry rag process.

PART 1 - GENERAL

- | | | |
|-----------------------------|----|---|
| <u>1.1 Section Includes</u> | .1 | Requirements for the supply and installation of new roof anchors to replace existing on Level 1 roof where indicated. |
| <u>1.2 Related Sections</u> | .1 | Section 02 41 18 - Selective Demolition. |
| | .2 | Section 07 52 16 - Modified Bituminous Membrane Roofing. |
| <u>1.3 References</u> | .1 | Canadian Standards Association (CSA)
.1 CSA-G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
.2 CSA-S16-14, Design of Steel Structures.
.3 CSA-W47.1-09 (R2014), Certification of Companies for Fusion Welding of Steel.
.4 CSA-W48-14, Filler Metals and Allied Materials for Metal Arc Welding.
.5 CSA-W55.3-08, Certification of Companies for Resistance Welding of Steel and Aluminum.
.6 CSA-W59-13, Welded Steel Construction (Metal Arc Welding). |
| | .2 | Canadian Occupational Safety and Health Regulations (Canada Labour Code, Part II). |
| | .3 | New Brunswick Occupational Health & Safety Act. |
| | .4 | Canadian Urethane Foam Contractor's Association.
.1 CUFCA Manual for Installers of Spray Polyurethane Foam Thermal Insulation. |
| <u>1.4 Submittals</u> | .1 | Submittals in accordance with Section 01 33 00 - Submittal Procedures. |
| | .2 | Indicate materials, core thickness, finishes, connections, joints, method of anchorage, number of anchors, details, and accessories. |
-

- .3 Shop drawing to indicate load capacity of roof anchor.
- .4 Drawings to bear stamp of Professional Engineer licensed to practice in the Province of Nova Scotia.
- .5 Manufacturer's descriptive literature for each product, including section or other type details.
- .6 Manufacturer's written installation instructions.

1.5 Design Criteria

- .1 Install new roof anchors to match existing locations as indicated.
- .2 Co-ordinate work of this Section with Section 07 52 16 - Modified Bituminous Membrane Roofing, to provide continuous waterproof protection.
- .3 Design roof anchors to resist, without failure, a pull-out force of 22.2 kN (5,000 lbs) applied in the most adverse direction.

PART 2 - PRODUCTS

2.1 Roof Anchor

- .1 Provide products as manufactured by Thaler Metal Industries, 1-800-387-7217 (Mississauga, Ontario, Canada).
- .2 Roof anchor to be TWA-3-304 - Forged eye and base welded to HSS post, hot dip galvanized after fabrication.
- .3 Stack jack flashing and related flashing, grommet seals, etc. to be as supplied by Thaler.
 - .1 Roof anchor assemblies to include Stack Jack Flashing complete with Triple Pressure PVC coated Grommet Seal, Base Seal and PVC coated deck flange. Stack Jack Flashing to be minimum 1.6 mm thick mill finish 1100-0T Alloy Aluminum

to CSA B272.

- .4 Shrinkage Compensating Grout: Premixed compound consisting of non-metallic aggregate, Portland cement, water reducing and plasticizing agents to CSA-A23.1/A23.2.

- .1 Acceptable products:

- .1 M-Bed standard by Sika Canada Inc.

- .2 Masterflow 713 Grout by Master Builders Technologies Ltd.

- .3 NS Grout by Euclid Canada Inc.

- .4 Alternate Materials: Approved by addendum in accordance with Instructions to Tenderers.

PART 3 - EXECUTION

3.1 Examination

- .1 Check condition of existing roof deck, location of existing mechanical and electrical services below the roof deck slab, and other site conditions which will impact installation. Report findings to Departmental Representative. Verify site dimensions.

3.2 Preparation

- .1 Remove existing roof assembly as necessary to allow for removal of existing roof anchors as designated on drawings and as required for the proper installation of new roof anchors.
- .2 In the event of structural deficiencies, such as deck spalling or deterioration, notify Departmental Representative, and proceed as directed.
- .3 Protect building interior and contents against ingress of water, dust, debris or other materials.
- .4 Remove existing concrete deck topping below footprint of new roof anchor base plate. Replace with non-shrink grout.
- .5 Drill anchor holes through existing hollow core for the installation of new rods for the roof anchor.

- .6 Drill access holes in top of hollow core roof plank to fill voids in area below new roof anchor.

3.3 Installation

- .1 Install new roof anchors in accordance with manufacturer's printed instructions, shop drawings and as specified, or as indicated on drawings.
- .2 Where necessary, provide protection against deterioration due to contact of dissimilar materials.
- .3 Where bolts or rods are used for fastening anchors, no fewer than two threads are to be exposed and the nut positively locked by deforming threads, welding, pinning or equivalent method.
- .4 Ensure work is inspected prior to application of roofing, and inform Departmental Representative in advance to allow for review of installations.

3.4 Field Quality Control

- .1 Contractor shall have all roof anchor installations inspected by a competent person to ensure conformance to manufacturer's written instructions, shop drawings, and contract drawings and specifications.
- .2 Additional inspection and testing of materials and workmanship may be carried out by testing agency designated by Departmental Representative.
- .3 Testing agency, selected by Departmental Representative, may carry out tests and inspection of roof anchors for integrity, accuracy of fabrication and soundness of welds. Departmental Representative will determine extent of and identify all inspections.

3.5 Adjusting and

- .1 Contractor shall verify that all roof anchor
-

Final Inspection

units have been installed in accordance with specifications and details, and will function as intended. Adjust any items where necessary prior to installation of new roofing.

3.6 Load Test

- .1 It will be the responsibility of the Contractor to perform load tests on all roof anchor installations in order to verify capacity of anchors.
- .2 Load tests will be performed by an independent testing firm, hired by the Contractor. Independent testing firm shall have experience in the performance of inspections and load tests of roof anchors used for fall protection.
- .3 Test report on load tests to be submitted in writing and shall bear the stamp of a registered professional engineer licensed to practice in the Province of Nova Scotia.

PART 1 - GENERAL

- | | | |
|--|----|---|
| <u>1.1 Related Sections</u> | .1 | Section 07 52 16 - Modified Bituminous Membrane Roofing. |
| | .2 | Section 07 62 00 - Sheet Metal Flashing and Trim. |
| <u>1.2 References</u> | .1 | Canadian General Standards Board (CGSB)
.1 CAN/CGSB-19.13-M87, Sealing Compound, One Component, Elastomeric, Chemical Curing. |
| <u>1.3 Delivery, Storage and Handling</u> | .1 | Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture and water. |
| <u>1.4 Environmental and Safety Requirements</u> | .1 | Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada. |
| | .2 | Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use. |

PART 2 - PRODUCTS

- | | | |
|------------------------------|----|---|
| <u>2.1 Sealant Materials</u> | .1 | Sealants: to CAN/CGSM-19.13, polyurethane based, single component, chemical curing with following properties:
.1 Type MC: suitable for application to metal substrates.
.2 Class 2: Non sag.
.3 Movement Range: minimum 25%.
.4 Temperature Range: Class L, low temperature minimum of -30°C. |
|------------------------------|----|---|

- .2 Color of sealants: to match surface finish in which they occur.

2.2 Back-up Materials

- .1 Polyethylene, Urethane, Neoprene or vinyl Foam:
 - .1 Extruded closed cell foam backer rod.
 - .2 Size: oversize 30 to 50%.
- .2 Bond Breaker Tape:
 - .1 Polyethylene bond breaker tape which will not bond to sealant.

2.3 Joint Cleaner

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
- .2 Primer: as recommended by manufacturer.

PART 3 - EXECUTION

3.1 Preparation of Joint Surfaces

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean bonding joint surfaces of old sealants and harmful matter substances including dust, rust, oil grease, and other matter which may impair work.
- .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .4 Ensure joint surfaces are dry and frost free.
- .5 Prepare surfaces in accordance with manufacturer's directions.

3.2 Priming

- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
-

- .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.3 Back-up Materials

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler to achieve correct joint depth and shape.

3.4 Application

- .1 Sealant:
 - .1 Apply sealant in accordance with manufacturer's instructions.
 - .2 Apply sealant in continuous beads.
 - .3 Apply sealant using gun with proper size nozzle.
 - .4 Use sufficient pressure to fill voids and joints solid.
 - .5 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
 - .6 Tool exposed surfaces to give slightly concave shape.
 - .7 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing:
 - .1 Cure sealants in accordance with sealant manufacturer's instructions.
 - .2 Do not cover up sealants until proper curing has taken place.
 - .3 Cleanup
 - .1 Clean adjacent surfaces immediately and leave work neat and clean.
 - .2 Remove excess and droppings.