

**PUBLICS WORKS AND
GOVERNMENT SERVICES CANADA (PWGSC)
FOR THE PARKS CANADA AGENCY (PCA)
QUEBEC REGION**

**GROSSE ÎLE AND THE IRISH MEMORIAL
NATIONAL HISTORIC SITE OF CANADA
MONTMAGNY (QUEBEC)**

**ROOFING RESTORATION AND STRUCTURAL CONSOLIDATION
OF THE OLD WASH HOUSE**

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Part 1 General

1.1 INTERPRETATION

- .1 Terms, expressions and abbreviations which have a recognized technical or professional meaning must be interpreted as such in this specifications and in the associated drawings.
- .2 Priority must be given to dimensions expressed as values by means of a module, lines, arrows or otherwise rather than to drawings or representations.
- .3 Priority is given to larger-scale plans and drawings. Also, the specifications and applicable drawings are always the most recent available.
- .4 If dimensions on drawings and figured dimensions do not match, refer to the Departmental Representative for applicable dimensions. No measurement to scale taken from the drawings shall be considered for interpretation purposes.
- .5 Any discrepancies between the specifications and the drawings must be submitted in writing to the Departmental Representative, so the latter can render a final decision, also in writing, in this regard.
- .6 The specifications and drawings are complementary, such that what is required by one is also required by the other. The structure which is to be built, in accordance with the specifications and drawings, must constitute a complete work in its essential parts, i.e. it must include all articles normally arising from the instructions in the specifications and drawings, even if each of these articles is not specifically mentioned.
- .7 Where the quality of the work or materials is not clearly indicated, the construction trade concerned must provide that which is of the best quality available.
- .8 The Departmental Representative may, for clarification purposes only, provide the Contractor with additional drawings to ensure proper execution of the work. These drawings shall carry the same meaning and scope as if they were contained with the plans mentioned in the contract documents.

1.2 PRIORITY

- .1 In the case of work carried out by the Federal Government, Division 1 sections take precedence over the technical sections of the other divisions of the project quotation.

1.3 SUMMARY OF WORK

- .1 Scope of work:
 - .1 Located 40 km from Quebec City in the middle of the St. Lawrence River across from Montmagny, Grosse Île was a

human quarantine station from 1832 to 1937.

- .2 The old wash house was built in 1856 on the shores of the St. Lawrence River so that the immigrants could wash their clothing.
 - .3 The building, equipped with fireplaces to boil water and smoldering cauldrons, had easy access to the river. It later became a bathhouse for the immigrants and was eventually converted into a tin, carpentry and plumbing workshop. This beam-and-column wooden structure is built on masonry piers and the pillars of the original four chimneys.
 - .4 The north elevation of the building is easily accessible from the existing road. The south elevation is located on the shoreline of the St. Lawrence River where there is no access road.
 - .5 The building was structurally consolidated in 1992. Parks Canada now intends to restore the roof by replacing the existing roofing with new cedar shingles and carrying out all related work. There are four chimneys, three venting skylights and ten louver vents on the roof.
- .2 In particular, the roofing restoration shall include, without being limited to, the following services:
- .1 Organize the construction site in accordance with all the items in Section 01 of the specifications.
 - .2 Remove the existing cedar shingles from roof's northern slope and the asphalt ones from its southern slope.
 - .3 Repair the existing tongue-and-groove decking and cover with plywood.
 - .4 Repair structural elements as indicated in the plans.
 - .5 Repair existing non-roof wooden items, such as dormers, skylights and louvers that have been repaired in the workshop and provided by the Departmental Representative.
 - .6 Install a third, workshop-built venting skylight that has been modelled on the existing ones and provided by the Departmental Representative.
 - .7 Replace the roofing with high-quality western cedar shingles using tin-coated stainless steel flashing as per requirements.
 - .8 Repaint all the wooden parts of the roof, including all dormers, skylights and eaves.
 - .9 Supply and install new wooden gutters covered in tin-coated stainless steel and new downspouts.
 - .10 Dismantle and reassemble the four existing brick chimneys

and repoint the section inside under the ridge.

- .11 Replace stones, repoint and apply white wash to the existing pillars.
- .12 Provide transportation for all building materials, machinery and labourers to and from Grosse Île.
- .13 Comply with the fact that Grosse Île visitors, as opposed to the Contractor, shall have priority access to the island's pier.
- .14 Respect the storage limit of 150 lb./sq. ft. on the Grosse Île pier.
- .15 Remove all demolition and construction waste from the Grosse Île site.
- .16 Secure the construction site so that visitors do not have access.
- .17 Protect the environment at all times.
- .18 Keep the construction site clean at all times.
- .19 Comply with Health and Safety standards at all times.

**1.4 CONTRACTOR
USE OF PREMISES**

- .1 Use of the premises is limited to the area required to carry out the work, to store building materials and to access the site. This ensures that
 - .1 the Departmental Representative may occupy the premises,
 - .2 Parks Canada staff may use the premises, and
 - .3 the public may access the usual interpretive activities offered on Grosse Île.
- .2 Co-ordinate use of premises as directed by the Departmental Representative and Grosse Île Parks Canada Employees.
- .3 Construction site preparation and the storage of building materials shall be subject to approval by the Departmental Representative.
- .4 The Contractor shall move any stored products or equipment that hinders the operations of the Departmental Representative, the site or other contractors.
- .5 Access to the island:
 - .1 The Contractor will have access the island via the existing pier. As such, the Contractor must take the necessary measures to prevent the pier from being damaged in any way. Because this pier is the only access point for the island, it cannot be used to permanently store building materials or equipment. Likewise, adjacent area may not be used for storage. All materials must be transported to an authorized storage area as soon as they are delivered.

- .2 At the completion of operations, the condition of existing work shall be equal to or better than before the work began.

1.5 SITE INSPECTION

- .1 In order to become familiar with specific project conditions and to gather all the information required to successfully execute the contract, carefully inspect the premises. Ignorance of site conditions will, in no case, be a valid reason to claim payment.

1.6 OCCUPANCY OF THE PREMISES BY THE DEPARTMENT

- .1 The Department will occupy the premises throughout construction and will continue with its usual operations during this period.
- .2 The Contractor shall work with the Departmental Representative to establish a work schedule in order to minimize scheduling conflicts and interference with the latter's use of the premises.
- .3 Maintenance operations will have to be continued as usual during this period.

1.7 AUTHROIZATIONS, PERMITS AND CERTIFICATES

- .1 The Contractor shall obtain all required permits for the execution of the work. All work must be carried out in compliance with federal, provincial and municipal legislation and any other applicable laws or regulations. The Contractor will be held responsible for any violations of the applicable laws and regulations.
- .2 The Contractor shall fulfill all safety-related obligations in accordance with Québec's *Act Respecting Occupational Health and Safety* and carry the cost of these obligations.
- .3 Provide inspection certificates to show that work meets the requirements of the competent authorities.
- .4 Submit to the Departmental Representative copies of the applications made to the aforementioned authorities and the approval documents received.

1.8 ALTERATIONS, ADDITIONS OR REPAIRS TO THE EXISTING BUILDINGS

- .1 Construction work should interfere as little as possible with the use of the building, its occupants, the public and the normal use of the area. Make necessary arrangements with the Departmental Representative in scheduling operations to facilitate the completion of the work.
- .2 Archaeology
 - .1 The wash house (building #6) is a part of the Grosse Île and the Irish Memorial National Historic Site of Canada. As such, the latter is considered as an archaeological site of national importance.

- .2 Any excavation is strictly forbidden, including when installing and leveling scaffoldings.

**1.9 EXISTING
UTILITY SERVICES**

- .1 Notify the Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Prior to beginning the work, determine the location and extent of service lines in the work area. Notify Departmental Representative of findings.
- .3 Where unknown service lines are encountered, immediately notify the Departmental Representative and put findings in writing.
- .4 Protect, relocate or maintain existing active service lines. When inactive service lines are encountered, cap off in the manner approved by the appropriate authorities.
- .5 Record locations of maintained, re-routed and abandoned service lines.

**1.10 WORK SITE
PREPARATION**

- .1 Based on the lines and control levels shown in the plans, the Contractor shall establish primary reference points for the execution of the work and provide all required tools and equipment.
- .2 Take necessary measures to ensure that reference points are not moved during construction.
- .3 Provide the Departmental Representative with the tools and equipment needed to conduct required checks.
- .4 Before beginning construction, the Contractor must check all measurements on-site and inform the Departmental Representative of any errors or mismatches.
- .5 Any non-conformities identified during construction that are caused by Contractor staking errors shall be rectified by the Contractor at its expense.

**1.11 WASTE
MANAGEMENT**

- .1 The Contractor must, at its cost, remove all construction and demolition waste from Grosse Île and dispose of these materials at a site approved by the competent authorities.
- .2 The Contractor is solely responsible for waste management, including any grievances or claims for damages that may result.

The owner assumes no responsibility or liability whatsoever for the disposal of waste.

1.12 ERRORS OR OMISSIONS

- .1 During construction, the Contractor must immediately inform the Departmental Representative in writing if it finds discrepancies between the plans and actual worksite conditions, or errors and/or omissions in the plans. The Contractor who fails to do so proceeds at its own risk until authorization from the Departmental Representative has been obtained.

1.13 WEATHER CONDITIONS

- .1 The Contractor may not claim any additional amounts incurred as a result of poor weather conditions, including winter conditions and difficult sea conditions. The Contractor must plan work based on the conditions expected during construction and allocate funds to correct deficient work or other issues as a result of poor weather.
- .2 Be advised that wind speeds are greater on Grosse Île than on the mainland.

1.14 REQUIRED DOCUMENTS

- .1 Maintain one copy of each document as follows at the work site:
- .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 plans and other safety-related documents
 - .11 other documents as specified

1.15 RESTORATION OF PREMISES

- .1 Restore the premises to the condition they were in at the time the Contract was awarded, including lawn, shrubs, paths and roadways, adjacent materials, etc. and excluding the upgrading work indicated in the plans and this Specifications.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Activity: An element of work performed during the course of a project. An activity normally has an expected duration, expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT chart): A graphic display of project schedule-related information. In a typical bar chart, activities or other project elements are listed top-down on the left side of chart. Dates are shown across top from left to right, and the duration of each activity is shown as horizontal segments between the dates. Generally, bar charts are generated from commercially available computerized project management systems.
- .3 Baseline: Original approved plan (for a project, work item, or activity), accounting for approved project scope changes.
- .4 Workweek: The workweek will be defined as a seven-day week from Monday to Sunday for bar graph (GANTT chart) submission.
- .5 Duration: Required number of work periods (not including holidays or other nonworking periods) to complete an activity or another project element. Usually expressed as workdays or workweeks.
- .6 General plan: A summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: A significant event in project achievement, usually the completion of a major deliverable.
- .8 Project Schedule: Planned dates for performing activities and for meeting milestones. A dynamic, detailed record of tasks or activities that must be accomplished to meet project objectives. Monitoring and control processes involve the use of the project schedule in executing and controlling activities and are used as the basis for decision-making throughout project lifecycle.
- .9 Scheduling – Project Planning, Monitoring and Control System: Overall system operated by the Departmental Representative to ensure project work progress monitoring according to established milestones.

- 1.2 REQUIREMENTS**
- .1 Ensure that the general plan and project schedule are practical and remain within the specified contract duration.
 - .2 The work planned out in the general plan must be in accordance with prescribed milestones and time frames.
 - .3 Limit activity durations to approximately 10 working days, to allow for progress reporting.
 - .4 The contract award, start date, progress rate, interim certificate and final certificate delivery are defined completion steps, and are essential conditions in this contract.
- 1.3 SUBMITTAL PROCEDURES**
- .1 Provide required documents and sample submittals in accordance with Section 01 33 00 – Submittal Procedures.
 - .2 Submit a bar chart (GANTT) to the Departmental Representative within 10 working days of contract award to be used as a general plan for planning, monitoring and project progress reporting.
 - .3 Submit the project schedule to the Departmental Representative within 5 working days of receipt of general plan acceptance.
- 1.4 PROJECT MILESTONES**
- .1 Project milestones form interim targets for Project Schedule.
 - .1 Works shall began on April 15th 2016.
 - .2 The building will not be occupied.
 - .3 The Provisional Certificate of Completion (substantial completion) should be issued on September 1, 2016 at the latest.
- 1.5 GENERAL PLAN**
- .1 Structure the work schedule to allow orderly planning, organizing and execution according to the bar chart (GANTT).
 - .2 The Departmental Representative will review and return the schedule to the contractor within 5 working days.
 - .3 If the schedule is deemed impractical, review the schedule and resubmit within 5 working days after having received it.
 - .4 The accepted revised schedule will become the General Plan and be used as a reference for updates.
- 1.6 PROJECT SCHEDULE**
- .1 Develop a detailed project schedule derived from the general plan.

- .2 The detailed project schedule must include, as a minimum, the milestones corresponding to the following activities:
 - .1 Contract award
 - .2 Shop drawings, samples
 - .3 Supplies with extended delivery dates
 - .4 Mobilization
 - .5 Resection survey and inspection
 - .6 Landscaping demolition
 - .7 Excavation
 - .8 Joint stripping
 - .9 Disassembling
 - .10 Repair and reassembling
 - .11 Repointing
 - .12 Weeding and gravel replacement
 - .13 Bank reshaping
 - .14 Masonry cleaning
 - .15 Protective coating application
 - .16 Final cleanup

1.7 WORK PROGRESS REPORTS

- .1 Update project schedule on a weekly basis reflecting activity changes and completions, as well as work in progress.
- .2 Include as part of project schedule, a narrative report identifying work progress status to date, comparing current progress to baseline schedule, and presenting current forecasts, anticipated delays and impact with possible mitigation.

1.8 PROJECT MEETINGS

- .1 Discuss project schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Discuss weather-related delays and related remedial measures.

END OF SECTION

Part 1 General

**1.1 ADMINISTRATIVE
PROCEDURES**

- .1 Submit all required documents and sample in the shortest delays and in an orderly sequence to the Departmental Representative for examination in order to prevent delay in the work progress. Failure to submit in reasonable time is not considered sufficient reason for extension of contract deadline and no claim for extension due to this failure will be allowed.
- .2 Do not proceed with work concerned by a submittal of documents and samples until the review of all submitted items is complete.
- .3 Present shop drawings, product data sheets, product samples and mock-ups in SI metric units.
- .4 Where items or specifications are not produced or given in SI metric units, converted values can be acceptable.
- .5 Review documents and samples prior to submission to the Departmental Representative. This preliminary review represents that the necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with work and contract document requirements. Document and sample submittals that are not stamped, signed, dated and identified in compliance with their respective project will be returned without being examined and considered rejected.
- .6 Notify the Departmental Representative in writing at the time of document and sample submittal of any deviation from requirements of contract documents stating reasons for deviations.
- .7 Verify that field measurements and affected adjacent work are coordinated.
- .8 The Contractor's responsibility to provide complete and accurate items or documents is not relieved by the Departmental Representative's review of submittals.
- .9 The fact that the Departmental Representative has examined the submitted documents and samples does not relieve the Contractor of his responsibility for providing items that comply with the contract document requirements.
- .10 Keep one reviewed copy of each submission on site.

**1.2 SHOP
DRAWINGS AND
PRODUCT DATA**

- .1 The term "shop drawings" means drawings, diagrams, illustrations, tables, performance or production charts, brochures and other data that are to be provided by the

SHEETS

Contractor to illustrate details of a portion of the work.

- .2 If relevant and required, shop drawings should bear the stamp and signature of a qualified professional engineer registered or licensed in province of Quebec, Canada.
- .3 Shop drawings must indicate materials, construction, attachment or anchorage methods, erection diagrams, connections, pertinent explanatory notes and other information necessary for carrying out the work. Where articles or equipment are attached or connected to other articles or equipment, indicate on the drawing that the requirements for such items have been coordinated, regardless of the section under which adjacent items will be supplied and installed. Indicate cross-references to preliminary design drawings and estimates.
- .4 Allow 10 working days for the Departmental Representative to review each batch of submitted documents.
- .5 Adjustments made on shop drawings by the Departmental Representative are not intended to change the contracted price. If they do, please notify the Departmental Representative in writing prior to proceeding with the work.
- .6 Make the changes to the shop drawings as Departmental Representative may require, consistent with the requirements stated in the contract documents. When resubmitting, notify the Departmental Representative in writing of revisions made other than those required.
- .7 Accompany submissions with a transmittal letter in duplicate, or a transmittal letter sent by email in PDF format containing the following information:
 - .1 Date;
 - .2 Project title and number;
 - .3 Contractor's name and address;
 - .4 Identification and quantity of each shop drawing, product data and sample submitted;
 - .5 Any other pertinent data.
- .8 The submitted documents must include or indicate the following:
 - .1 Preparation and revision dates;
 - .2 Project title and number;
 - .3 Name and address of:
 - .1 Subcontractor;
 - .2 Supplier;

- .3 Manufacturer;
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with contract documents.
- .5 Details of appropriate portions of work as applicable:
 - .1 Fabrication materials and details;
 - .2 Layout or configuration showing dimensions; including those taken in the field and clearances;
 - .3 Assembly or settings details;
 - .4 Specifications such as power, discharge or capacity;
 - .5 Performance characteristics;
 - .6 Reference standards;
 - .7 Operating weight;
 - .8 Wiring diagrams;
 - .9 Single line and schematic diagrams;
 - .10 Relationships to adjacent work.
- .9 After Departmental Representative's review, distribute copies of the shop drawings and technical data sheets.
- .10 Submit one (1) electronic copy of the shop drawings as required in the technical sections of the Specifications and per reasonable requirement by the Departmental Representative.
- .11 In case no shop drawing is required because a standard manufactured product is used, submit an electronic copy of the manufacturer data sheets or documentation required in the technical sections of the Specifications and required by the Departmental Representative.
- .12 Submit an electronic copy of test reports as required in the technical sections of the Specifications and by the Departmental Representative.
 - .1 The report signed by the authorized official of the testing laboratory must certify that the materials, products or systems identical to those to be provided in the framework of the work have been tested according to the specified requirements.
 - .2 Testing must have been performed within three (3) years of the date that the contract was awarded for the project.
- .13 Submit one electronic copy of certificates required in the Specifications technical sections and by the Departmental

Representative.

- .1 The documents printed on the manufacturer's official letterhead and signed by a manufacturer representative must attest that the products, systems or materials provided meet the Specifications requirements.
 - .2 Certificates must be dated after award of project contract and include the project name.
- .14 Submit an electronic copy of the manufacturer's instructions as required in the Specifications's technical sections and by the Departmental Representative.
- .1 Pre-printed documents describing the installation method of the products, systems or materials, including special notices and data sheets concerning impedances, hazards and safety precautions.
- .15 Submit an electronic copy of the inspection reports created on site by the manufacturer as required in the technical sections of the Specifications and required by the Departmental Representative.
- .16 Submit reports of the tests and verifications done by the manufacturer's representative to confirm compliance of material, equipment or installed system per manufacturer's instructions.
- .17 Submit an electronic copy of operation and maintenance data as required in the technical sections of the Specifications and by the Department Representative.
- .18 Delete information not applicable to project.
- .19 Supplement standard information with all details applicable to the project.
- .20 If, upon review by the Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, an electronic copy will be returned and fabrication and installation of the work may proceed. If the shop drawings are rejected, annotated copies will be returned, and the corrected shop drawings must be resubmitted using the same procedures indicated above before fabrication and installation of work may proceed.
- .21 Review of shop drawings by the Departmental Representative is for the sole purpose of ascertaining conformance with the general concept of the data shown on them.
- .1 This review does not mean that the Departmental Representative approves the preliminary project presented in the shop drawings. That responsibility

remains with the submitting Contractor, and shall not relieve the Contractor of the responsibility for providing complete and accurate shop drawings or of the responsibility for meeting all the construction and contract document requirements.

- .2 Without restricting the general scope of the foregoing, it is important to note that the Contractor is responsible for the accuracy of the dimensions confirmed on site, for providing the information regarding forming methods or construction and installation techniques, and work coordination undertaken by the all the related trades workers.

1.3 SAMPLES

- .1 Submit three (3) product samples for review as requested in respective specification Sections of the Specifications. Label samples with origin and intended destination.
- .2 Send samples with prepaid delivery to the business address of the Departmental Representative.
- .3 Notify the Departmental Representative in writing, at time of submission of deviations in samples from requirements of the contract documents.
- .4 Where colour, pattern or texture is a criterion, submit full range of necessary samples.
- .5 Adjustments made on samples by the Departmental Representative are not intended to change contract price. If adjustments affect the price of the work, notify the Departmental Representative in writing prior to proceeding with the work.
- .6 In keeping with the contract documents, make the changes that the Departmental Representative may require to the samples.
- .7 Reviewed and approved samples will serve as baseline standards against which the finished and installed work will be evaluated.

1.4 MOCK-UPS

- .1 Create mock-ups in accordance to Section 01 45 00 - Quality Control.

1.5 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit on a monthly basis – along with the project progress report and according to the Departmental Representative’s directions – one (1) copy of the digital color, standard resolution JPEG format

photograph file using electronic media.

- .2 Project identification: project name and number and date the photo was taken.
- .3 Number of view reference points: four (4).
 - .1 View reference points and their locations will be determined by the Departmental Representative.
- .4 Frequency of photo submissions: each month and according to the Departmental Representative's directions.

**1.6 CERTIFICATES
AND MINUTES**

- .1 Submit applicable documents as required by the appropriate Worker's Compensation, Health and Safety Board immediately following contract award.
- .2 Submit insurance policies immediately following contract award.

Part 2 Products

1.1 N/A

.2 N/A

Part 3 Execution

1.6 N/A

.1 N/A

END OF SECTION

including:

- .1 General courses regarding health and safety on construction sites;
 - .2 Safety officer certifications;
 - .3 First aid in the workplace and cardiopulmonary resuscitation;
 - .4 Work likely to release asbestos dust;
 - .5 Work in confined spaces;
 - .6 Lockout procedures;
 - .7 Wear and fitting of individual protective gear;
 - .8 Safe operation of lift trucks;
 - .9 Elevating work platforms;
 - .10 Any other regulatory training or prevention program required;
- .8 Medical examinations: Wherever legislation, regulations, directions, specifications or safety programs require medical examinations, the Contractor must:
- .1 Submit certificates of medical examinations to the Departmental Representative prior to mobilization for all their supervisory staff and all employees referred to in the first paragraph of this section who will be on duty when the site opens.
 - .2 Thereafter and without delay, submit certificates of medical examinations for any newly hired personnel concerned by the first paragraph of this section as and when they start work at the site.
- .9 Emergency plan: The emergency plan, as defined in Section 1.8.3 shall be submitted to the Departmental Representative at the same time as the prevention program.
- .10 Notice of site opening: Notice of site opening shall be submitted to the Commission de la santé et de la sécurité du travail (CSST) before work begins. A copy must also be sent to the Departmental Representative and another must be posted in full view at the site. During demobilization, a notice of site closing shall be sent to the CSST, with copy to the Departmental Representative.
- .11 Plans and certificates of compliance: The Contractor must submit to the CSST and to the Departmental Representative a copy of all plans and certificates of compliance required pursuant to the *Safety Code for the Construction Industry* (S-2.1, r.6) or by any other legislation or regulation or by any other clause in the specifications or in this contract. That copy must be signed and sealed by an engineer. Another copy of these documents must be available at the site at all times.

- .12 Certificate of compliance delivered by the CSST: The compliance certificate is a document delivered by the CSST confirming that the Contractor is in compliance with the CSST, i.e. that they have paid out all the. This document must be delivered to the Departmental Representative at the end of the work.

1.4 HAZARD ASSESSMENT

- .1 The Contractor must identify all hazards inherent to each task to be carried out at the site.
- .2 The Contractor must plan and organize work so as to eliminate hazards at the source or promote collective protection so that reliance on individual protective gear can be kept to a minimum. Where individual fall protection is required, workers shall use a safety harness that meets standard –CAN/CSA-Z-259.10-M90. Safety belts shall not be used as fall protection.
- .3 Equipment, tools and protective gear that cannot be installed or used without compromising the health and safety of workers or the public shall be deemed inadequate for the work to be executed.
- .4 All mechanical equipment shall be inspected before delivery to the site. Before using any mechanical equipment, the Contractor must submit a certificate of compliance signed by a qualified mechanic to the Departmental Representative. Whenever they suspect a defect or accident risk, the Departmental Representative may at any time order the immediate turnoff of equipment and require a new inspection by a specialist of their own choosing.
- .5 For use of equipment for lifting persons or materials, the Contractor must ensure that the inspections required by the standards in effect are made and be able to provide a copy of inspection certificates upon the Departmental Representative’s request.

1.5 MEETINGS

- .1 A contractor representative with the power to make decisions must attend all meetings in which site safety and health issues are to be discussed.
- .2 The Contractor must set up a site safety committee, and convene meetings in accordance with the *Safety Code for the Construction Industry*.

1.6 REGULATORY ORGANIZATIONS’ REQUIREMENTS

- .1 Comply with all legislation, regulations and standards applicable to the execution of the work.
- .2 Comply with specified standards and regulations to ensure safe operations at sites contaminated by hazardous or toxic materials.

- .3 Regardless of the publication date of the standards shown in the *Safety Code for the Construction Industry*, always use the most recent version.
- 1.7 SITE-SPECIFIC/EXECUTION CONDITIONS**
- .1 The Contractor must take account of the following specific on-site conditions:
- .1 Work in high areas;
 - .2 Work area isolated on an island;
 - .3 Work on the banks of the St. Lawrence River;
 - .4 Poison ivy, fauna and flora;
 - .5 Transportation of workers and materials by boat;
 - .6 High winds on the island.
- 1.8 HEALTH AND SAFETY MANAGEMENT**
- .1 Acknowledge and take responsibility for all the tasks and obligations for which a principal contractor is usually responsible under the terms of *An Act Respecting Occupational Health and Safety* (R.S.Q., chapter S-2.1) and the *Safety Code for the Construction Industry* (S-2.1, r.4).
- .2 Develop a site-specific prevention program based on the identification of hazards and apply it from the start of project until the last phase of demobilization is completed. The prevention program must take account of all information appearing in Section 1.7 and must be sent to all persons concerned, in accordance with the provisions set forth in Section 1.3. The site-specific prevention program must include, as a minimum:
- .1 Company health and safety policy;
 - .2 A description of the work, total costs, schedule and projected workforce curve;
 - .3 Safety and health responsibility organization chart;
 - .4 Physical and material layout of the site;
 - .5 First-aid standards;
 - .6 Identification of site-specific hazards;
 - .7 Risk assessment for the tasks to be carried out, including preventive measures and the procedures for applying them;
 - .8 Required training;
 - .9 Procedure in case of accident/injury;
 - .10 Written commitment from all parties to comply with the prevention program;
 - .11 A site inspection grid based on the preventive measures.
- .3 The Contractor must draw up an efficient emergency plan based on the characteristics and constraints of the site and its environment. It must be submitted to all persons concerned, in accordance with the

provisions set forth in Section 1.3. The emergency plan shall include:

- .1 Evacuation procedures;
- .2 Identification of resources (police, firefighters, ambulances, etc.);
- .3 Identification of persons in charge at the site;
- .4 Identification of first-aid attendants;
- .5 Training required for those responsible for enforcing the plan;
- .6 Any other information needed in the light of the site characteristics.

1.9 RESPONSIBILITIES

- .1 No matter the size of the construction site or how many workers are present at the site, designate a competent person to supervise and take responsibility for health and safety. Take all necessary measures to ensure the health and safety of the people and property at or in the immediate vicinity of the site and likely to be affected by any of the work.
- .2 Take all necessary measures to ensure enforcement and compliance with the safety and health requirements of the contract documents, applicable federal and provincial regulations and standards as well as the site-specific prevention program, and comply without delay with any order or correction notice issued by the Commission de la santé et de la sécurité du travail (CSST).
- .3 Take all necessary measures to keep the site clean and in good order throughout the course of the work.

1.10 EMERGENCY EVACUATION

- .1 Provide skilled personnel, air ambulance services, and all other means necessary for the emergency evacuation of one or several workers to hospitals on the mainland. For example, Parks Canada has an agreement with the company Airmedic for their employees only.

1.11 DISPLAY AND COMMUNICATIONS

- .1 Make all necessary arrangements to ensure effective safety and health information communication at the site. Upon their arrival on site, all workers must be informed of the details of the site prevention program, as well as their rights and obligations. The Contractor must stress on their right to refuse to perform work which they feel may threaten their own health, safety or physical integrity or that of other persons at the site. The Contractor must keep and update a written record of all information given with signatures of all workers who received it.

- .2 The following information and documents must be posted in a location readily accessible to all workers:
 - .1 Notice of site opening;
 - .2 Identification of principal contractor;
 - .3 Company OSH policy;
 - .4 Site-specific prevention program;
 - .5 Emergency plan;
 - .6 Data sheets for all controlled hazardous materials used at the site;
 - .7 Minutes of site committee meetings;
 - .8 Names of site committee representatives;
 - .9 Names of first-aid attendants;
 - .10 Action reports and correction notices issued by the CSST.

1.12 UNFORESEEN CIRCUMSTANCES

- .1 Whenever a source of danger that is neither defined in the Specifications nor identified in the preliminary site inspection arises as a result of or in the course of the work, the Contractor must immediately suspend work, take appropriate temporary measures to protect the workers and the public and notify the Departmental Representative, both verbally and in writing. Then, they must modify the site specific safety program in order to resume work in safe conditions.

1.13 HEALTH/SAFETY/HYGIENE/ENVIRONMENTAL SPECIALIST

- .1 Hire a qualified person whose duty will be to ensure the application and compliance with all legislation, regulations and standards and all contractual requirements.
- .2 Provide this person with the authority, resources and tools needed for performance of their duties.
- .3 The person selected shall meet the following requirements:
 - .1 Have practical experience on a site where activities related to work at height, roof work and scaffolding among other activities took place;
 - .2 Be on site during the performance of the work and report directly to the site supervisor and act according to their guidelines.
- .4 The selected person shall:
 - .1 Have an in-depth knowledge of legislation and regulations applicable to the site pertaining to health and safety.
 - .2 Develop and disseminate a safety orientation program for all site workers.
 - .3 Ensure that no worker is admitted to the site without

having taken the safety orientation program and met all the training requirements of the applicable legislation and site-specific prevention program.

- .4 Inspect the work and ensure compliance with all regulatory requirements and those in the contract documents or the prevention program.
- .5 Keep a daily log of the actions taken and submit a copy to the Departmental Representative each week.

1.14 BLASTING

- .1 Blasting and any other use of explosives are forbidden unless authorized in writing by the Departmental Representative.
- .2 Any operation involving explosives must be carried out under the supervision of a qualified blaster.
- .3 The purchase, transportation, storage and use of explosives must comply with all applicable federal and provincial legislation:
 - .1 Canada: *Explosives Act* (E-17), *Explosives Regulations* (C.R.C. CH. 599), *Standard for Storage of Blasting Charges and Detonators*, *Transportation of Dangerous Goods Act and Regulation*.
 - .2 Quebec: *An Act Respecting Explosives* (E-22), *Regulation under the Act respecting explosives* (E-22, r.1), *Safety Code for the Construction Industry* (S-2.1, r.4), *Transportation of Dangerous Goods Regulation*.
- .4 The Contractor shall obtain all permits required pursuant to the legislation and regulations referred to above and keep a copy on hand at the site.
- .5 The Contractor shall facilitate the visit of the site and of the explosive magazines, as well as the inspection of stored explosives and vehicles used for their transport by any government representatives or police officers whose jurisdiction covers explosives.

1.15 STUD GUNS AND OTHER CARTRIDGE- ACTUATED DEVICES

- .1 The use of stud guns and other cartridge-actuated devices must be authorized by the Departmental Representative.
- .2 Any person using a stud gun must hold a training certificate and meet all requirements of Section 7 of the *Safety Code for the Construction Industry* (S-2.1, r. 6)
- .3 Any other cartridge-actuated device must be used in accordance with the manufacturer's directions, and applicable standards and regulations.

**1.16 INSPECTION OF .1
SITE AND
CORRECTION OF
HAZARDOUS .2
SITUATIONS**

- .1 Inspect the work site and complete the site inspection grid at least once every week.
- .2 Immediately take all necessary measures to correct any deviation from legislative or regulatory requirements and any hazards identified by a government inspector, the Departmental Representative, the site safety and health coordinator or during routine inspections.
- .3 Submit a written confirmation of all measures taken to correct deviations and hazardous situations to the Departmental Representative.
- .4 Stop-work: Give the safety officer or, where there is no safety officer, the person assigned to health and safety responsibilities, full authority to order interruption and resuming of work as and when deemed necessary or desirable in the interests of health and safety. This person should always act so that the health and safety of the public and site workers, as well as the protection of the environment take precedence over cost and scheduling considerations.
- .5 Without limiting the scope of Sections 1.8 and 1.9, the Departmental Representative may order cessation of work if, in their view, there is any hazard or threat to the safety or health of the site personnel, the public or the environment.

Part 2 Specific Requirements

2.1 WORK IN HEIGHT .1

The Contractor must ensure that any person carrying out work that poses a risk of falling more than 2.4 m use fall protection equipment.

.2 Plan and organize work so as to eliminate hazards at the source or ensure collective protection, thereby minimizing the use of personal protective equipment. When individual fall protection is required, workers must use a safety harness that complies with CSA standard CAN/CSA-Z-259.10-M90. A safety belt must not be used as fall protection.

.3 Wearing of safety harness is mandatory in any elevating work platform with a telescopic, articulated or rotary boom.

.4 Define a danger zone in any place where equipment for work in height is used.

2.2 SCAFFOLDING .1

Foundation:

.1 Scaffolding shall be installed on a solid foundation so that it does not slip or rock.

.2 Contractors wishing to install scaffolding on a roof, overhang, canopy or awning or mansard roof shall submit their calculations and loads to the Department Representative and shall obtain their permission before beginning installation.

- .2 Assembly, bracing and mooring:
 - .1 All scaffolding shall be assembled, braced and moored in accordance with the manufacturer's instructions and the provisions of the *Safety Code for the Construction Industry*.
 - .2 Where a situation requires the removal of a part of the scaffolding (e.g., crosspieces), the Contractor shall submit an assembly procedure signed and sealed by an engineer certifying that the scaffolding assembled in that manner will allow the work to be carried out safely given the loads to which it will be subject.
 - .3 For scaffolding where the span between two supports is greater than 3 m, the Contractor shall provide an assembly plan signed and sealed by an engineer.
- .3 Fall protection during assembly:
 - .1 Workers working at heights shall be protected against falls at all times during assembly.
 - .2 Before the work begins, the Contractor shall submit to the Departmental Representative a procedure stating the protective measures used and, if applicable, identifying the anchor points for the safety cables or moorings. This procedure shall be in accordance with Sections 3.9.4.5, 2.9.1 and 2.10.12 of the *Safety Code for the Construction Industry* (amended on August 2, 2001).
- .4 Flooring:
 - .1 Scaffolding platforms shall be designed and installed in accordance with the provisions of the *Safety Code for the Construction Industry*.
 - .2 If planks are used, they shall be approved and stamped in accordance with Section 3.9.8 of the *Safety Code for the Construction Industry* (in effect from January 1, 2002).
 - .3 The platforms shall cover the entire surface protected by the guardrails.
 - .4 The above notwithstanding, scaffolding of a height of 4 sections (or 6 m) or more shall have a solid platform covering the entire surface of the putlogs every 3 m or fraction thereof, and the components of that platform shall not be moved at any time to create an intermediate landing.
- .5 Guardrails:
 - .1 A guardrail shall be installed on every landing.
 - .2 Cross braces shall not be considered guardrails.

- .3 Where scaffolding of a height of 4 sections (or 6 m) or more requiring solid platforms is used, guardrails shall be installed on each landing at the start of work and shall remain in place until the work is completed.
- .6 Access:
 - .1 The Contractor shall ensure that access to the scaffolding does not compromise worker safety.
 - .2 Where the platforms of the scaffolding are made of planks, ladders shall be installed in such a way that planks extending beyond the platform do not block the way up or down the ladders.
 - .3 Notwithstanding the provisions of the Safety Code for the Construction Industry, stairs shall be installed on all scaffolding with 6 or more rows of beams or has a height of 6 sections (or 9 m) or more.
- .7 Protection of the public and occupants:
 - .1 The Contractor shall identify the boundaries of the work area and barricade it so as to limit access to authorized workers only.
 - .2 The Contractor shall install covered walkways, nets or other similar devices to protect the public or the occupants against falling objects.
- .8 Use of public ways:
 - .1 Where it is necessary to encroach on a public way, the Contractor shall obtain at their own expense any authorizations and permits required by the competent authority.
 - .2 The Contractor shall install at their own expense any signage, barricades or other devices needed to ensure the safety and security of the public and their own facilities.

**2.3 MATERIAL
HOISTING**

- .1 The Contractor shall provide the Engineer with a mechanical service inspection certificate for each hoisting device prior to the delivery of the equipment to the work site.
- .2 For all winch installations, the Contractor shall provide the Engineer with the installation method recommended by the manufacturer. If unavailable, the Contractor shall then provide an installation procedure signed and sealed by an engineer. The installation procedure must take into account maximum load bearing capacity permitted, the amount, weight and location of counterweight, and any other detail that may affect the capacity and stability of the device.

- .3 In addition to the mechanical service inspection certificate, the annual inspection certificate and the crane logbook must be aboard all crane and crane-truck cabs.
- .4 Hoisting devices shall be positioned in such a way that loads are not carried over workers, occupants or the public.
- .5 The entire hoisting area shall be closed off to prevent non-authorized people from entering it.
- .6 The Contractor shall obtain all of the permits at his own expense, in the event the public way must be temporarily closed off to meet the requirement stipulated in the preceding paragraph or for any other reason pertaining to the safety of workers, occupants or the public.
- .7 The Contractor shall carefully inspect all of the slings and hoisting accessories and make sure that those in poor condition are destroyed or scrapped.
- .8 Compressed-gas cylinders shall be hoisted with a basket specially designed for this purpose.

**2.4 PROTECTION
AGAINST BURNS**

- .1 Individuals assigned to the boilers shall wear long sleeves, safety glasses and a face shield when filling the boilers.
- .2 Individuals working with asphalt or other hot liquids shall wear gloves, long sleeves and safety glasses.

**2.5 PROTECTION
AGAINST FIRE**

- .1 Work on construction sites must be carried out in compliance with Fire Commissioner of Canada Standard FC 301, Standard for Construction Operations, June 1982.
- .2 At the beginning of each shift on every site, the Contractor shall obtain a Hot Work Permit issued by the person in charge of the work location (or the person they appoint).
- .3 A working portable fire extinguisher suitable to the fire risk shall be available and easily accessible within a 5-m radius from any flame, spark or source of intense heat.
- .4 An individual shall be appointed to go on a continuous patrol (fire) for a period of one (1) hour after the end of the shift. This individual shall countersign the permit and give it to the person in charge of the work site (or the individual they appoint) after the two-hour period.
- .5 The storage of propane cylinders shall comply with the *CAN/CSA-*

B149.2-F00 standard, Propane Storage and Handling Code and meet the specific conditions outlined in this document. The cylinders shall be stored outdoors, in a safe place, away from any unauthorized handling, in a storage cabinet specially designed for this purpose. The cylinders shall be securely kept upright and locked at all times in a place where there is no vehicle travel, unless the cylinders are protected by barriers or an equivalent.

- .6 Tanks or containers of compressed gas or fuel must be stored at least 10 m from any buildings.
- .7 The number of propane cylinders on the roof shall not exceed the number of cylinders necessary for a day's work, and cylinders shall at all times be secured upright or held in a cart designed for this purpose.
- .8 All of the cylinders used or stored on the work site shall be equipped with a collar designed to protect the valve.
- .9 Filling the cylinders on the work site is forbidden, unless a procedure compliant with the CAN/CSA-B149.2 standard is approved and authorized by the Departmental Representative.

2.6 MATERIAL AND WASTE MANAGEMENT

- .1 On the roof, light and sheet material shall be kept in containers or be securely fastened. In the event this requirement is disregarded in the slightest way, the Departmental Representative may disallow the storage of materials on the roof.
- .2 The preceding paragraph also applies to waste.
- .3 Waste shall be discarded as produced using a waste chute or appropriate containers.
- .4 All waste must be removed from the roof at the end of each shift.
- .5 Unless otherwise authorized by the Departmental Representative, all waste bins must be placed at least 3 m from any structure or building.

2.7 GENERAL PROTECTION AND WORK SITE ORGANIZATION

- .1 Regardless of the circumstances and the nature of the work, individuals with access to the work site must wear protective footwear and hard hats. The Contractor shall provide chin cups or ratchet suspension helmets to workers who must bend over or crouch.
- .2 Covered passageways shall be set up to protect all entrances and exits.
- .3 A safety perimeter on the ground must be placed under the work

zone in order to protect the public and the occupants.

- .4 The ground area of the work site, the material handling area and the boiler area shall be clearly closed off to prevent occupants or the public from accessing them.
- .5 Before installing any device that may release gases or fumes, the Contractor shall receive authorization from the person in charge of the work site who shall make sure that there is no risk of gases or fumes infiltrating the building's ventilation system.
- .6 The Contractor shall make sure that the work site is kept clean and tidy for the duration of the work.
- .7 Copies of the data sheets of all controlled products shall be forwarded to the Departmental Representative and to the person responsible for the work site before work begins.
- .8 The Contractor shall provide sanitary facilities and rest areas compliant with requirements of the *Safety Code for the Construction Industry*.

2.8 WORK INVOLVING .1 A LOW EXPOSURE TO LEAD

Adequate measures.

- .1 The Contractor must be aware of all hazards associated with lead exposure. The Contractor agrees to take all necessary measures to protect the health of the workers and the public. The following rules are the minimum and in no way diminish the requirements set out in current statutes and regulations. If after the workers undergo blood tests or the air is analysed, it is determined that the measures taken are not sufficient, the Contractor shall stop the work and, at their own expense, modify the work procedure, provide other protective equipment or take any other measures needed to ensure that the health of the workers and the public is not compromised.
 - .2 The contractor shall use working methods that allow containment and control the contaminated residues. Unless it is impossible or that it generates other hazards, decontamination shall be done by wet process. Depending on the methods used, it may be necessary to keep the work area under negative pressure to prevent leaks of contaminated mist or dust.
- .2 Training: before authorizing the workers to enter the contaminated area, the Contractor shall train them and any of the subcontractor's workers so that they are able to do their work safely. This training shall include, but is not limited to:

- .1 the risks of lead exposure;
- .2 the ways lead can enter the body;
- .3 a detailed description of work methods;
- .4 preventive measures;
- .5 essential sanitation measures;
- .6 the right of workers under *An Act Respecting Occupational Health and Safety* and the *Canada Labour Code* to refuse any work that could compromise their safety and health.

- .3 Respiratory Protection: without limiting the other regulatory requirements applicable to respiratory protection, every person who is in a decontamination area shall wear a mask with a HEPA (high-efficiency particulate air) filter. At the time of hiring, the Contractor shall conduct the necessary tests to ensure that all workers are able to properly wear the required respiratory protection. Workers who have a beard or whose face is a shape that does not allow the mask to fit perfectly shall not be permitted to enter the contaminated area.
- .4 Work clothes: the Contractor shall provide the workers with disposable coveralls with a hood, and rubber safety boots. The workers shall remove and dispose of their coveralls and take off their boots every time they leave the contaminated work area, whether they are leaving to eat, take a break or simply go to the bathroom. A supply of clean coveralls shall be available outside the contaminated area. Soiled coveralls shall be treated as contaminated materials.
- .5 Washroom facilities: wash basins (or equivalent) with disposable towels shall be made available to the workers. The workers shall wash their hands and face every time they leave the contaminated area.
- .6 Rest and/or eating area: the Contractor must clean (by wet process) the floors and the tables of the rest and/or eating areas in order to limit the possibility of contamination by ingestion or inhalation.
- .7 Equipment provided to the Departmental Representative: t
The Contractor shall provide at no charge to the Departmental Representative or persons designated by the Departmental Representative protective equipment (coveralls, boots, masks and other equipment as required depending on the procedure), access, and the facilities needed to safely perform normal monitoring and inspection duties.

**2.9 WORK
INVOLVING A LOW
EXPOSURE TO
ASBESTOS**

- .1 This subsection applies to any construction site where work liable to produce asbestos dust emissions is carried out.
- .2 For the purposes of this subsection, please note that:

□

- .1 “Work carried out outside” means work entirely carried out elsewhere than in a building used, having been used or intended to be used to shelter or receive persons, animals or things.
- .2 “Protective clothing” means clothing that:
 - .1 resists the penetration of asbestos fibres;
 - .2 covers the worker's body, excluding their face, hands and feet;
 - .3 is closed at the neck, wrists and ankles.
- .3 For the purposes of this subsection, the following categories of sites are established:
 - .1 Sites where low-risk work is carried out:
 - .1 the installation, handling or removal of manufactured goods containing asbestos, provided they are and remain in a non-friable condition, such as:
 - vinyl tiles;
 - acoustic tiles;
 - gaskets;
 - seals;
 - asbestos-cement products.
 - .2 the sawing, cutting, shaping or drilling of a product mentioned in subparagraph a) of paragraph .1 with a hand tool or a power tool fitted with a dust-collection device equipped with a high-efficiency filter;
 - .3 the removal of drywall installed with asbestos joint-filling compounds.
 - .4 Before undertaking work liable to release asbestos dust, the Contractor must:
 - .1 Provide a written procedure considering all items specified in Section 3.23 of the *Safety Code for the Construction Industry S-2.1, r-6*.
 - .2 Show that all workers have been trained regarding the risks linked to asbestos and the procedure described above (ASP Construction) (s. 3.23.7).
 - .3 Show that they have all the material and equipment necessary readily accessible to fulfill the procedure and safe execution of the work.
 - .5 The use of compressed air is prohibited in a work area covered by this subsection, except compressed air necessary to operate a respirator.
 - .6 Smoking, eating, drinking or chewing any substance in a work area

covered by this subsection is prohibited.

- .7 Before undertaking work liable to release asbestos dust, the employer must train the worker and inform them of the risks, prevention methods and safe working methods. The training and information program must contain, as a minimum:
 - .1 the employer's general obligations;
 - .2 the effects of asbestos on health;
 - .3 the standards applicable and the sampling to be done;
 - .4 the worker's rights and obligations;
 - .5 the individual and common protective devices and equipment;
 - .6 the tasks to be carried out and the equipment and tools to be used;
 - .7 the safe working methods and procedures;
 - .8 the prevention and verification methods.
- .8 A worker working in a workplace covered by this subsection shall wear protective shoes that meet the requirements of Section 2.10.6 of the *Safety Code for the Construction Industry* and equipped with anti-slip soles on wet surfaces.
- .9 On a construction site where low-risk work is being carried out, the employer shall ensure that any worker present in the work area wears a respiratory protective device that meets either of the following standards:
 - .1 It is approved by the Guide des appareils de protection respiratoire utilisés au Québec, published by the Institut de recherche Robert-Sauvé en santé et en sécurité du travail as read at the moment it is applied;
 - .2 It is at least certified FFP2 in accordance with EN-149, Respiratory protective devices — Filtering half masks to protect against particles — Requirements, testing, European Committee for Standardization mark, by a laboratory recognized by the latter.
 - .3 That equipment shall be selected, adjusted, used and cared for in accordance with CSA Standard Z94.4-93 – Selection, Use, and Care of Respirators.

END OF SECTION

- .5 A work zone plan indicating planned work in each area of the work zone as well as restricted and no access areas.
 - .1 This plan must include methods to be used to mark the useable areas and to protect items within the authorized work areas and that must be preserved.
- .6 The emergency plan in case of spills must include the procedures to be implemented, the instructions to be followed and the reports that need to be produced in case of the unforeseeable spill of regulated substances.
- .7 An elimination plan for non-toxic solid waste including the elimination methods and areas for solid waste and debris from excavation work.
- .8 An air pollution prevention plan detailing dust, debris, material and waste control measures on the site.
- .9 A contamination prevention plan indicating the potentially dangerous substances that will be used on the site, the measures put in place to prevent these substances from becoming airborne or contaminating the ground as well as the details of the measures planned so that storage and handling of these substances is done according to the federal, provincial and municipal laws and regulations.
- .10 A wastewater management plan illustrating the methods and procedures put in place to manage wastewater discharge from the worksite activity such as water used for mixing and curing mortar and water used for cleaning.
- .11 A plan designating and protecting wetlands, historical, archeological, cultural and biological resources.
- .12 A plan for pesticide use to be implemented and updated as needed.

1.3. FIRES

- .1 Fires and burning of waste are strictly prohibited on-site.

1.4. SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees and plants on the site and on adjacent properties as indicated.
 - .1 Protect trees and shrubbery adjacent to the construction site, storage areas and truck routes.
 - .2 Avoid circulation and unloading or storing material unnecessarily above the protected trees' root zone.
 - .3 Minimize stripping topsoil and vegetation as much as possible.

1.5. WORK ADJACENT TO WATERWAYS

- .1 Do not operate equipment in the waterway but from the shore only

- .2 Extracting borrow material from the bed of the waterway is forbidden.
- .3 Do not dump excavated fill, waste material or debris in waterways.

1.6. PREVENTION OF POLLUTION

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Control emissions from equipment and material in keeping with local authorities' requirements.
- .3 Prevent demolition material and other extraneous materials from flying beyond the demolition zone.
- .4 Recover all demolition material immediately following demolition including shingles and nails on the riverbank and the area surrounding the building.
- .5 Spray dry materials with water and cover waste material to prevent the wind from blowing dust and debris. Remove dust from temporary roads.

1.7. PRESERVATION OF HISTORICAL / ARCHAEOLOGICAL CHARACTER

- .1 Prepare a plan that defines procedures to identify and protect wetlands, historical, archeological, cultural and biological resources known to exist on the site. It must also define other procedures in the case of the unforeseeable discovery of such elements on the site or surrounding area during construction.
- .2 The plan must include methods to protect known or discovered resources as well as means of communication between the Contractor's personnel and the Departmental Representative.

1.8. NOTICE OF NON-COMPLIANCE

- .1 The Departmental Representative will notify the Contractor in writing for each instance of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan.
- .2 If the Contractor receives a notice of non-compliance, he must suggest corrective actions to the Departmental Representative for approval before undertaking those actions.
 - .1 The Contractor must await written response from the Departmental Representative prior to implementing the proposed measures.
- .3 The Departmental Representative will issue a stop work order until satisfactory corrective actions have been taken.

- .4 Neither extension nor adjustment will be granted in the case of such work suspensions.

Part 2 Products N/A

Part 3 Execution

- 3.1 CLEANUP** .1 Cleaning during construction work: clean in accordance with Section 01 74 11 – Cleanup.
- .1 Make sure the work area is clean at end of each workday.
 - .2 Burying rubbish and waste material on the site is forbidden.
 - .3 All demolition material and construction waste must be removed from the Grosse-Ile site and taken to a location approved by the competent authorities.
 - .4 Make sure the waterways, the rain and storm drains as well as the sanitary sewers remain free of waste and volatile material that were disposed of.
 - .5 Final Cleanup: upon completion, remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleanup.

END OF SECTION

Part 1 General

<u>1.1 RELATED REQUIREMENTS</u>	.1	Section 01 33 00 –Submittal Procedures
	.2	Section 01 35 29.06 – Health and Safety Requirements
	.3	Section 01 35 43 – Environmental Procedures
<u>1.2 CODES, STANDARDS AND OTHER REFERENCE DOCUMENTS</u>	.1	Work must be performed in accordance with the National Building Code of Canada (NBC), including all published amendments up to tender closing date and other pertinent codes of provincial or local application. In cases of conflict or discrepancy, the more stringent requirements apply.
<u>1.3 DISCOVERY OF HAZARDOUS MATERIAL</u>	.1	Asbestos: Demolition of structures made of or covered with material containing asbestos applied using a spray or trowel are a hazard to health. If any such materials are discovered during demolition, interrupt the work immediately and notify the Departmental Representative.
	.2	PCBs (polychlorobiphenyls): In the case polychlorobiphenyls are discovered during demolition, interrupt work immediately and notify the Departmental Representative.
	.3	Mould: In case mould is discovered during demolition, interrupt the work immediately and notify the Departmental Representative.
<u>1.4 SMOKE-FREE ENVIRONMENT</u>	.1	Comply with smoking restrictions and municipal regulations.
<u>1.5 NATIONAL PARKS ACT</u>	.1	Perform Work in accordance with the National Parks Act when projects take place within boundaries of a National Park.

Part 2 Products

<u>2.1 N/A</u>	.1	N/A
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Part 3 Execution

<u>3.1 N/A</u>	.1	N/A
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END OF SECTION

Part 1 General

1.1 INSPECTION .1

- The Departmental Representative must have access to the work. If part of the work is prepared at locations other than the work site, allow them access to these locations throughout work progress.
- .2 Give timely notice in requesting inspection if work is designated for special tests, inspections or approvals ordered by the Departmental Representative or required under local regulations regarding the work site.
- .3 If the Contractor covers the work or allows it to be covered prior to the required inspection, approvals or special tests, they must uncover such work in view of allowing the inspections or tests to be satisfactorily completed by the pertinent authorities. Then, they must put the work back into its initial state.
- .4 The Departmental Representative may order inspection of any part of the work for which compliance with the contract documents is found dubious. If, upon examination, such work is found to be non-compliant with contract documents, the Contractor must take necessary corrective action to ensure the work is in compliance with the specified requirements and pay for examination and correction. If such work is declared compliant with the requirements stated in the contract documents, the Departmental Representative shall pay for the examination and reconditioning as needed.

**1.2 INDEPENDENT
INSPECTION AND
TESTING AGENCIES** .1

- Independent inspection/testing agencies will be hired by the Departmental Representative. Cost of these services will be borne by the Departmental Representative.
- .2 Provide the equipment required by these agencies for executing inspection and testing.
- .3 Employment of inspection/testing agencies does not lift in any way the Contractor's responsibility to perform work in accordance with the contract documents.
- .4 If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain the full degree of these defects. The Contractor will advise in writing the method they intend to use to correct defects and imperfections. The work will be undertaken free of additional charges to the Departmental Representative. The Contractor will be responsible for the cost of testing and inspections that will need to be performed following these corrections.

**1.3 WORKSITE
ACCESS** .1

- Allow inspection/testing agencies access to worksite as well as off-site manufacturing and forming shops.

- .2 Co-operate with these agencies and take all necessary steps in order to provide all the access they need.

1.4 PROCEDURES

- .1 Notify the appropriate agency and the Departmental Representative in advance when tests need to be done to ensure that all the parties involved can be present.
- .2 Submit samples and/or materials/equipment required for testing, as specifically requested in the Specifications, in a timely and orderly manner in order to prevent delays in work progress.
- .3 Provide the necessary labour and facilities to obtain and handle samples and materials on-site. Provide sufficient space to store and cure test samples.

1.5 REJECTED WORK

- .1 Remove the defective items that are not in compliance with the contract documents and rejected by the Departmental Representative either because they were not produced according to trade practices or using defective products or materials even if they have already been incorporated into the work. Replace or recreate these items according to the contract documents.
- .2 Repair without delay other contractors' work that was damaged during the above-mentioned repair or replacement work.
- .3 If, in the opinion of the Departmental Representative, correction of defective or non-compliant work is not timely enough, the project owner will deduct the difference of costs between the work performed and that stated in the contract documents from contract price. The total amount of this difference will be determined by the Departmental Representative.

1.6 TESTS AND MIX DESIGNS

- .1 Provide test results and mix designs reports as requested.
- .2 Cost of tests and mix designs beyond those specifically required in the contract documents or beyond those required by laws regarding construction sites will be appraised by the Departmental Representative and may be authorized later for reimbursement.

1.7 MOCK-UPS

- .1 Prepare mock-ups for structures specifically requested in the Specifications. Requirements included in this article are applicable to all Specifications sections requesting mock-ups.
- .2 Build mock-ups in the various areas designated in the section as approved by the Departmental Representative.
- .3 Prepare mock-ups for approval by the Departmental Representative in a timely manner and in an orderly sequence, in order to prevent delays in the execution of the work.

- .4 Failure to prepare mock-ups in reasonable time is not considered sufficient reason for extension of contract time and no request for extension because of this failure will be allowed.
- .5 The Departmental Representative will help the Contractor create a mock-up preparation schedule.
- .6 Remove the mock-ups at the conclusion of the work or when determined by the Departmental Representative.
- .7 Mock-ups may remain as part of the finished work.
- .8 Each Specifications section regarding mock-ups identifies if the latter can be part of the finished work or not and when they must be removed if necessary.

**1.8 FACTORY
TESTS**

- .1 Submit factory test certificates as requested or required of the various sections of the Specifications.

Part 2 Product N/A

Partie 2 Execution N/A

END OF SECTION

- 1.6 HOISTING EQUIPMENT**
- .1 Provide and install the winches required to move workers, materials, and equipment, and ensure their maintenance and operation. Make the necessary financial arrangements with subcontractors for the use of hoisting equipment.
 - .2 Only qualified workers can be allowed to operate the winches.
- 1.7 ON-SITE STORAGE/ACCEPTABLE LOADS**
- .1 Make sure that the work is performed within the limits shown in the contract documents. Keep area reasonably clear of materials and equipment.
 - .2 Do not overload or allow overloading of any part of the work in order to not jeopardize its integrity.
- 1.8 STORAGE OF MATERIALS, EQUIPMENT AND TOOLS**
- .1 Provide lockable weatherproof sheds for material, equipment and tool storage, and ensure these remain clean and in good condition.
 - .2 Leave materials and equipment that do not have to be protected from the weather on the construction site, but ensure that they interfere as little possible with the execution of the work.
- 1.9 PARKING ON THE SITE**
- .1 The Contractor may park their vehicle close to the wash-house, but the number of vehicles shall be kept to a strict minimum.
 - .2 The Departmental Representative will communicate the way to proceed to the Contractor.
- 1.10 ON-SITE STORAGE/ACCEPTABLE LOADS**
- .1 Make sure that the work is performed within the limits shown in the contract documents. Keep area reasonably clear of materials and equipment.
 - .2 Do not overload or allow overloading any part of the work in order to not jeopardize its integrity.
- 1.11 OFFICES**
- .1 A space on the ground floor of the wash-house will be made available to the Contractor in order to accommodate a site office. Provide a table on which to spread drawings and construction documents.
- 1.12 WORKER HOUSING**
- .1 Parks Canada will make available to the General Contractor and his employees several double occupancy rooms, as well as a common kitchen so they can prepare their meals. The availability of these facilities will be subject to the island's operational needs and limitations. Some elements may be unavailable at times. Please note that there are no restaurants, cafeterias or grocery stores on the island. Provide bedding, towels and the necessary toiletries. The

premises must be kept clean and in good order.

- .2 The Contractor shall ensure the maintenance of the areas used by its staff such as the bedrooms, the kitchen and common areas (toilets and showers). In addition, the Contractor's personnel must behave with a certain decorum at all times, even outside of working hours. This measure specifically includes the prohibitions related to the consumption of illicit substances and being intoxicated on the site.

**1.13 WORKER
MEALS**

- .1 Provide dishes, cutlery, utensils, pots, and all the food needed to feed the workers. The kitchen and dining room of the first class hotel, located west of the third class hotel, will be available for workers to prepare and take their meals. The premises must be kept clean and in good order as the public will visit the dining room on a daily basis.

**1.14
TRANSPORTATION,
LOADING AND
UNLOADING OF
EQUIPMENT,
MATERIALS AND
TOOLS**

- .1 Provide all means of transportation (land and sea), loading and unloading of equipment, materials, tools, vehicles, waste and other equipment necessary for the performance of the work.
- .2 The Contractor is free to negotiate directly with the boat dispatcher for the transportation small amounts of equipment, materials and tools, taking into account that Parks Canada retains priority at all times.
- .3 Coordinate with the Departmental Representative the times at which the transportation, loading and unloading materials, equipment, tools, vehicles, waste and any other equipment necessary to do the work will take place at the dock of Grosse Ile.
- .4 Maintain and protect water traffic in the vicinity of the dock (all Parks Canada watercraft activities retain the priority at all times) and the pedestrian traffic on the dock during the transportation, loading and unloading of materials and tools.
- .5 About seven hundred and fifty (750) metres separate the end of the dock of Grosse Ile from the area where vehicles and materials can be stored within the perimeter of the work site, west of the third-class hotel.

**1.15 STORAGE OF
EQUIPMENT,
MATERIALS AND
TOOLS**

- .1 Supply and install one or more temporary canvas shelters within the perimeter of the site west of the third-class hotel to store the equipment, materials and tools needed for the performance of the work. The Contractor shall take into account the maritime climate and the particularly strong winds on Grosse Ile.
- .2 Leave materials and equipment that do not have to be protected from

- the weather on the construction site, but ensure that they interfere as little possible with the execution of the work. The premises must be kept clean and in good order.
- .3 Display the required notices and take all precautions required by local health authorities. Keep the premises and sectors clean.
- 1.16 WATER SUPPLY** .1 The Contractor shall provide for the transportation and storage of drinking water that is necessary for the execution of the work.
- 1.17 POWER SUPPLY** .1 The Contractor shall provide the electrical power supply necessary for the execution of the work.
- .2 The site has no electrical power supply.
- 1.18 FIRE PROTECTION** .1 Provide the fire protection equipment required by the competent insurance companies and by the codes and regulations in effect and make sure it is properly maintained.
- .2 Burning waste materials and construction site waste is prohibited.
- 1.19 WASHROOM FACILITIES** .1 Workers will be able to use the restrooms located close to the old kitchen at the eastern end of the third-class hotel. The premises shall be kept clean and in good order since these restrooms may be also used by visitors with reduced mobility.
- 1.20 CONSTRUCTION SIGNS** .1 Aside from warning signs, no other signage or any other poster can be installed on the site.
- .2 Send the Departmental Representative all requests for approval to install a sign identifying the Contractor. The general appearance of this sign must match the construction site panel, and the wording must be in both official languages.
- .3 The instructional and safety notice signs must be in both official languages. The graphic symbols must comply with the CAN/CSA-Z321 standard.
- .4 Maintain approved signs and notices in good condition for the duration of the project, and dispose of them on completion of the project or earlier if directed by Departmental Representative.
- 1.21 PROTECTION AND MAINTENANCE OF TRAFFIC** .1 The Grosse-Ile-and-the-Irish-Memorial National Historic Site has a single access route for the entire island.
- .2 Maintain and protect traffic on affected roads during construction.
- .3 Plan on means to protect and reroute traffic.

- .4 Protect the visiting public against property damages and injuries.
- .5 The Contractor's automotive equipment use for the transportation of materials or equipment to and from the site is to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. The Contractor is responsible for the repair of damage caused to roads by construction operations.
- .7 Provide the necessary measures to reduce dust in order to ensure the proper and safe conduct of activities at all times.
- .8 If necessary, provide snow removal during work.

1.22 CLEAN-UP

- .1 Evacuate construction site debris, waste and packaging materials on a daily basis.
- .2 Remove the dust and mud from access roads.
- .3 Store materials and equipment recovered during demolition work.
- .4 Do not store new or recovered material or equipment on the site facilities.

END OF SECTION

prevent delay in performance of Work.

- .2 In event of failure to notify the Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

**1.4 STORAGE,
HANDLING AND
PROTECTION**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementations 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, 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 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original.

1.5 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work all the way to Grosse-Ile, including products supplied by Departmental Representative.

**1.6 MANUFACTURER'S
INSTRUCTIONS**

- .1 Unless otherwise indicated in specifications install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

- .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative may establish course of action.
 - .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Departmental representative to require removal and re-installation at no increase in Contract Price or Contract Time.
- 1.7 QUALITY OF WORK**
- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
 - .2 Do not hire unqualified people or not having the necessary skills to carry out the work entrusted to them. Departmental Representative reserves the right to prohibit access to the site to any person that he consider incompetent or negligent.
 - .3 Only the Departmental Representative can resolve disputes concerning the quality of work and skills of the workforce and his decision is final.
- 1.8 CO-ORDINATION**
- .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
 - .2 The Contractor is responsible for coordination and placement of openings, sleeves and accessories.
- 1.9 CONCEALMENT**
- .1 In finished areas, conceal pipes, ducts, wiring and lighting of the luminaries in floors, walls and ceilings, except where indicated otherwise.
 - .2 Before installation, inform Departmental Representative if there is interference. Install as directed by Departmental Representative.
- 1.10 REMEDIAL WORK**
- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
 - .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.
- 1.11 LOCATION OF FIXTURES**
- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

- .2 Inform Departmental Representative of conflicting installation.
Install as directed.

1.12 FASTENING

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause flaking or cracking of material to which anchorage is made are not acceptable.

**1.13 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. Use No. 304 stainless steel for exterior areas.
- .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.

**1.14 PROTECTION OF
WORK IN
PROGRESS**

- .1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

**1.15 EXISTING
UTILITIES**

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products – N/A

Part 3 Execution – N/A

END OF SECTION

Part 1 General

1.1 CONSTRUCTION .1
SITE CLEANLINESS

- .1 Keep the site clean and free from any accumulation of waste products and debris.
- .2 Remove waste and demolition materials from the island. Do not burn waste materials on site.
- .3 Keep all access roads to the building free of ice and snow.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Clean interior surfaces prior to starting finishing work. Maintain these areas free of dust and other contaminants during finishing operations.
- .7 Store volatile debris in closed metal containers and transport them outside from the construction zone at the end of each work period.
- .8 Schedule cleaning operations so that resulting dust, debris and other flying contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.2 FINAL CLEANUP .1

- .1 When work is almost finished, remove surplus products, tools, as well as construction material and equipment that are no longer required to perform the remaining work.
- .2 Remove waste products and debris and leave the work area clean and ready for occupancy.
- .3 Prior to final inspection, remove surplus material, tools, construction equipment and equipment.
- .4 Check the finishes, accessories and material in order to ensure that they comply with all prescribed functional and workmanship requirements.
- .5 Sweep and clean exterior surfaces. Sweep or rake the rest of the area.
- .6 Remove dirt and other elements that would mar the exterior surfaces.
- .7 Sweep and clean hard coated surfaces.
- .8 Clean roofs, downspouts, and drainage systems.
- .9 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

- .10 Remove snow and ice from access to building.
- .11 Dispose waste materials outside the island. Waste materials should not be burned on site.
- .12 Arrange and obtain permits from the competent authorities for the removal of rubbish and waste materials.

**1.3 WASTE
MANAGEMENT AND
DISPOSAL**

- .1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

- | | |
|---|--|
| 1.1 OBJECTIVES
FOR WASTE
MANAGEMENT <hr/> | .1 Before commencing work, meet with the Departmental Representative to review the plan and the PWGSC waste management goals.
.2 Exercise maximum control of solid waste from construction.
.3 Protect the environment and prevent pollution and environmental impacts.
.4 Submit documents and samples in accordance with Section 01 33 00 – Submittal Procedures. |
| 1.2 MATERIAL
STORAGE, HANDLING
AND PROTECTION <hr/> | .1 Store waste materials in the areas indicated by the Department Representative.
.2 Waste materials that need to be removed from the island subsequently become Contractor property.
.3 Protect, pile and store recovered items.
.4 Non-demolished structural items that are left in place must be protected against movement and damages.
.5 Support all structures affected by work. In case building safety becomes compromised, cease work and inform the Departmental Representative immediately.
.6 Protect superficial water evacuation structures in order to keep them from being damaged or obstructed.
.7 Sort and store waste material generated by structural demolition in designated areas. |
| 1.3 WASTE
ELIMINATION <hr/> | .1 Burying rubbish and waste material on the site is forbidden.
.2 Throwing rubbish in a stream or storm or sanitary drain is forbidden.
.3 Recover waste material as deconstruction/dismantling work progresses. |
| 1.4 USE OF
PREMISES AND
FACILITIES <hr/> | .1 Construction work should not interfere with regular activities of the premises.
.2 Maintain effective security measures established for the existing installation. |
| 1.5 WORK
SCHEDULE <hr/> | .1 Coordinate waste management with the other activities in order to ensure an orderly work process. |

Part 1 General

1.1 SECTION INCLUDES

- .1 Project record, samples, and specifications.
- .2 Equipment and systems.
- .3 Product data, materials and finishes, and related information.
- .4 Operation and maintenance data.
- .5 Spare parts, special tools and maintenance materials.
- .6 Warranties and bonds.

1.2 PRECEDENCE

- .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.3 SUBMISSION

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection, with Departmental Representative's comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of maintenance manuals in French.
- .6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .7 If requested, furnish evidence as to type, source and quality of products provided.
- .8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9 Pay costs of transportation.

1.4 FORMAT

- .1 Organize data in the form of an instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf [219 x 279] mm with spine and face pockets.
- .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

- .4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: Manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.5 CONTENTS – EACH VOLUME

- .1 Table of Contents: provide title of project;
 - .1 date of submission;
 - .2 names, addresses, and telephone numbers of Departmental Representative, Contractor with name of responsible parties;
 - .3 schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.6 AS-BUILT AND SAMPLES

- .1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to the Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.7 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on set of blue line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.
- .2 Record information using felt tip markers by providing a different color for each major system. Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .3 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .4 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .5 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.8 EQUIPMENT AND SYSTEMS

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Include manufacturer's printed operation and maintenance instructions.
- .3 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .4 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .5 Additional Requirements: as specified in individual specifications sections.

1.9 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

1.10 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to location as directed; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.11 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site and location as directed for place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.12 SPECIAL TOOLS

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site and location as directed by Departmental Representative; place and store.

- .4 Receive and catalogue all items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

1.13 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.14 WARRANTIES AND BONDS

- .1 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
 - .4 Verify that documents are in proper form, contain full information, and are notarized.
 - .5 Co-execute submittals when required.
 - .6 Retain warranties and bonds until time specified for submittal.
- .2 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.

END OF SECTION

1.6 EXISTING

CONDITIONS

- .1 If a material applied using a trowel or spray system resembles asbestos or any other material designated and categorized as dangerous is discovered during the course of work, suspend the work, take appropriate precautions and inform the Departmental representative immediately.
 - .1 Do not resume work prior to receiving written notification from the Departmental representative.
- .2 Notify the Departmental representative prior to blocking the access to the building or shutting utilities.

Part 2 Products – N/A

Part 3 Execution

3.1 PREPARATION

- .1 Inspect the building along with the Departmental representative and verify the location and extent of the elements to be removed, eliminated, upgraded, recycled, and recovered and those that remain in place.

3.2 PROTECTION

- .1 Perform the work according to Section 01 35 29.6 – Health and Safety.
- .2 Take necessary measures to prevent any movement, collapse or other kind of damage to the utility conduits adjacent structures and parts of the building to be preserved. Ensure structure shoring and bracing as needed.
- .3 Limit worksite dust and noise as much as possible. Also, limit inconveniences to the site occupants.
- .4 Protect the building instruments, and mechanical and electricity systems as well as utility conduits.
- .5 Provide dust shields, tarps, railings, support elements and any other necessary support and protective devices.

3.3 RECOVERY

- .1 Refer to demolition provisions and drawings in order to know which material needs to be recovered for reuse.
- .2 Remove items to be reused and store them according to the Departmental representative's instructions and set them back in place according to the provisions stated in the relevant section of the quotation.

3.4 REMOVAL

- .1 Remove outlined items and structures.

3.5 DEMOLITION

- .1 Remove existing building structures for the new structure to be built. Sort waste materials for reuse and recycling.
- .2 Clear banks of partly demolished building components according to the tolerances set by the Departmental representative for the implementation of the new elements.

3.6 DESTRUCTION

- .1 Unless otherwise indicated, transport the materials that were removed to the appropriate recycling facilities and to organizations that will reuse them according to their designated authorities.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDES

- .1 Work and safety measures of this section are intended to guide the interventions to the building's plaster walls that contain asbestos.
- .2 A characterization report will be provided at the start-up meeting.

1.2 RELATED SECTIONS

- .1 Section 02 41 00 – Selective Site Demolition
- .2 Section 04 03 31 - Replacing Brick

1.3 REFERENCES

- .1 Department of Justice Canada (JUS)
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .2 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.4 DEFINITIONS

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Amended Water: water with nonionic surfactant wetting agent added to reduce water tension to allow thorough wetting of fibres.
- .3 Asbestos-Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.
- .4 Asbestos Work Area: area where work takes place which will, or may, disturb ACMs.
- .5 Authorized Visitors: Departmental representative or designated representatives, and representatives of regulatory agencies having jurisdiction.
- .6 Competent worker person: in relation to specific work, means a worker who:
 - .1 Is qualified because of knowledge, training and experience to perform the work.
 - .2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.
 - .3 Has knowledge of all potential or actual danger to health or safety in the work.
- .7 Friable material: means material that:
 - .1 When dry, can be crumbled, pulverized or powdered by hand pressure, or
 - .2 is crumbled, pulverized or powdered.

- .8 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .9 Occupied Area: any area of the building or work site that is outside Asbestos Work Area.
- .10 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for work.

1.5 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of asbestos-containing waste in accordance with requirements of authority having jurisdiction.
- .3 Submit Provincial/Territorial and/or local requirements for Notice of Project Form.
- .4 Submit proof of Contractor's Asbestos Liability Insurance.
- .5 Submit to Departmental Representative necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed of.
- .6 Submit proof that all asbestos workers have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.
- .7 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial/Territorial, and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications, the more stringent requirement applies. Comply with regulations in effect at time Work is performed.
- .2 Health and Safety
 - .1 Safety requirements: worker protection
 - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:

- .1 Air purifying half-mask respirator with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. Respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.
- .2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing shall consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing to include suitable footwear, and to be repaired or replaced if torn.
- .2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.
- .3 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.
- .4 Facilities for washing hands and face shall be provided within or close to the Asbestos Work Area.
- .5 Workers shall wash their hands and face when leaving the Asbestos Work Area. Locate washing facilities where indicated.
- .6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

1.7 EXISTING CONDITIONS

- .1 Reports and information pertaining to ACMs to be handled, removed, or otherwise disturbed and disposed of during this project bound to this specification are available from IUSM (Institut universitaire en santé mentale de Québec) upon request.

- .2 Notify Departmental Representative of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative.

1.8 TRAINING REQUIREMENTS

- .1 Before beginning Work, provide Departmental Representative with satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, and in use, cleaning, and disposal of respirators and protective clothing.
- .2 Instruction and training related to respirators includes, following minimum requirements:
 - .1 Fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.
- .3 Instruction and training must be provided by a competent, qualified person.

PART 2 PRODUCTS

2.1. MATERIALS

- .1 Drop Sheets:
 - .1 Polyethylene: 6 mil (0.15 mm) thick.
 - .2 FR polyethylene: 6 mil (0.15 mm) thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in a concentration to provide thorough wetting of asbestos-containing material.
- .3 Asbestos waste containers: dispose waste materials in containers made of two separate enveloppes (inner, outer).
 - .1 Inner container may be sealable metal or fibre type or second 6 mil (0.15 mm) thick sealable polyethylene bag.
 - .2 Outer container (in which inner container may be introduced): sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 6 mil (0.15 mm) thick sealable polyethylene bag.
 - .3 Labelling requirements: affix pre-printed cautionary asbestos warning in both official languages that is visible when ready for removal to disposal site.
- .4 Slow-drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .5 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

PART 3 EXECUTION

3.0 PROCEDURES

- .1 Before beginning Work, isolate Asbestos Work Area using, minimum, preprinted cautionary asbestos warning signs in both official languages that are visible at access routes to Asbestos Work Area.
 - .1 Remove visible dust from surfaces in the work area where dust is likely to be disturbed during course of work.
 - .2 Use HEPA vacuum or damp cloths where damp cleaning does not create a hazard and is otherwise appropriate.
 - .3 Do not use compressed air to clean up or remove dust from any surface.
- .2 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.
 - .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in Asbestos Work Area where dust and contamination cannot otherwise be safely contained. Drop sheets are not to be reused.
- .3 Wet materials containing asbestos to be cut, ground, abraded, scraped, drilled, or otherwise disturbed unless wetting creates hazard or causes damage.
 - .1 Use garden reservoir type low-velocity fine-mist sprayer.
 - .2 Perform Work to reduce dust creation to lowest levels practicable.
 - .3 Work will be subject to visual inspection and air monitoring.
 - .4 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.
- .4 Frequently and at regular intervals during Work and immediately on completion of work, remove asbestos laden dust and waste using an HEPA vacuum or wet rags.
 - .1 Dust and waste to be cleaned up and removed using a vacuum equipped with a HEPA filter, or by damp mopping or wet sweeping, and placed in a waste container.
 - .2 Drop sheets to be wetted and placed in a waste container as soon as practicable.
- .5 Cleanup:
 - .1 Place dust and asbestos containing waste in sealed dust-tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste; wet and fold these items to contain dust, and then place in plastic bags.
 - .2 Clean exterior of each waste-filled bag using damp cloths or HEPA vacuum and place in second clean waste bag immediately prior to removal from Asbestos Work Area.
 - .3 Seal waste bags and remove from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal Authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that the appropriate guidelines and regulations for asbestos disposal are followed.
 - .5 Perform final thorough clean-up of Work areas and adjacent areas affected by Work using HEPA vacuum.

END OF SECTION

- .5 Consolidation: strengthening masonry units to prevent deterioration (e.g. spalling).
 - .6 Stripping: the removal of loose portions of the masonry (usually popouts) through impact with a bush hammer or other appropriate device.
- 1.6 WORK DESCRIPTION**
- .1 The work in this section includes but is not limited to:
 - .1 Visually inspecting for obvious signs of deteriorated masonry and testing/verification of masonry joints.
 - .2 Stripping identified unsound joints.
 - .3 Repointing identified masonry joints.
 - .4 Removal of loose portions on stone surface.
 - .5 Resetting dislodged masonry units.
 - .6 Ensuring curing of mortar.
 - .7 Grouting small voids.
 - .8 Replacement of deteriorated or missing masonry units.
- 1.7 PRODUCT SAMPLES**
- .1 Submit samples in accordance with Section 01 33 00 – Submittal Procedures.
 - .2 Submit labelled samples of materials to be used on rejoining project for approval before work commences.
- 1.8 QUALIFICATIONS**
- .1 Masonry contractor:
 - .1 Use a single masonry contractor for all masonry work. Ensure masonry contractor has experience in masonry work especially historic stone masonry.
 - .2 Ensure that the masonry contractor thoroughly understands structural behaviour of masonry walls if masonry work involves replacing or repairing stones which are part of the load bearing structural masonry work.
 - .2 Cement grouting: grouting activities should be undertaken by experienced workers in manipulation and cement grouting methods.
- 1.9 WORK SAMPLES**
- .1 Prepare required samples in accordance with Section 01 61 00 – Common Product Requirements.
 - .2 Prepare repointing samples of the limestone siding to show the technique used and the final product.

- .3 Prepare work samples under the supervision of the Departmental Representative to demonstrate full understanding and compliance with specified procedures, techniques and formulations before work commences.
- .4 Prepare work samples where directed.
- .5 Allow 24 hours for inspection of work samples by the Departmental Representative before proceeding with masonry repointing and repair work.
- .6 When accepted, work samples will be used as a reference for the minimum quality standard for this work. Work samples may become part of finished work.

1.10 TRANSPORTATION, STORAGE AND HANDLING

- .1 Transport, store, handle and protect materials in accordance with Section 01 61 00 – Common Product Requirements.
- .2 Store cementitious materials and aggregates in accordance with the CSA A23.1 standard.
- .3 Store lime putty in plastic-lined sealed drums.
- .4 Keep materials dry. Protect from weather, freezing and contamination.
- .5 Ensure that manufacturer's labels and seals are intact upon delivery.
- .6 Remove rejected or contaminated materials from the site.

1.11 STORAGE AND PROTECTION

- .1 Transport, store, handle and protect materials in accordance with Section 01 61 00 – Common Product Requirements.
- .2 At end of each working day, cover unprotected work with waterproof membranes. Membranes should extend 0.5 m over surface area of the work and be tightly installed to prevent the finished work from drying out too rapidly.
- .3 Protect adjacent surfaces to the finished work against damage which may be caused by ongoing work.

1.12 EXISTING CONDITIONS

- .1 Report in writing, to the Departmental Representative areas of deteriorated masonry as revealed during work. Obtain Departmental Representative's approval and instructions for repair and replacement of masonry elements before proceeding with repair work.

**1.13 IMPLEMENTATION
CONDITIONS**

- .1 When outdoor temperature is 10°C or less:
 - .1 Store cements and sands for immediate use within heated enclosures. Allow these materials to reach minimum temperature of 10°C (same as air temperature in enclosure).
 - .2 Heat water to minimum of 20°C and maximum of 30°C:
 - .1 At the time of use, mortar temperature must be at minimum 15°C and maximum of 30°C.
 - .2 Do not mix cement with water or with aggregate or with water-aggregate mixtures that are warmer than 30°C.
- .2 Obtain approval from Departmental Representative for enclosures and protection methods.

Part 2 Products

2.1 MATERIALS

- .1 Mortar materials: Compliant as specified in Section 04 03 08 – Historic – Mortaring.

2.2 PROPORTIONS

- .1 Proportions: Compliant as specified in Section 04 03 08 – Historic - Mortaring.

Part 3 Execution

3.1 GENERAL

- .1 Perform work in accordance with the CAN3-A371 standard.
- .2 Use manual raking tool to remove deteriorated mortar and ensure that no masonry parts are chipped/altered/damaged by work to remove mortar.
- .3 Power tools may be used to remove mortar. Exercise required care and do not work at less than 10 mm from the edges of stone.
- .4 Tool and compact joints using a jointing tool to force mortar into joint.
- .5 Finish joints to match existing ones, except where specified otherwise.

3.2 GUTTING / REPOINTING

- .1 Gutting joints
 - .1 Gut joints if mortar has deteriorated or is loose to the point where it needs to be replaced. Rake unsound joints free of deteriorated and loose mortar, dirt and other undesirable material.
 - .2 Gut joints to full depth of deteriorated mortar but in no case to less than 50 mm deep. Clean out voids and cavities encountered.
 - .3 Clean surfaces of joints without damaging texture of exposed joints.
 - .4 Clean open joints and voids; empty open joints and voids with low pressure water.
 - .5 Leave no standing water.
- .2 Repointing:
 - .1 Dampen joints and completely fill with mortar. If the surface of the masonry stone has worn rounded edges keep repointing back from surface to keep the same width of joint. Avoid feather edges. Pack mortar solidly into voids and joints.
 - .2 Keep masonry damp while pointing is being performed.
 - .3 No repointing in freezing weather.
 - .4 Build-up repointing in layers not exceeding 12 mm in depth. Allow bottom layers to set before applying subsequent layers. Maintain a uniform joint width over entire depth.
 - .5 Tool joints behind masonry surfaces with of the masonry item using identical tools as for the ones used on the existing ones. Make sure that the new joints match the existing ones.
 - .6 Remove excess mortar from masonry surfaces before it sets. Finish jointing neatly as specified.
 - .7 Moisten mortar during seven (7) days in order to ensure proper curing.

3.3 STRIPPING

- .1 Remove loose masonry portions using a bush hammer as directed by the Departmental Representative.

**3.4 RESETTING
LOOSE MASONRY
ELEMENTS**

- .1 Set stone chips in the correct locations in order to secure the rebuilt masonry parts.
- .2 Insert and compress firm mortar to within 50 mm of joint surface. Allow mortar to set for 24 hours.
- .3 Repoint all the way to the surface using two mortar layers.

3.5 GROUTING APPLICATION

- .1 Clean out the voids with water until water runs completely clear.
- .2 Fill joints and cracks with mortar set back 50 mm from final mortar surface.
- .3 Where grout inlet drillings are required, pour cement grout through tube until void is full.
- .4 Repoint similar joints in the rest of the work in the same fashion.

3.6 MASONRY REPAIR

- .1 Remove fractured or cracked pieces of masonry making sure not to lose pieces or worsen damage or damage the adjacent parts.
- .2 Drill 10 mm diameter holes, 100 mm deep in each exposed side by a crack or fracture of the part of the masonry element to be repaired.
- .3 Insert 10 mm diameter stainless steel threaded dowels, 180 mm long. Fasten anchors and coat surfaces with an epoxy resin. Press firmly on the parts being assembled until the joint separating them is perfectly sealed. Maintain pressure and let it set for 8 hours minimum.
- .4 Reinststate the repaired units into the work and repoint with specified mortar the same way as the rest of the work.

3.7 CLEANING

- .1 Clean the mortar droppings, stains and other blemishes resulting from the work in this contract as work progresses.
- .2 Do further cleaning after mortar has set and cured.
- .3 Clean masonry with stiff natural bristle brushes and plain water only. Vinegar or chemicals are not to be used unless instructed in writing by Departmental Representative.

END OF SECTION

Part 1 General

1.1 PRIORITY

- .1 In the case of work carried out by the Federal Government, Division 1 sections take precedence over the technical sections of the other divisions of the project quotation.

1.2 RELATED REQUIREMENTS

- .1 Section 04 03 07.01 – Masonry Repair and Repointing
- .2 Section 04 03 31 – Replacing Brick
- .3 Section 04 45 30 – White Wash
- .4 Section 07 19 00 – Water Repellent
- .5 Section 09 91 13 – Exterior Repainting

1.3 REFERENCE DOCUMENTATION

- .1 ASTM C5-79(1988), Specification for Quicklime for Structural Purposes.
- .2 ASTM C207-79(1988), Specification for Hydrated Lime for Masonry
- .3 CAN/CSA-A5-M88 Portland Cement
- .4 CAN/CSA-A8-M88 Masonry Cement
- .5 CSA-A82.56-1950 (R1971) Aggregate for Masonry Mortar
- .6 CSA A179-M1976 Mortar and Grout for Unit Masonry

1.4 ALLOWABLE TOLERANCES

- .1 Mortar compression strength according to standard ASTM C-109:
 - .1 Mortar for exterior repointing: 1.5 MPa minimum after 7 days and 2.5 MPa maximum after 28 days of curing.
 - .2 Mortar for interior repointing and stone masonry reconstruction: 7.5 to 9 MPa minimum after 7 days and 12.5 to 14 MPa maximum after 28 days of curing.
- .2 If the mortar fails to meet the requirements of the 7-day compressive strength testing, but meets the 28-day compressive strength testing requirements, it will be accepted. If the mortar fails to meet the 7-day compressive strength requirement, but its strength exceeds two thirds of the value required, the contractor may elect to continue work at his own risk whilst awaiting the results of the 28-day tests, or to start over the part of the work that is defective.

1.5 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal procedures.
- .2 Submit samples in quantity and size in accordance with CSA-A179M.

1.6 TEST REPORTS

- .1 Submit 5 copies of the test reports showing that the properties of the materials used are appropriate for each separate mortar mix.

1.7 EXISTING CONDITIONS

- .1 Detect structural weaknesses that could cause problems and report them before beginning masonry work.
- .2 Study pointing types and the methods to reproduce them, and submit sample for approval before starting work.
- .3 Examine horizontal and vertical joints to determine which were struck first and whether they are same style, as well as other aspects of workmanship which establish authenticity of original work.

1.8 WORKING CONDITIONS

- .1 Cold weather working conditions
 - .1 When daytime temperature is:
 - .1 Above 4°C: Execute work according to standard methods et cover walls with plastic or tarpaulin to protect from water penetration and wind action.
 - .2 Between 0°C and 4°C: Heat up mixing water to get a mortar temperature between 5°C and 50°C until its use. Cover walls and materials with tarpaulin or plastic to protect them from water and from freezing.
 - .2 Put masonry units on a dry surface et use dry materials only. Unless indicated otherwise or unless prescribed by the manufacturer, never wet masonry units.
- .2 Placement in hot weather
 - .1 Cover with a waterproof tarpaulin that does not stain freshly made masonry to prevent it dries too quickly.

1.9 SCHEDULING OF WORK

- .1 Submit work schedule indicating anticipated progress stages within time of final completion shown in bid document.

- .2 Take necessary measures to complete work within approved schedule times. Schedule may not be changed without approval.

1.10 ALTERNATE PRODUCTS

- .1 Obtain Departmental representative's approval before changing manufacturer's brands or sources of supply of mortar materials during entire contract or other methods of mixing mortar specified elsewhere in this specification.

1.11 MEASUREMENT FOR PAYMENT

- .1 Payment for this work will be based on the quantity of work executed measured on site according to unit prices submitted. It will include costs associated with supplying, mixing, testing and executing masonry work as specified.

Part 2 Products

2.1 MATERIALS

- .1 Sand: fine aggregate, particle size compliant with table 1 of standard A179-94; aggregate must pass through a 1.18 mm sieve.
- .2 Water: potable or from approved non potable supply.
- .3 Lime: Type-S hydrated lime compliant with standard ASTM C207-91 (1992).
- .4 Portland cement: Type 10, compliant with standard CAN/CSA-A5.
- .5 Colour: coloured sand to match the existing mix.
- .6 Air entraining admixture: Compliant with standard CAN3-A266.1-M78.

2.2 PROPORTIONING

- .1 Mortar for exterior repointing
 - .1 General purpose lime mortar: proportion components as follows, by volume: 9 parts of sand for 2 parts of hydrated lime and 1 part of cement, with air entrained admixture and required amount of water to get a mortar as firm and workable as possible and 18% of entrained air after mixing.
- .2 Mortar for interior repointing and brickwork reassembly
 - .1 General purpose lime mortar: proportion components as follows, by volume: 6 parts of sand for 1 part of hydrated lime and 1 part of cement, with air entrained admixture and required amount of water to get a mortar as firm and workable as possible and 18% of entrained air after mixing.

- .3 Time limit: discard unused mix within 2 hours after mixing.

Part 3 Execution

3.1 MIXING THE MORTAR

- .1 Add mixture as per manufacturers' instructions.
- .2 Mix mortar ingredients in quantities for use in less than 2 hours.
- .3 Use manual mixing as long as quantities of materials and water are accurately controlled and the mixing method is approved by the departmental representative.
- .4 Operate power driven mixer at full speed, for a minimum of 5 minutes and a maximum of 10 minutes.
- .5 Add water slowly while mixing until all lumps are eliminated.
- .6 Mix to a consistency of soft mush.
- .7 Mortars that have begun to set within the period prescribed in Section 2.3.2 due to the evaporation of humidity may be mixed with water to yield the required consistence.

3.2 QUALITY CONTROL ON SITE

- .1 Follow proper batching procedure.
- .2 Use batching box.
- .3 Monitor mixing time.
- .4 Take the samples for testing.

3.3 CLEANING

- .1 Remove droppings and splashes using a clean sponge and water.
- .2 Clean masonry with low-pressure clean water and a soft natural bristle brush.

3.4 PROTECTING THE FINISHED WORK

- .1 Cover completed and partially completed work not enclosed or sheltered with a waterproof tarpaulin at end of each work day. Secure in position.

END OF SECTION

Part 1 General

1.1 PRIORITY

- .1 In the case of work carried out by the Federal Government, Division 1 sections take precedence over the technical sections of the other divisions of the project quotation.

1.2 RELATED REQUIREMENTS

- .1 Section 02 41 00 – Selective Site Demolition
- .2 Section 04 03 07.01 – Masonry Repair and Repointing
- .3 Section 04 03 08 – Historic - Mortaring
- .4 Section 07 19 00 – Water Repellent
- .5 Section 07 62 00 – Sheet Metal Flashing and Trim

1.3 PRICES AND PAYMENT CONDITIONS

- .1 For payment purposes, any work in this section will be measured in square meters. This will include costs associated with the materials provided, the repointing and the execution of the work in compliance with the requirements in this section and the contract stipulations.
- .2 Repair work will be calculated according to pre-established unit prices.

1.4 REFERENCES

- .1 Definitions
 - .1 Repair: using adhesives to re-bond different sections of cracked fractured masonry.
 - .2 Consolidation: strengthening masonry units to prevent deterioration (e.g. spalling).
 - .3 Cleaning, using a mechanical tool: removal of loose parts of masonry elements and joints (stone shivers, laminae, flakes) using a bush hammer or another mechanical tool.
- .2 References
 - .1 Canadian Standards Association (CSA)/CSA International
 - .2 CAN/CSA-A82-06, Fired Masonry Brick Made From Clay or Shale.
 - .3 CSA A82.3-M1978 (R1999), Calcium Silicate (Sand-Lime) Building Brick
 - .4 CAN/CSA-A179-04, Mortar and Grout for Unit Masonry.
 - .5 CSA-S304.1-04, Design for Masonry Structures.
 - .6 CAN/CSA A-370-04 (R2009), Connectors for Masonry.
 - .7 CAN/CSA A-371-04 (R2009), Masonry Construction for Buildings.

**1.5 ADMINISTRATIVE
REQUIREMENTS**

- .1 Pre-installation meeting: conduct pre-installation meeting to verify project requirements and procedures, manufacturer's installation instructions and manufacturer's warranty requirements.

**1.6 DOCUMENTS/
SAMPLES TO BE
SUBMITTED FOR
APPROVAL/
INFORMATION**

- .1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product data sheets: provide manufacturer's printed product literature and data sheets for brick and materials to be used. Technical data sheets must contain product specifications, performance criteria, dimensions, finish and limitations.
- .3 Shop drawings: the shop drawings must describe the method of brick removal.
- .4 Samples: submit the following samples:
 - .1 Two (2) samples of each type of masonry unit specified.
 - .2 One (1) sample of each type of masonry accessory specified.
 - .3 One (1) sample of each type of masonry reinforcement and tie proposed for use.
 - .4 Samples required for testing purposes.
- .5 Certificates: provide certificates signed by the manufacturer certifying that materials comply with specified performance characteristics, criteria and physical requirements.
- .6 Test Reports: provide certified test reports showing compliance with specified performance characteristics and physical properties of the material.

**1.7 QUALITY
ASSURANCE**

- .1 Work samples:
 - .1 Create work samples in accordance with Section 01 45 00 – Quality Control.
 - .2 Build a sample panel of an existing masonry chimney showing the technique used to remove bricks for salvage.
 - .3 Build a sample panel of a reconstructed masonry chimney sample showing the masonry colours, textures, special patterns and bonding. It should show in-detail the armatures, connectors and crampons, flashing, mortar joints, and finishing of joints. The method used for cleaning the masonry and the quality of the work must also be evident.

- .4 Build work samples where indicated by the Departmental Representative.
- .5 Notify the Departmental Representative at least 48 hours prior to construction of the work sample.
- .6 Construct work samples under supervision of the Departmental Representative to demonstrate understanding of specified procedures, techniques and formulations is achieved before work commences.
- .7 Allow 48 hours for the Departmental Representative to inspect the sample. Once it's accepted, the sample will be the standard by which to compare that type of work.
- .8 Once the work sample is accepted, begin repairing and repointing work. [The sample [could] remain as part of finished work.- Remove sample when directed.

**1.8 TRANSPORTATION,
STORAGE AND
HANDLING**

- .1 Transport, store and handle materials in accordance with section 01 61 00 – Common Product Requirements.
- .2 Delivery and acceptance requirements:
 - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .2 Provide weather protection and construction protection in accordance with the CSA-S304.1 standard.
 - .3 Provide weather protection to opened or dismantled sections.
 - .4 Protect bricks and store them to facilitate resetting.
 - .1 Store all detached masonry units on platforms protected from all water, weather and potential physical damage.
 - .2 Submit the storage and identification system to the Departmental Representative for review.
 - .3 Store detached facing bricks, backing bricks and bricks showing evidence of soluble salts on separate pallets.
- .3 Place detached bricks on wood surfaces during handling. Prevent contact with metal.
- .4 When bricks are lowered to ground, place them directly on a wooden platform that will be used for transport or storage.
- .5 Transport and keep bricks on wooden platforms.

- .6 Ensure that sharp edges of bricks do not come into contact with hard objects.
- .7 Upon request of the [Departmental Representative], return all salvaged bricks to the principal contractor at completion of works.
- .8 Packaging waste management: recycle packaging waste in accordance with Section 01 74 21 –Construction/ Demolition Waste Management and Disposal.

1.9 ENVIRONMENT

- .1 Maintain materials and surrounding air to minimum 10°C prior to and for minimum 72 hours after completion of brick repairs.
- .2 Maintain temperature of mortar materials in accordance with Section 04 03 07.01 – Masonry Repair and Repointing.
- .3 Maintain masonry work temperature between 10°C and 25°C for the duration of the work.
- .4 Meet recommended practices for cold weather masonry construction in accordance with Section 04 03 07.01 – Historic – Repair and Repointing.

Part 2 Products

2.1 NEW FACING BRICKS

- .1 Burned clay bricks: compliant with CAN/CSA-A82.
 - .1 Type: type A.
 - .2 Category: EG exterior.
 - .3 Compressive strength: 1 A.
 - .4 Size: to match existing bricks.
 - .5 Colour and texture: match that of the original bricks below the roof decking.
 - .6 Cold water absorption coefficient: same as for the original bricks found below the roof decking.

2.2 EXISTING BRICK

- .1 Hard, sound, clean, old bricks salvaged on site can be used as replacements with the [Departmental Representative's] approval. Use only bricks that do not show evidence of soluble salts.
- .2 Dedicate at least 5% of the total material cost of the construction to purchase salvaged, refurbished or reused materials and supplies.

2.3 MORTAR

- .1 Mortar: in compliance with Section 04 03 08 – Historic Mortaring.
- .2 Specifications focused on batching: according to Section 04 03 08.01 – Historic - Mortaring.

Part 3 Execution

3.1 VERIFICATION OF EXISTING CONDITIONS

- .1 Examine work for evidence of prior repairs, cracks, moisture, soluble salts contamination and other defects and report to the Departmental Representative before starting work.
- .2 Stop work and report the problem immediately to the Departmental Representative.

3.2 PREPARATION

- .1 Place safety devices and signs near the work area as directed in accordance with the Section 01 52 00 – Construction Facilities.
- .2 Install and remove shoring or other supports in accordance with the Section 02 41 00 – Selective Site Demolition.
- .3 Install and remove self-supporting scaffolding in accordance with Section 01 52 00 – Construction Facilities.

3.3 BRICK REMOVAL

- .1 Verify with the Departmental Representative the locations and dimensions of surfaces where the bricks are to be dismantled.
- .2 In the work areas, identify salvageable bricks with the Departmental Representative.
- .3 Dismantle identified areas of brickwork to be salvaged as follows:
 - .1 In the case of nonbearing structures [remove as many bricks as possible at once][proceed to brick removal in accordance with the approved shop drawings [_____]].
 - .2 During removal, protect sound masonry areas that are to remain in place. Use manual removal methods. Obtain the Departmental Representative's approval for use of power tools before commencing removal work.
 - .3 Remove adhesive mortar from surface of adjacent bricks that must remain in place.

3.4 BRICK SALVAGE

- .1 Carefully clean, protect and store bricks for re-use in accordance with item TRANSPORTATION, STORAGE AND HANDLING.

3.5 JOINT SCRAPPING

- .1 Use a manual raking tool to remove deteriorated and adhesive mortar from masonry surfaces.

- .2 Remove deteriorated mortar and adhesive mortar from the defective joint to a minimum depth of 25 mm and a maximum depth of twice (2x) the width of the joint to produce a right angle void with a level rear surface.
- .3 Clean out voids and cavities encountered.
- .4 Remove mortar without chipping, altering or damaging masonry units during joint stripping.
- .5 Clean out the joints with pressurized water, taking care not to alter the texture of the bricks or exposed joints. In accordance with Health and Safety, Section 01 35 29.06, do not use compressed air.
- .6 Flush open joints and voids; and clean them with low pressure water.
- .7 Leave no standing water.

3.6 BRICK REPLACEMENT

- .1 Integrate flashings into masonry in accordance with the CSA A371 standard.
- .2 Install masonry ties and connectors in accordance with the CSA A370 and CSA A371 standards, unless indicated otherwise. Prior to mortar application, have the Departmental Representative approve their positioning.
- .3 Co-ordinate bond pattern, coursing height and joint width with existing brickwork in area selected by the Departmental Representative.
- .4 Mix and blend brick units from each batch and with other batches to ensure uniform blend of colour and texture.
- .5 Except in cold weather, pre-wet bricks having an initial rate of absorption exceeding 30 g/minute-194 cm² to a uniform degree of saturation. Wait 3 to 24 hours before laying. Do not lay until surfaces are dry.
- .6 Clean dirt and brick fragments from each slot where a new brick is to be inserted. Before proceeding with work, inspect cleaned surface with the Departmental Representative.
- .7 Dampen slot surfaces before applying mortar.
- .8 Apply mortar and lay bricks.
 - .1 Lay bricks on full beds of mortar.
 - .2 Mortar the vertical joint surfaces of the masonry elements, and then fill the vertical joints of the facing and backing surfaces as well as those between these two walls.
 - .3 Lay bricks and tool joints in one operation. Tool with a round iron jointer to provide smooth joints that are well compressed and uniformly concave.

- .4 Strip bedding mortar back to a minimum depth of 25 mm and prepare surfaces for the repointing mortar.
 - .1 Provide minimum three (3) days for the damp cure of the bedding mortar prior to repointing.
- .9 Apply repointing mortar: fill stripped joints with repointing mortar.
- .10 Finish joints to match those of existing brickwork, in area identified by the Departmental Representative.
- .11 Keep new mortar damp for seven (7) days at a minimum temperature of 5 °C.
- .12 Clean finished brickwork as work progresses.
 - .1 Remove mortar splashing on exposed brickwork.
 - .2 Leave no mortar on face of bricks.
 - .3 Remove mortar smudging before it sets.
 - .4 Clean masonry with clean water and a soft bristle brush only.
- .13 Inspect finished brickwork with the Departmental Representative.

3.7 REPOINTING

- .1 Do repointing work in accordance with Section 04 03 08 – Historic - Mortaring.
- .2 Dampen joints along with the other masonry elements.
- .3 Keep masonry damp while repointing is being performed.
- .4 Completely fill joints with mortar.
 - .1 Masonry units with worn rounded edges: maintain joint width by repointing back from exterior face in order to keep the same joint width.
 - .2 Be careful to avoid feather edges.
 - .3 Pack mortar solidly to eliminate voids.
- .5 Repoint joints in layers no thicker than 19 mm.
 - .1 Allow each layer to set before applying subsequent layer.
 - .2 Be careful to maintain a uniform joint width over its entire depth.
- .6 Form the new joints so that they match the old ones.
- .7 Remove excess mortar from masonry face before it sets.

3.8 CLEANING

- .1 Clean masonry surfaces after repairs have been completed and mortar has set.
- .2 Clean brick surfaces of mortar residue and smudging resulting from work performed without damaging bricks or joints.
- .3 Waste Management: separate waste materials for reuse and for recycling in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

3.9 PROTECTION OF COMPLETED WORK

- .1 Cover completed and partially completed work not enclosed or sheltered at end of each work day.
 - .1 Tarps should extend to 0.5 m over the work area surface and be tightly installed to prevent completed work from drying out too rapidly.
- .2 Cover with waterproof tarps to prevent weather from eroding recently repointed material.
 - .1 Maintain tarps in place for minimum of two (2) weeks after repointing.
 - .2 Ensure that bottoms of tarps allow airflow.
- .3 Anchor tarps securely in position.
- .4 Damp cure: provide damp cure for joint repointing mortars.
 - .1 Install and maintain wetted burlap protection to the masonry repointing work during the entire curing process:
 - .1 The curing period must be at least seven (7) days.
 - .2 Wet burlaps by misting only - ensure no direct spray reaches surface of mortar joints.
 - .3 Shade areas of work from direct sunlight and maintain burlaps damp at all times.
- .5 Protect from drying winds. Pay particular attention to the corners.
- .6 Maintain ambient temperature to a minimum of 10°C after repointing masonry for:
 - .1 Minimum seven (7) days in summer.
 - .2 Minimum thirty (30) days in cold weather conditions. Heated enclosures can be used.
- .7 Protect adjacent work against damage which may be caused by on-going work.

END OF SECTION

Part 1 General

1.1 PRIORITY

- .1 In the case of work carried out for the Federal Government, Division 1 sections take precedence over the technical sections of the other divisions of the project Specifications.

1.2 RELATED REQUIREMENTS

- .1 Section 02 41 00 – Selective Site Demolition
.2 Section 04 03 07.01 – Masonry Repair and Repointing
.3 Section 04 03 08 – Historic - Mortaring
.4 Section 06 10 11 – Carpentry
.5 Section 07 19 00 – Water Repellent

1.3 SCOPE OF THE WORK

- .1 Apply whitewash to all existing exterior stone masonry pillar surfaces in so that the surfaces all match. Prepare and wash the existing surface prior to application of the whitewash.

1.4 SAMPLES

- .1 Prior to applying each whitewash coat, apply a sample of the coat on an area designated by the Departmental Representative.

1.5 MEASUREMENTS FOR INVOICING PURPOSES

- .1 Whitewash: the whitewash jobs will be paid on a flat rate lump sum basis. The price includes all materials, labor and equipment needed to clean and prepare surfaces, protect adjacent surfaces, apply the whitewash, the costs arising from protection and cure as well as final cleanup.

Part 2 Products

2.1 MATERIALS

- .1 Aggregate: natural fine colored sand for the reproduction of the color of the existing plaster aggregate that contains no salts that may be harmful to the strength and appearance of the mortar.
.2 Lime: in compliance with ASTM C5-03, C207-05 and C206-03 standards.
.3 Portland cement: Type 10, in compliance with standard CAN3-A362-M98.

- .4 Water: clean, free of acid, alcohol, oil and organic matter.
- .5 Cement binder
- .6 Whitewash: Mix whitewash using the following ratios:
 - .1 water as needed;
 - .2 48 oz. lime paste;
 - .3 36 oz. Portland cement;
 - .4 108 oz. fine sand (white).
- .7 For the finishing coat and whitewash, use a sand color that will allow the finishes to match the existing one. Create 1 meter by 1 meter samples and submit them to the Departmental Representative. Use colorants or pigments if needed. The quantity of these additives should not exceed 10% of the weight of the cement being used.

Part 3 Execution

3.1 PREPARATION OF THE SURFACES

- .1 Prepare and clean the surface to remove dirt, vegetation, grease, mud or any other substance that may prevent the new coats from adhering in a manner satisfactory to the Departmental representative.

3.2 MIXTURE

- .1 Use water-tight, dry, clean containers that are free from materials and are cleaned after each mix.
- .2 Don't mix more than the amount that can be applied during the following hour.
- .3 Protect the mixture from evaporation or freezing. Do not add water or dry material to the mixture already made.
- .4 Add only the minimum amount of water required to the mortar mixture to ensure correct use.

3.3 APPLYING THE WHITEWASH

- .1 Examine the masonry surfaces to be treated and make sure that the base is solid prior to the application. Remove all coatings, dirt and non-adhered material from the surface.
- .2 The surface to be whitewashed must be at a temperature of at least 10°C for twelve hours prior to application. Cover and heat as needed in order to maintain the required temperature. Wet dash should not be kept at a temperature below 10°C.
- .3 Saturate the masonry to be covered with water for two (2) hours preceding application. Spray at least every fifteen

(15) minutes to keep the surfaces wet without dripping.

- .4 Perform applications during cloudy weather or following a sunny period of time when the temperature is warm, steady and free of danger of frost or wind. Once the work is finished without shelter, ensure a high level of humidity.
- .5 Apply coating in thin layers.
- .6 Application must be done without interruption on each surface to be treated in order to reduce seaming as much as possible.
- .7 The finishing coat surface should be smooth and uniform just like the existing one.
- .8 Protect sealers from direct sun, wind and rain with tarps.
- .9 Begin intensive spraying when fast drying periods occurs. To this end use a mister to supply the necessary moisture for normal setting. Ensure that the surface remains moist for forty-eight (48) consecutive hours following the mortar application.
- .10 Apply the mixture as you would a whitewash or using a suitable brush.
- .11 Application should be performed on each side without interruption.

3.4 PROTECTING THE FINISHED WORK

- .1 At end of each work day, cover, using a firmly secured waterproof tarp any completed and partially completed work that is not enclosed or covered.

3.5 CLEANING

- .1 Following each phase of the work, carefully clean the area on the ground and on the adjacent wood surfaces.

END OF SECTION

Part 1 General

<u>1.1 PRIORITY</u>	.1	In the case of work carried out by the Federal Government, Division 1 sections take precedence over the technical sections of the other divisions of the project quotation.
<u>1.2 RELATED REQUIREMENTS</u>	.1	Section 02 41 00 – Selective Site Demolition
	.2	Section 06 03 15 – Historic - Splicing of Wood Components
	.3	Section 06 10 11 – Carpentry
	.4	Section 07 03 32.01 – Wood Shingles Roofing
	.5	Section 07 03 40 – Wooden Gutters covered with Coated Stainless Steel
	.6	Section 07 62 00 – Sheet Metal Flashing and Trim
	.7	Section 09 91 13 – Exterior Repainting
<u>1.3 REFERENCES</u>	.1	American Society for Testing and Materials International (ASTM)
	.1	ASTM A53/A53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
	.2	ASTM A269-08, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
	.3	ASTM A307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
	.2	Canadian Standards Association (CSA)/CSA International
	.1	CAN/CSA-G40.20/G40.21-04 (R2009), General requirements for rolled or welded structural quality steel / Structural quality steel.
	.2	CAN/CSA-S16-09, Rules for calculating allowable status limits of steel structures.
	.3	CSA W48-06, Filler metals and allied materials for metal arc welding (prepared with the Canadian Welding Bureau).
	.4	CSA W59-M03 (R2008), Welded Steel Construction (Metal Arc Welding) (metric units),
<u>1.4 DOCUMENTS/SAMPLES TO BE SUBMITTED</u>	.1	Provide submittals in accordance with Section 01 33 00 – Submittals Procedures.
	.2	Product data sheets
	.1	Submit required data sheets along with manufacturer's documentation and instructions.

- .2 Submit two (2) copies of applicable WHMIS data sheets (Workplace Hazardous Materials Information System) according to section 01 35 29.06 – Health and Safety Requirements. Indicate volatile organic compounds levels (VOC).
- .3 Shop drawings
 - .1 Shop drawings must indicate or show materials, core thickness, finishes, joints, anchoring mode and the number of anchoring devices, supports, reinforcement, details and accessories.
- .4 Samples
 - .1 Submit a sample of a new gutter bracket that should replace the brackets that are missing.

1.5 QUALITY ASSURANCE

- .1 Test reports: provide certified test reports showing product, material and equipment compliance with specified performance characteristics and physical properties of the material.
- .2 Certificates: provide certificates signed by the manufacturer certifying that products, materials and equipment comply with specified performance criteria, and physical characteristics.

1.6 TRANSPORTATION, STORAGE AND HANDLING

- .1 Transport, store and handle materials in accordance with Section 01 61 00 – General Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and handling
 - .1 Store materials and equipment in accordance with the manufacturer's recommendations in a clean, dry, and well-ventilated area.
 - .2 Replace defective or damaged materials or equipment with new materials or equipment.
- .4 Create a [plan for construction waste management] for work in this section in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.
- .5 Packaging waste management: recover packaging materials for reuse or recycling according the directions of the [construction waste management plan] in compliance with section 01 74 21 – Construction/Demolition Waste Management and Disposal.

Part 2	Products		
2.1	MATERIALS AND ACCESSORIES	.1	304 stainless steel rods compliant with ASTM A269.
		.2	304 slotted stainless steel countersunk screw.
2.2	METAL STRUCTURES - GENERAL	.1	The structures must be straight, square, well aligned and compliant with the prescribed dimensions; the joints should be tight and properly closed.
		.2	Unless otherwise indicated, countersunk and slotted flat head wood screws must be used for the fixation of the brackets to the soffit board.
		.3	To the extent possible, the structures shall be fitted and assembled in the workshop and delivered ready to assemble.
2.3	FINISH	.1	Painting according to Section 09 91 13 – Exterior Repainting.
2.5	EXISTING GUTTER BRACKETS	.1	Check each existing cast iron bracket in order to ensure they are in good condition and sturdy.
		.2	Notify the Departmental Representative if the number of damaged items exceeds the number specified in the plans.
		.3	Await the Departmental Representative’s directives for the steps to be taken.
2.4	NEW GUTTER BRACKETS	.1	The new gutter brackets must faithfully reproduce the existing forged iron brackets as shown in the plans. The Contractor must give a detailed inventory of these brackets.
		.2	The Contractor must supply five (5) extra brackets.
Part 3 Execution			
3.1	ASSEMBLY	.1	Structures must be assembled so that they are straight, square, well aligned and precisely adjusted, making sure the joints and crossings are thoroughly tightened.
		.2	Provide and install the appropriate fasteners as approved by the Departmental Representative.
		.3	Ensure that the fasteners are compatible and have the same finish as the material they are fastening or into which they are sunk.

.4 Provide and install building components prescribed in other sections in accordance with the nomenclature and shop drawings.

.5 Once assembly is complete, retouch using a scratch sealer.

3.2 GUTTER BRACKETS

.1 The brackets must be installed at the same locations as the original brackets. If it turns out to be impossible to remove the old supports without damaging the eaves, notify the Departmental Representative and await their instructions.

END OF SECTION

Part 1 General

1.1 PRIORITY

- .1 In the case of work carried out by the Federal Government, Division 1 sections take precedence over the technical sections of the other divisions of the project quotation.

1.2 RELATED REQUIREMENTS

- .1 Section 02 41 00 – Selective Site Demolition
- .2 Section 05 50 10 – Repair and Replacement of Cast Iron Gutter Brackets
- .3 Section 06 10 11 – Carpentry
- .4 Section 07 03 32.01 – Wood Shingles Roofing
- .5 Section 09 91 13 – Exterior Repainting

1.3 ALTERNATIVES

- .1 Obtain Departmental Representative's approval before changing manufacturer's brands, sources of supply, wood species, or wood grade.

1.4 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA 086-01, Engineering Design in Wood (Limit States Design) (rules for calculating allowable status limits of wood framing).
 - .2 CSA 0121-M1978 (C1998), Douglas Fir Plywood.
- .2 National Lumber Grading Authority (NLGA) Standard Grading Rules for Canadian Lumber.

1.5 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit shop drawings of metal timber connections showing details of layout, materials, and construction.

1.6 QUALITY ASSURANCE

- .1 Notify the Departmental Representative before ordering or purchasing materials.
- .2 The Departmental Representative must examine and approve materials prior to purchase by Contractor.
- .3 Retain invoices, purchase orders, and suppliers' certificates to prove that materials used in this contract meet the specification requirements.
- .4 Produce the above documents upon the request of the Departmental Representative.

- .5 Allow free access to materials for examination by the Departmental Representative before beginning work on site.
- 1.7 WORK SAMPLES**
- .1 Construct a full-size work sample of each repair made with specified materials. These samples could be integrated to the work after the Departmental representative's approval.
- .2 Allow 48 hours for inspection of by the Departmental Representative before proceeding with work.
- 1.8 DELIVERY, STORAGE AND HANDLING**
- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 – Common Product Requirements.
- .2 Store materials in a dry, well ventilated area supported above ground and protected from rain, sun and snow.
- .3 Deliver the required wood for repairs to site prior to beginning work for approval by the Departmental Representative.
- .4 Stack wood above ground or floor with spacer slats between layers to ensure adequate ventilation for air circulation.
- .5 Store wood supply at location specified by the Departmental Representative.
- 1.9 STORAGE AND PROTECTION**
- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 – Common Product Requirements.
- .2 Protect adjacent materials from damage during work.
- 1.10 IMPLEMENTATION**
- .1 At the end of every working day, cover works that are exposed to the weather with firmly anchored waterproof tarpaulins.
- 1.11 SCHEDULING**
- .1 Submit work schedule indicating anticipated progress within time of final completion shown in the bid documents.
- .2 Schedule must include delivery dates of materials.
- 1.12 WASTE MANAGEMENT AND DISPOSAL**
- .1 Separate wood waste for reuse on site in designated areas in the following categories for recycling: sheet materials, carpentry parts and any type of off-cuts.

- .2 Set aside damaged wood and dimensional lumber off-cuts for alternative uses (e.g. bracing, blocking, bracing, bridging, finger-joining, or ties). Store this separated reusable wood waste in such a way that it's convenient for the cutting station and work area.
- .3 Separate corrugated cardboard and place in designated areas for recycling.
- .4 Do not burn waste at the project site.
- .5 Fold up metal banding, flatten, and place in designated area for recycling.
- .6 Place materials defined as hazardous or toxic waste in designated containers.
- .7 Seal and store emptied containers safely away from children for disposal.
- .8 Use chemical hardeners that have zero or low VOC's.
- .9 Dispose of surplus chemical and finishing materials in accordance with federal, provincial and municipal regulations.

Part 2 Products

2.1 MATERIALS

- .1 Replacement wood for all external elements such as windows, fascia, etc.:
 - .1 Use Western Red Cedar harmonizing with existing woodworks and the historical character of work.
 - .2 Quality: category A Select, without heart and sapwood.
 - .3 Actual and typical dimensions are to be based on the existing work dimensions.
 - .4 Moisture content: 19% after air dryer use.
- .2 Stirrups and non-standard metal framing connections
 - .1 Stainless steel, grade 304.
- .3 Fasteners
 - .1 Bolts, anchor bolts: stainless steel, grade 304.
 - .2 Nails, screws: stainless steel, grade 304.
- .4 Adhesives
 - .1 Set dowels wood plugs or wood inserts in bed of polyurethane adhesive.
 - .2 Acceptable products:

- .1 Excel One by Excel
- .2 Gorilla Glue
- .3 Elmer's Probond
- .4 Departmental Representative approved equivalent.
- .5 Wood fillers
 - .1 Exterior latex filler that hardens to create a surface with the properties of wood, can be sanded or painted.
 - .2 Two components reparation paste.

Part 3 Execution

3.1 INSTALLERS

- .1 The work entrusted to the Contractor under the terms of this section must be performed by tradespersons having the experience in the area of historical building restoration.

3.2 INSPECTION

- .1 Report immediately to the Departmental Representative any evidence of deficiencies, abnormalities or the presence of fungal or insect attack not indicated in the drawings which may affect the scope of work and durability of the finished product.
- .2 Study tool marks and best methods of reproducing them.

3.3 PREPARATION

- .1 Protect work adjacent to the surface to be repaired in order to prevent damage during work.
- .2 Install adequate scaffolding, ladders and platforms for completion of work in accordance with drawings.

3.4 CONSTRUCTION

- .1 Cut back decayed wood as indicated to a point of 40 mm beyond the last evidence of decay.
- .2 Remove decayed wood with extreme care causing no disruption or damage to adjacent surfaces.
- .3 Remove decayed wood from building site daily.
- .4 Joints
 - .1 Lay out and cut joints as indicated by the approved work samples.
 - .2 Shape the repair pieces to the satisfaction of the Departmental Representative.

.3 Try out fit joints before fastening into place. Adjust as necessary to ensure close accurate fit with adjacent surfaces.

.5 Wood to wood gluing

.1 Apply adhesive evenly to both surfaces and clamp to 600 kPa.

.2 Avoid adhesive drippings. Remove drips and splashes immediately.

3.5 PROTECTION

.1 Cover completed work not enclosed or sheltered with waterproof covering. Anchor securely in position.

3.6 CLEANUP

.1 On completion of work, remove surplus material, tools, equipment, and debris from work area to satisfaction of the Departmental Representative.

END OF SECTION

- .7 Dispose of treated wood, end pieces, wood scraps and sawdust at sanitary landfill approved by the Departmental Representative.
- .8 Dispose of unused wood preservative products at an official hazardous material collection site approved by the Departmental Representative.
- .9 Do not dispose of unused preservative products into sewer system, streams, and lakes, onto ground or at other locations where their disposal could pose health or environmental hazard.

Part 2 Products

2.1 CONSTRUCTION LUMBER

- .1 Construction lumber: unless specified otherwise, softwood with a S4S finish (bleached on 4 sides), moisture content of 19% or less in compliance with following standards:
 - .1 CAN/CSA-O141
 - .2 NLGA Standard Grading Rules for Canadian Lumber
- .2 Furring, shims, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and wall plates:
 - .1 Boards: *Standard grade + or better
 - .2 Dim wood: * light framing (clear) * classification + Standard * grade or better
 - .3 Posts and timber: *Standard grade + or better

2.2 DECKING

- .1 Roof decking:
 - .1 Grooved boards of varying widths 140-205 mm: red pine or pine quality number 1.

2.3 SIDING

- .1 In accordance with section 06 03 15 – Splicing of Wood Components.

2.4 HEAVY TIMBER

- .1 Structural wood parts: B.C. Fir, quality number 1.

2.5 ACCESSORIES

- .1 Nails, spikes and staples: in compliance with CSA B111.
- .2 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .3 Patented fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended by the manufacturer.

2.6 FINISHES

- .1 Galvanized metal: Use galvanized fasteners in compliance with CAN/CSA-G164 for exterior work.
- .2 Stainless steel: use stainless steel 304 alloy for pressure treated wood and cedar works.

2.7 WOOD PRESERVATIVE

- .1 Wood preservation product applied to surface: quaternary copper or copper naphthenate-based colored water repellent product.

Part 3 Execution

3.1 PREPARATION

- .1 Prior to installing treated wood elements, apply a generous amount of wood preservative on every surface bared by cutting, trimming and drill holes that were made on site.

3.2 INSTALLATION

- .1 Comply with requirements of NBC, supplemented by the following paragraphs.
- .2 Align and plumb faces of furring and shims to a tolerance of 1:600.
- .3 Install furring, tilting fillet, fascia grounds, nailing strips, curbs and other wood supports needed and secure using galvanized stainless steel fasteners.

3.3 ASSEMBLY

- .1 Frame, anchor, fasten, brace the elements to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to keep bolt heads from protruding.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 02 41 00 – Selective Site Demolition
- .2 Section 06 10 11 – Carpentry
- .3 Section 07 62 00 – Sheet Metal Flashing and Trim

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM B370-03, Standard Specification for Copper Sheet and Strip for Building Construction
- .2 Canadian Standards Association (CSA International)
 - .1 CSA A123.3-05, Asphalt Saturated Organic Roofing Felt
 - .2 CSA B111-1974(R2003), Wire Nails, Spikes and Staples
 - .3 CSA 0118.1, Western Red Cedar Shakes and Shingles
- .3 National Building Code of Canada - 2005 (NBC)

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Samples:
 - .1 Provide duplicate full size shingles, of finish, profile and pattern specified.

1.4 QUALITY ASSURANCE

- .1 Mock-ups:
 - .1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.
 - .2 Construct 1200 x 1200 mm panel of shingle pattern including eave and ridge details.
 - .3 Construct portion of sidewall shingling showing repetitive pattern, weather exposure, fitting, dressing and nailing.
 - .4 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with wood shingle and shake Work.
 - .5 Mock-up may be part of finished work.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Provide a platform to prevent bundles or loose shingles/shakes coming in contact with ground.

- .3 Use boards to cover top of pile to keep out rain and prevent over-drying of bundles or loose shingles/shakes in top layer.
- .4 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 EXTENDED WARRANTY

- .1 For work done of this Section, the warranty period is five (5) years.

Part 2 Products

2.1 MATERIALS

- .1 Circular saw shingles:
 - .1 Species: western red cedar;
 - .2 Grade: no. 1 Blue Label treatment;
 - .3 Widths: variable, (250 mm maximum and 80 mm minimum);
 - .4 Lengths: 450 mm;
 - .5 Finish: Natural and treated using a quaternary copper (ACQ) preservative.
- .2 Plank for the rafters and ridge: clear western cedar plank 19 x 125 mm, pressure treated ACQ.

2.2 ACCESORIES

- .1 Self adhesive elastomeric membrane composed of polyethylene and rubber asphalt, 1.5 mm thick.
 - .1 Acceptable products:
 - .1 Ice & Water Shield of Grace
 - .2 Lastobond Shield of SOPREMA
 - .3 Blue Skin of Bakor
 - .4 Approved equivalent product
- .2 Water proofing membrane: water vapor permeable composed of polypropylene wire weaved and laminated at 0.6mm thickness.
- .3 Adhesive tape: adhesive table double sided in acrylic tissue.
- .4 Nails: Compliant with CSA 0118.1 standard; stainless steel; 2 mm thick; minimum 5-mm diameter head; sufficiently long to completely penetrate underlayment.

- .5 Ventilated underlayment
 - .1 Acceptable products:
 - .1 Hypernet of Solmax
 - .2 Cedar Breather of Benjamin Obdyke
 - .3 Mapelath of Mapei
 - .4 Approved equivalent product
 - .6 Flashing: in accordance with section 07 62 00 – Sheet Metal Flashing and Trim.
 - .7 Ridge vent: flexible copolymer 225 mm base profile and 25 mm thickness. Color: grey.

Part 3 Execution

3.1 STRIPPING OFF OF EXISTING FINISHES

- .1 Remove existing roof finishes, flashings and prepare the solid backing for the cedar shingles.
- .2 Withdraw existing shingle and flashing nails, setting those nails which break off. Leave surfaces free from dirt and loose material.
- .3 Report to Departmental Representative unforeseen deficiencies and deterioration. Repair sheathing boards and solid backing in accordance with section 06 10 11 – Carpentry, and indications on the drawings.

3.2 ROOF DECK AND SIDEWALL PREPARATION

- .1 Replace cut out portions of sheathing boards and solid backing with boards of equal sectional dimensions, of specified grade.
 - .1 Seat each end of board, with 25 mm minimum bearing.
- .2 Inform Departmental Representative when work is completed and ready for inspection.

3.3 INSTALLATION OF FLASHINGS

- .1 Valley flashings:
 - .1 Intersecting roof planes of equal pitch: valley sheets to extend from centreline of valley, up each side a distance of at least 250 mm.
 - .2 Valley flashings for open valley, to be made shingle fashion, lapped not less than 200/250 mm.
- .2 Hip and ridge:
 - .1 Install hip and ridge flashing beneath last course of shingles. Flashing to extend on each side of ridge to depth of last course.
 - .2 Extend hip and ridge flashing over centreline of hip or ridge on each side for distance of not less than 75 mm.
 - .3 Install hip and ridge flashing over top course of shingles and upstanding batten.

- .3 Base:
 - .1 Flashings: Minimum height 150 mm;
 - .2 where base flashing is stepped, ensure steps are equal, horizontal width between 230 and 300 mm and vertical height between 2 and 4 courses;
 - .3 on sloped intersections, ensure sheets are lapped minimum 100 mm;
 - .4 when run horizontally, ensure sheets are flat locked and soldered;
 - .5 ensure lock seam joints at vertical corners of chimney.
- .4 Cap flashings or counter flashings:
 - .1 Turn cap flashings down over base flashings to not less than 100 mm.
 - .2 Extend building paper up under exterior coverings such as wood siding and shingles at least 100 mm above butt of second shingle course.
 - .3 Reglet: (chimney or wall) cap flashing inserted 19 mm by removing mortar, then filling over flashing with bituminous mastic is turned down over base flashing. Outside edge is turned back on itself at least 13 mm.

3.4 SHINGLE AND SHAKE ROOFING

- .1 Install the membranes with respect to the more impacted areas:
 - .1 Self adhesive sealing membrane:
 - .1 On the entire height of the dormer, apply directly on the existing tarred fibre board.
 - .2 On the entire length of the rafters and ridge, apply directly under the face of the preassembled rafter prior to its placement.
 - .3 On each side of the length of the ridge vent apply a spacer over the last row of shingles: the adhesive side on top in order to apply the metal flashing; leave the kraft paper band in place in order to not expose any adhesive part during the final assembly.
 - .4 Around the vents on a neoprene collar.
 - .2 Water proofing membrane:
 - .1 On the eaves, install a 1500mm band.
 - .2 On the bottom of the dormer's walls.
 - .3 In the dormer's valleys.
 - .4 Around the vents.
 - .3 Install a self adhesive sealing membrane with required primer, in accordance with the manufacturer's instructions and the indications on the drawings.
 - .4 Install a water proofing membrane directly on the existing roof boards and stretch the fabric from one anchor point to the other in order to avoid the formation of a basin between the roof boards.
 - .5 Minimal overlapping of the membranes:
 - .1 Horizontal joints: 150 mm
 - .2 Vertical joints: 200 mm
 - .6 Seal the vertical joints with the water proofing membrane using adhesive tape.

- .2 Install the shingles using a method to obtain an exposure in accordance with the indicated dimensions on the plans and to cover all the surface of the 3 layers of shingles.
- .3 For each row of shingles, interleave a waterproofing membrane band of 330 mm at an equivalent distance of double the exposure plus 25 mm (275 mm for an exposure of 125 mm) with respect to the base of the shingle.
- .4 For the eaves, install 2 layers of shingles by extending them 40 mm over the first siding board and the inferior roof board. Also extend the shingles at least 19 mm of the extremity of the gable.
- .5 Install the shingles so that the grain of the wood is perpendicular to the eaves.
- .6 Saw the shingles parallel to the axis of the valley. Do not stagger the joints in the valley. Install tinned stainless steel flashings between each row of shingles, in accordance with the plans.
- .7 Install a 125 mm long, 20 mm thick, continuous plank on the rafters and ridges.
- .8 At the intersection points of the vertical surfaces, install the step flashing the lowest possible (base flashing) by interleaving it between the shingles.
- .9 Protections of the rafters and ridges: install self adhesive elastomeric membrane band of 200 mm width on the ridge board crowning.
- .10 Gable border finishing
 - .1 Use as lag element, on the entire length of each gable, a beveled cedar fillet of 150 mm, the thick edge flush-mounted with the intermediate covering of the roof.
 - .2 Cut the thick part of the shingle that lays on the beveled fillets lightly angled at 45 degrees with respect to the lateral joint.
 - .3 Cut the superior angle of the edge shingles.
 - .4 Extend 19 mm to 25 mm the shingles on the length of the edge, on top of the edge rafters or the moldings of the gable planks.
- .11 Open valley finishing
 - .1 Sheathing to be blocked out at base of valley where and as indicated.
 - .2 Tilting fillets to run along both sides of all valleys.
 - .3 Do not lay shingles with grain parallel to centreline of valleys.
 - .4 Cut to line of tilting fillet the shingles extending into valleys.
 - .5 Joints shall not be broken into valleys.
 - .6 Line up at least 25 mm farther back from centreline of valley on lower slope side, shingles extending into valleys formed by roofs of unequal pitch.
 - .7 Open portion of valley should be at least 100 mm tapered from width of at least 50 mm where it starts to wider width as it descends at rate of 5 mm/m of length.

3.5 SHINGLE NAILING

- .1 Install the shingles on the existing roof boards.
- .2 Space the shingles 3 to 10 mm, depending on their width and their degree of humidity.
- .3 Lag the joints of successive rows of at least 40 mm. Ensure that all the joints are lagged on each band of 3 successive rows.
- .4 Use two nails for each shingle and penetrate 20 mm on the sides and an equivalent distance of the exposure plus 40 mm with respect to the base (165 mm for an exposure of 125 mm).
- .5 Penetrate the nails so that the head touches the surface of the shingle, without crushing.
- .6 The use of pneumatic nailing equipment is prohibited for the installation of the shingles.

END OF SECTION

- .2 Samples must include all accessories and fasteners as well as welds.
 - .3 Allow 48 hours for inspection of the sample by the Departmental Representative before proceeding with work.
 - .4 The work sample will serve as a standard for the development of the quality of the work carried out under this project.
 - .5 Any work that does not satisfy the quality requirements as demonstrated by the work sample will be rejected.
- 3.2 DELIVERY, STORAGE AND HANDLING**
- .1 Deliver, store and handle the materials according to the stipulation of section 01 61 00 – Common product Requirements.
- 3.2 WASTE MANAGEMENT AND DISPOSAL**
- .1 Separate and recycle waste materials in accordance with Section 01 35 43 – Environmental Procedures.
 - .2 Place materials defined as hazardous or toxic waste in designated containers.
 - .3 Seal and correctly store emptied containers away from children.
- 3.2 WARRANTY**
- .1 Regarding the work described in the present section, the warranty period is 5 years.
- 3.2 WORKFORCE**
- .1 The Contractor assigned to the work in this section must have at least fifteen years' experience in this discipline.
 - .2 Personnel competency verifications can be carried out.
- Part 2 Products**
- 2.1 MATERIALS**
- .1 Terne coated stainless steel: commercial quality, 28 gage, prepared as indicated at 2.3
- 2.2 ACCESSORIES**
- .1 Stiffeners, brackets, spacers and 0,005-mm tin covering over all visible surfaces of 304 stainless steel rods compliant with the ASTM A167 standard.
 - .2 Waterproofing products: Hybrid polyurethane sealants compliant with TT-S-00230C type II, class A and ASTM D412-75 standards.

- .3 Welding: compliant with the ASTM B32 standard , alloy containing 50% tin and 50% lead.
- .4 Flux: rosin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered.
- 2.3 TOOLING –
QUALITY OF WORK
EXECUTION**
- .1 Shape the elements according to the shapes and dimensions shown, in a manner that they are free from defects that might lessen their resistance or alter their appearance.
- .2 Place the elements according to the prescribed lines and drawings.
- 2.4 TOOLING -
GENERAL**
- .1 Tool the metal in parts according to the indications on the plan.
- .2 Fold the visible edges over a distance of 15 mm toward the inside, trim the tabbed corners and seal the joints.
- 2.5 TOOLING THE
GUTTERS**
- .1 Weld the gutter sections on their non-visible sides only. If welds must be left exposed, make sure they are approved in advance by the Departmental Representative.
- .2 Shape the metal flashings and any other sheet metal elements sheet according to the prescriptions of the Canadian Roofing Contractors Associations (CRCA), FL. series.
- .3 Shape the parts according to the lengths shown in the plan. Make the “S” joints accounting for the necessary clearance for the joint area dilation.
- 2.6 TOOLING THE
GUTTERS**
- .1 Tool the downspouts according to the prescribed profiles using tinned stainless steel sheets.
- .2 Joints, flanges, rods and hooks must be installed according to the details shown on the plans. If adjustments must be made because of existing conditions, seek the Department Representative’s approval for an alternative method prior to undertaking the work.
- .3 Insert the downspouts in the fittings pipes located at ground level. This connection work must be coordinated with the Contractor in charge of the installation of the underground drainage system fittings as needed.

Part 3 Execution

**3.2 INSTALLATION –
WORK QUALITY**

- .1 Perform sheet metal work according to NBC and the directions set forth in the SMACNA Architectural Sheet Metal Manual except if otherwise indicated or prescribed.
- .2 Tool the elements according to the shapes and dimensions shown making sure that they are free from defects that might lessen their resistance or alter their appearance.
- .3 Place the elements according to the prescribed lines and drawings.

**3.2 INSTALLATION -
GENERAL**

- .1 Proceed with the installation so that the flat surfaces and joints are without ripple, buckling, warping, distortion or tension at the attachment points, and manage clearance to accommodate metal contraction and expansion.
- .2 Use hidden fasteners, except at locations approved by the Departmental Representative prior to installation.
- .3 Stagger the side joints of adjacent panels.
- .4 Tool the joints in the direction of the flow of water and make them water-tight.
- .5 Install spacers under the gutters to create slopes so as to direct water into the downspouts.

END OF SECTION

- .3 Storage and handling
 - .1 Store materials in accordance with manufacturer's recommendations in a clean, dry, and well-ventilated area.
 - .2 Store and protect water repellent coatings from nicks, scratches, and abrasions.
 - .3 Replace defective or damaged materials or equipment with new materials or equipment.

1.6 APPLICATION CONDITIONS

- .1 Environment
 - .1 Maintain substrate temperature and moisture level of the area where the water repellent will be applied in accordance with the manufacturer's printed instructions.
 - .2 Protect plants and vegetation that might be damaged by water repellents.
 - .3 Protect surfaces not intended to be covered in water repellents.

1.7 GUARANTEE

- .1 Contractor will deliver a manufacturer written guarantee, certifying that the water repellent protector will be exempt from any defects of materials and labour for a period of ten (10) years from the date of the certificate of final approval of works.

Part 2 Products

2.1 MATERIALS

- .1 Water based oil and water repellent protector for porous surfaces with high performance impregnation:
 - .1 Serves protection against graffiti and soiling by aqueous, oily or grease-based substances.
 - .2 Can be used on vertical, inclined, horizontal, smooth or porous types of stone masonry surfaces.
 - .3 Does not modify treated surfaces capability to evaporate humidity.
 - .4 Is not reversible and serves as a permanent anti-graffiti system after five (5) or six (6) graffiti cleanings of the same protected surface.
 - .5 Can be reapplied for graffiti or stain protection.
 - .6 Transparent.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of conditions: verify that conditions of substrate previously installed under other sections or contracts are acceptable in accordance with manufacturer's

written instructions prior to application.

- .1 Visually inspect surfaces in presence of the Departmental Representative.
- .2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval from Departmental Representative to proceed.

3.2 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's recommendations, requirements and written data, including product technical bulletins, product catalogues, installation instructions, product carton installation instructions, and data sheets.

3.3 PREPARATION

- .1 Prepare and clean substrate surfaces in accordance with water repellent manufacturer's printed instructions.

3.4 APPLICATION

- .1 Apply at least two (2) coats of water repellent using a low-pressure spraying apparatus, in accordance with manufacturer's printed instructions.

3.5 FIELD QUALITY CONTROL

- .1 After the water repellent coat has completely dried, spray coated surfaces with water in order to check its spreading rate.
- .2 Allow Departmental Representative to witness these tests.

3.6 CLEANUP

- .1 Cleaning during work progress: proceed to cleaning in accordance with Section 01 74 11 – Cleanup.
 - .1 Leave work area clean at end of each workday.
- .2 Final Cleanup: upon completion, remove surplus materials, rubbish, tools and equipment in accordance with section 01 74 11 – Cleaning.
- .3 Waste Management: separate waste materials in view of recycling in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at the appropriate facility.

3.7 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by water repellent application.

END OF SECTION

Part 1 General

1.1 PRIORITY

- .1 In the case of work carried out by the Federal Government, Division 1 sections take precedence over the technical sections of the other divisions of the project quotation.

**1.2 RELATED
REQUIREMENTS**

- .1 Section 02 41 00 – Selective Site Demolition
- .2 Section 04 03 31 – Replacing Brick
- .3 Section 05 50 10 – Repair and Replacement of Cast Iron Gutter Brackets
- .4 Section 07 03 32.01 – Wood Shingles Roofing
- .5 Section 07 03 40 – Wooden Gutters covered with Coated Stainless Steel

1.3 SAMPLES

- .1 Submit shop drawings as requested in accordance with section 01 33 00 – Submittal Procedures.
- .2 Submit two samples of 50 mm x 50 mm of every colour, of every finish and of every type of sheeting proposed.

Part 2 Products

2.1 SHEET METAL

- .1 Tinned stainless steel sheet: commercial grade, gauge 28, prepared as indicated at paragraph 2.3.

2.2 ACCESSORIES

- .1 Three components epoxy polyurethane flexible sealants.
- .2 Cleats: of same material and temper as sheet metal being used, minimum width of 50 mm and same thickness as the sheet metal to secure.
- .3 Stainless steel fasteners, in compliance with CSA B111 standards, ring thread flat head roofing nails, length and thickness suitable for metal flashing application.
- .4 Soft solder: in compliance with ASTM B32 standards, tin alloy composition.
- .5 Flux: rosin, cut hydrochloric acid, or other commercial preparation suitable for materials to be soldered.

2.3 FORMING

- .1 The metal flashings and other sheet metal items must be formed in accordance with the indications of the plan.
- .2 Form pieces in 2400 mm maximum lengths. It is essential to make allowances for joint expansion.

- .3 Hem exposed edges on underside by 12 mm on their interior face. Miter and seal corners with a waterproof 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 metal surfaces to be embedded in concrete or mortar.

2.4 METAL FLASHINGS

- .1 The flashings, copings, and fascia must be formed according to the prescribed designs.

2.5 PITCH POCKETS

- .1 The pitch pockets must be formed with galvanized steel sheets. The pitch pockets must project by at least 75 mm on the covered roof and be provided with a continuous collar of 100 mm free of open angles. The joints must be produced by soldering. The diameter of the pitch pockets must be greater by at least 50 mm than that of the elements which cross the cover membrane.

Part 3 Execution

3.1 INSTALLATION

- .1 Install sheel metal works as indicated in plans.
- .2 Conceal fasteners except where visible fasteners have been approved by the Departmental Representative.
- .3 Install a sealing membrane before the installation of steel sheet metal elements. Secure in place and create 100-mm lap joints.
- .4 Put counterflashing on bituminous flashings at roof and curb intersections vertical structures or any other vertical surface. Make standing single lock seams forming tight fit over flashing strips, as detailed.
- .5 Lock end joints and seal with waterproof sealant.
- .6 Flush-mount reglets true and level. Caulk top of reglets using waterproof sealant.
- .7 Insert metal flashing to form a waterproof joint.
- .8 Turn top edge of flashing into recessed reglet for at least 25 mm.

END OF SECTION

- .2 Materials used (primers, sealers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) must be present in the latest edition of the MPI Approved Product List and shall be from a single manufacturer for each paint system used.
 - .3 Paint materials such as linseed oil, shellac, and turpentine shall be of the highest quality and compatible with other coating materials as required. They must come from an approved manufacturer cited in the MPI Maintenance Repainting Manual.
 - .4 Retain purchase orders, invoices and other documents to prove compliance with noted MPI requirements when requested by the Departmental Representative.
 - .5 Standard of Acceptance: When the examined surface is viewed by natural prevailing sunlight at peak period of mid-day, surfaces shall indicate the following:
 - .1 Walls: No defects visible from a distance less than 1000 mm at a 60° angle from the examined surface.
 - .2 Soffits: No defects visible from the ground level at a 45° angle from the examined surface.
 - .3 The color and sheen of the finishing coat must be uniform across full surface area.
- 1.6 ENVIRONMENTAL PERFORMANCE REQUIREMENTS**
- .1 The paint products provided must meet the requirements for the "Environmentally Friendly" rating based on VOC (volatile organic compounds) as determined by EPA Method 24 content levels.
- 1.7 INSPECTION REQUIREMENTS**
- .1 Exterior surfaces requiring repainting shall be inspected by both prior to repainting or after substrate preparation. If defects are uncovered, by the painting contractor, he will notify the Departmental Representative and the General Contractor in writing describing the various defects and problems.
 - .2 If preparation work for repainting a given already painted substrate reveals that the degree of the substrate's deterioration, initially classified as DSD-1 to DSD-3, should in reality be classified as DSD-4, repair or replacement for that particular substrate must be executed by others following mutual agreement and prior to the repainting job.
- 1.8 WORK SCHEDULE**
- .1 Submit to the Departmental Representative the work schedule for various stages of painting for approval. The schedule must be submitted at a minimum of 48 hours in advance of the planned operations.

- .2 Obtain written authorization from the Departmental Representative for changes in work schedule.
- .3 Schedule repainting operations to prevent disruption by other trades if applicable and by occupants in and about the building.

**1.9 DOCUMENTS AND
SAMPLES TO DOCUMENTS
TO BE SUBMITTED**

- .1 Submittals shall be in accordance to Section 01 33 00 – Submittals Procedures.
- .2 Submit full range colour sample chips for review and selection. Indicate product color availability where it might be limited.
- .3 Submit required product data sheets and manufacturer's instructions for paints and coating product use.
- .4 Submit the required paint and coating product specification sheets. They must meet the Workplace Hazardous Materials Information System requirements (WHMIS).
- .5 Submit complete records of all products used. List products which are part of the finish system and include the following information for each:
 - .1 Product name, type and use (i.e. materials and location where they will be used).
 - .2 Manufacturer's product number.
 - .3 Colour code numbers.
 - .4 MPI Environmentally Friendly classification system rating.
 - .5 Manufacturer's Material Safety Data Sheets (MMSDS).

1.10 QUALITY CONTROL

- .1 Provide required samples to the Departmental Representative.
- .2 Prepare substrates, items or exterior surface elements that are designated as samples for the application of the repainting work according to this section. Apply the paint, product or finish as required by the colours, with specified paint or coating showing selected colours, gloss/sheen, textures and workmanship to MPI Maintenance Repainting Manual standards for review and approval.
- .3 When approved, repainted surface and/or item shall become the acceptable standard of finish quality and workmanship for similar on-site exterior repainting work.

1.11 EXTRA MATERIALS

- .1 Provide maintenance or exchange materials in accordance with Section 01 78 00 - Closeout submittals.

**1.12 DELIVERY,
HANDLING AND STORAGE**

- .2 Submit one four liter can of each type and color of finish coating. Identify type and colour in relation to established color schedule and finish system.
- .3 Deliver and store the extra material where directed by contractor.

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product requirements.

- .2 Deliver and store materials in original containers, sealed, with labels intact.

- .3 Labels shall clearly indicate:

- .1 Manufacturer's name and address;
- .2 Type of paint or coating;
- .3 Compliance with applicable standard;
- .4 Colour number in accordance with established color list.

- .4 Remove damaged, opened and rejected materials from site.

- .5 Follow manufacturer's recommendations for storage and handling.

- .6 Store products and materials in a secure, dry, well-ventilated area with a temperature ranging from 7°C to 30°C. Store products and materials away from heat sources and keep sensitive products above the minimum temperature recommended by the manufacturer.

- .7 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of the Departmental Representative. Upon completion of operations, return areas to clean condition to approval of the Departmental Representative.

- .8 Remove materials from storage only in quantities required for same day use.

- .1 Comply with requirements of WHMIS regarding use, handling storage, and disposal of hazardous materials.

**1.13 SITE
REQUIREMENTS**

- .1 Temperature, Humidity and Substrate Moisture Content Levels:

- .1 Under the specific conditions listed below, the paint restoration working conditions shall not be performed without prior approval of the contracted authority as set out by the Specifications, paint inspection agency and by

- the manufacturer of the product to be used.
- .2 As a general rule, do not perform repainting if the following conditions exist:
 - .1 ambient air and substrate temperatures are below 10°C;
 - .2 substrate temperature is over 32°C unless paint is specifically formulated for application at high temperatures;
 - .3 substrate and ambient air temperatures are expected to fall outside paint manufacturer's prescribed limits;
 - .4 relative humidity is above 85% or dew point is less than 3°C variance between air/substrate temperature;
 - .5 rain or snow is forecast to occur before paint has thoroughly hardened;
 - .6 it is foggy, misty, raining or snowing at site.
 - .3 Conduct moisture tests using a properly calibrated electronic moisture meter to determine substrate moisture content.
 - .1 Do not perform repainting work when maximum moisture content of substrate exceeds 15° for wood.
 - .4 Application requirements
 - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind conditions are such that no airborne particles will affect quality of finished surface.
 - .2 Apply paint only to adequately prepared surfaces and to surfaces within moisture limits noted in this section.
 - .3 Apply paint only when the previous coat of paint is dry or adequately hardened, unless otherwise a different application is pre-approved by the specific coating manufacturer.
 - .4 Apply paint finishes only when the weather conditions that are forecast for the entire period of application fall within manufacturer's recommendations.
 - .5 Do not apply paint under the following conditions:

- .1 temperature is expected to drop below 10°C before paint has thoroughly hardened.
- .2 substrate and ambient air temperatures are expected to fall below the paint manufacturer's recommended limits.
- .3 surface to be painted is wet, damp or frosted.
- .6 Provide and maintain cover when paint must be applied in damp or cold weather and maintain it as needed. Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.
- .7 Schedule repainting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.
- .8 Remove paint from surfaces that have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surfaces again and repaint.

**1.14 WASTE
MANAGEMENT AND
DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 35 43 – Environmental Procedures.
- .2 Paints, stains, wood preservatives, and related materials (thinners, solvents, etc.) used during the operation are hazardous products and are subject to regulations for disposal. Information on these regulations can be obtained from Provincial Departments of Environment and Regional levels of Government.
- .3 Products that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
- .4 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
- .5 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:
 - .1 Before proceeding to cleaning paint surfaces containing lead, secure approval of paint waste recovery method by Departmental Representative.
 - .2 The proposed method should allow for the filtering of waste so that it may be disposed of in an appropriate collection site.
 - .3 An acceptable method consists in laying a 7605 geotextile membrane at the bottom of the walls to be

cleaned so as to allow wash water to drain through while also allowing paint particles to settle in the mesh.

1.15 DUST BARRIERS

- .1 Provide dust barriers around the areas targeted for cleaning work that could generate dust or flying waste.

Part 2 Products

2.1 MATERIALS

- .1 Paint materials listed in the latest edition of the MPI Approved Product List (APL) are acceptable for use on this project.
- .2 All paint materials for exterior repainting systems used for this repainting work shall be products of a single manufacturer.

2.2 COLOURS

- .3 The choice of paint colors is based on a chromatic analysis of building components and old photographs. This choice will be communicated to the Contractor by the Departmental Representative.

2.3 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with the Departmental Representative's written permission.
- .2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.
- .3 Where thinner is used, thinner addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or such organic solvents to thin water-based paints.
- .4 Thin paint for spraying in strict accordance with paint manufacturer's instructions. If the necessary directions are not on the container, obtain instructions in writing from manufacturer and provide copy of instructions to the Departmental Representative.
- .5 Carefully re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color and gloss uniformity to ensure uniformity of the applied paint.

2.4 GLOSS / SHEEN RATINGS .1 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following MPI gloss/sheen standard values:

Gloss Level Category	Units @ 60°	Units @ 85°
G1 - matte finish	0 to 5	maximum 10
G2 - velvet finish	0 to 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	minimum 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high gloss finish	> 85	

.2 Gloss level ratings of repainted surfaces shall be as specified herein and as noted on Finish Schedule.

2.5 EXTERIOR AND INTERIOR PAINTING SYSTEMS

.1 All painting systems must be approved by the Departmental Representative.

.1 System 1 - New and existing exterior wood trims:

.1 Exterior mildew-proof alkyd primer for use over large surfaces of new wood or wood requiring repainting. Application: one (1) coat.

.2 Exterior mildew-proof semi-gloss latex paint for use over large surfaces of new wood or wood requiring repainting. Application: two (2) coats.

.2 System 3 – Metal (gutter brackets):

.1 Sand all surfaces.

.2 Repaint all metal surfaces with a metal primer and an anti-rust enamel paint.

.3 System 4 – Shingle roof:

.1 Directly apply one (1) top coat of the semi-gloss, water-based stain identified in Section 07 03 32.01 – Cedar Shingle Roofing

.2 Before applying the primer and between all subsequent coats of paint, ensure that cleaned surfaces are not contaminated.

Part 3 Execution

3.1 GENERAL

.1 Prepare exterior surfaces for painting in accordance with MPI Maintenance Repainting requirements except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's

written instructions.

3.2 EXISTING CONDITIONS

- .1 Prior to commencing work, thoroughly examine site conditions and existing exterior substrates to be repainted and report in writing to the Departmental Representative damages, defects, unsatisfactory or unfavorable conditions of surfaces that will adversely affect this work.
- .2 Conduct moisture control testing of surfaces to be painted using a properly calibrated electronic moisture meter. Report findings to the Departmental Representative. Maximum moisture content shall not exceed the thresholds specified in this section which is 12%.
- .3 No repainting work shall commence until such adverse conditions and defects have been corrected and surfaces and conditions are acceptable to the Contractor and Inspection Agency. Commencement of work shall not be held to imply acceptance of surfaces except as qualified herein.
- .4 Degree of surface deterioration (DSD) shall be assessed using MPI Identifiers and Assessment criteria indicated in the MPI Maintenance Repainting Manual. MPI DSD ratings and descriptions are as follows:
 - .1 Degree of deterioration – Description
 - .1 DSD0- Sound Surface includes visual (aesthetic) defects that do not affect film's protective properties.
 - .2 DSD-1 Slightly Deteriorated Surface (indicating fading; gloss reduction, slight surface contamination, minor pin holes scratches, etc.).
 - .3 DSD-2 Moderately Deteriorated Surface (small areas of peeling, flaking, slight cracking, staining, small cracks, soil etc.).
 - .4 DSD-3 Severely Deteriorated Surface (bare sections, heavy peeling, flaking, cracking, checking, scratches, scuffs, abrasion, small holes and gouges).
 - .5 DSD-4 Substrate or Support Damage (repair or replacement of surface required by others).

3.3 PROTECTION

- .1 Protect existing building surfaces and adjacent structures that are not to be painted from paint spatters, markings and other damage using suitable non-staining covers or masking. If these surfaces are damaged, clean and restore them as directed by the Departmental Representative.

- .2 Protect items that are permanently attached such as fire resistance certification labels on doors and frames.
- .3 Protect factory finished material and equipment.
- .4 Protect general public and building occupants in and about the building.
- .5 Remove light fixtures, surface hardware on doors, and surface mounted equipment, visible hardware, fittings and fastenings as well as any other accessory, fixture or other mounted material prior to undertaking painting operations. Items shall be securely stored and re-installed after repainting is completed.
- .6 Move and cover exterior furniture and portable equipment as necessary to carry out painting operations. Put these items back as painting operations progress.
- .7 As painting operations progress, place * WET PAINT+ signs in pedestrian and vehicle traffic as approved by the Departmental Representative.

3.4 CLEANING AND PREPARATION

- .1 Clean and prepare exterior surfaces to be repainted in accordance with MPI Maintenance Repainting Manual requirements. Refer to the MPI Manual in for specific or special requirements and as follows:
 - .1 The surface must be clean, free from dirt and oil stains. Seal knots and sap streaks as approved by the Departmental Representative, after burning or scraping resin exudations. Sand rough spots. Fill holes and cracks with putty after the primer coat has dried on the entire surface. Wood treated with a preservative must be free from all traces of solvent.
 - .2 Remove dust, dirt, and surface debris by brushing, wiping with dry, clean cloths or by sweeping them with compressed air as needed.
 - .3 Wash surfaces with a biodegradable detergent (and whitening agent where applicable) and clean, warm water using a stiff bristle brush to remove dirt, oil and other contaminants.
 - .4 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
 - .5 Use trigger operated spray nozzles on water hoses.
 - .6 Allow surfaces to drain completely and to dry thoroughly.
 - .7 To prepare surfaces already painted using a new water-based paint, use water-based cleaners in place of organic

solvents where surfaces will be repainted using water based paints.

- .8 Many water-based paints cannot be removed with water once dried. However, minimize the use of kerosene or such organic solvents to clean up water-based paints.
- .2 Where required, pressure wash exterior surfaces prior to repainting in accordance with MPI standards for type of surfaces and recommended pressures to ensure complete removal of loose paint, dirt, dust and foreign matter. This work to be carried out by qualified tradesmen experienced in high pressure water cleaning. The use of spray equipment such as water hose cleaning will not be considered satisfactory unless specified herein. Allow sufficient drying time and test surfaces using an electronic moisture meter before commencing work.
- .3 Clean metal surfaces to be repainted by removing rust, dirt, oil, grease and foreign substances in accordance with MPI requirements. Remove such damaging contaminants from surfaces then clean pockets and corners to be repainted by brushing with clean brushes, blowing with clean dry compressed air, or brushing/vacuum cleaning as required.
- .4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.
- .5 Do not apply paint until prepared surfaces have been accepted by the Departmental Representative.
- .6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects from previously one (e.g. runs, sags, etc.) that are visible from a distance less than 1000 mm.

3.5 APPLICATION

- .1 Apply paint by method that is best suited for the condition of the substrate being repainted except if indicated to the contrary. Apply the product per manufacturer's instructions. The method of application shall be as pre-approved by the Departmental Representative before commencing work.
- .2 Apply using a paintbrush, a brush and a roller.
 - .1 Apply paint in a uniform layer using a paintbrush type that is best suited for the application.
 - .2 Work paint into cracks, crevices and corners.
 - .3 Paint surfaces and corners not accessible to brushes using spray, daubers and/or sheepskins. Use a brush, dauber or

- sheepskin for certain surfaces or corners that cannot be reached by a roller.
 - .4 Remove runs and sags using a brush or roller and go over the subsequent marks.
 - .5 Remove runs, sags and brush marks from finished surfaces and repaint these surfaces.
 - .3 Use sheepskins or daubers, or dipping if no other method is practical in hard to reach places and this only as specifically authorized by the Departmental Representative.
 - .4 Apply paint coats in a continuous manner and allow surfaces to dry and properly cure between coats for minimum period as recommended by manufacturer. Minimum dry film thickness of coats shall not be less than that recommended by the manufacturer. Repaint thin spots or bare areas before the next coat of paint is applied.
 - .5 Sand and dust between coats to remove visible defects.
 - .6 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.
 - .7 Surfaces concealed by door hardware shall also be repainted unless otherwise indicated.
- 3.6 ON-SITE QUALITY CONTROL**
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- .1 Advise the Departmental Representative and Paint Inspection Agency when each surface and applied coating are ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
 - .2 Cooperate with the Paint Inspection Agency and provide access to work areas.
- 3.7 CLEAN-UP**
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- .1 Remove spilled, splashed, splattered or sprayed paint as work progresses using means and materials that are not detrimental to the repainted surfaces.
 - .2 Keep work area free from an unnecessary accumulation of tools, surplus materials, debris and any material and equipment that is no longer needed.
 - .3 Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.
 - .4 Clean used material and equipment. Following cleaning, dispose

of wash water used for water based products, solvents used for oil based materials as well as cleaning and protective materials (e.g. rags, drop cloths, masking papers, etc.), paint products such as paints, thinners, paint removers / strippers in accordance with the safety requirements of authorities having jurisdiction and as noted herein.

.5 Painting equipment shall be cleaned in leak-proof containers that will allow particulate matter to settle out and be collected. Sediment remaining from cleaning operations shall be recycled in a manner acceptable to authorities having jurisdiction.

.6 Paint and coatings not used during the repainting work must be recycled according to the instructions in this section.

3.8 SITE CLEAN-UP

.1 Clean and re-install hardware items that were removed prior to painting operations.

.2 Remove protective coverings and warning signs as soon as possible following the end of operations.

.3 Remove paint splashings on repainted exposed surfaces. Remove smears and spatters immediately as operations progress using the appropriate solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to the satisfaction of the Departmental Representative and avoid scuffing the new coats.

.5 Restore areas used for storage, cleaning, mixing and handling of paint as well as for tool and equipment cleaning to clean condition as approved by the Departmental Representative.

END OF SECTION