SPECIFICATION

DEPOT BUILDING UPGRADES

ROSE BLANCHE, NL

Project No.: 723007004

PREPARED FOR:

Fisheries and Oceans Canada
Small Craft Harbours
10 Barter's Hill
John Cabot Building
St. John's, NL

DATE:

August 2019
For Tender

PROVINCE OF NEWFOUNDLAND
PERMIT HOLDER
This Permit Allows
ANDERSON ENGINEERING CONSULTANTS LTD.
To practice Professional Engineering
in Newfoundland and Labrador.
Permit No. as issued by APEGN R0092
which is valid for the year 2019.

REGISTERED PROFESSIONAL ENGINEER
W. J. ANDERSON
SIGNATURE
Aug 1/19
DATE
PROVINCE OF NEWFOUNDLAND

List of Drawings

PART 1 - GENERAL

1.1 SCOPE

.1 The scope for this project includes, but is not limited to, the partial rehabilitation and improvements of the existing Depot building in Rose Blanche, NL which would include: demolition and replacement of the existing siding, fascia soffit, doors, windows, shingles, interior lighting, exterior lights, and miscellaneous finishes. The work covered consists of the furnishing of all plant, labour, equipment and materials for these improvements at Rose Blanche, Newfoundland and Labrador, in strict accordance with specifications and accompanying drawings and subject to all terms and conditions of the Contract.

1.2 DESCRIPTION OF WORK

.1 In general, work under this contract consist of, but will not necessarily be limited to, the following:

.1 Demolition, removal and disposal of the existing metal siding, doors, windows, electric heaters, hot water tank, light fixtures, roof vents and damaged plywood including framing as indicated on accompanying drawings.

.2 Supply and installation of new metal siding.

.3 Supply and installation of new doors and hardware as indicated on drawings.

.4 Supply and installation of new windows.

.5 Supply and installation of new metal fascia and soffits as shown on drawings.

.6 Supply and install new LED exterior light fixtures.

.7 Supply and installation of new interior lighting fixtures.

.8 Supply and install new 284 litre hot water tank.

.9 New roof ventilation as shown on drawings.

.10 Provide new pipe sleeve through exterior wall as indicated on drawings.

.11 Replace existing ladders on existing wharf structure.

.12 Supply and install rip rap shoreline rock protection.

.13 Supply and install armour stone shoreline rock protection.

.14 Repair concrete floor at overhead door as shown on drawings.

.15 Replace existing guide rail as indicated on drawings.

1.2 DESCRIPTION OF WORK (Cont'd)

.2 All as indicated on accompanying drawings and specifications hereto.

1.3 SITE OF WORK

.1 Work will be carried out at Rose Blanche, Newfoundland and Labrador in the location as shown on the accompanying drawings.

1.4 DATUM

.1 Datum used for this project is Lowest Normal Tides (LNT) and is assumed to be +4.936 metres. 2-06 bolt set in large armour stone or as shown on accompanying drawings.

1.5 FAMILIARIZATION WITH SITE

.1 Before submitting a bid, it is recommended that bidders visit the site and its surroundings to review and verify the form, nature and extent of the work, materials needed for the completion of the work, the means of access to the site, severity, exposure and uncertainty of weather, soil conditions, any accommodations they may require, and in general shall obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. No allowance shall be made subsequently in this connection on account of error or negligence to properly observe and determine the conditions that will apply.

.2 Contractors, bidders or those they invite to site are to review specification Section 01 35 29 - Health and Safety Requirements before visiting site. Take all appropriate safety measures for any visit to site, either before or after acceptance of bid.

1.6 CODES AND STANDARDS

.1 Perform work in accordance with the latest edition of the National Building Code of Canada, 2015, including all amendments up to project bid closing date provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.

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

1.7 TERM ENGINEER

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

1.8 SETTING OUT WORK

.1 Set grades and layout work in detail from control points and grades established by Departmental Representative.

.2 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated or as directed by Departmental Representative.

.3 Provide devices needed to layout and construct work.

.4 Supply such devices as straight edges and templates required to facilitate Departmental Representative's inspection of work.

.5 Supply stakes and other survey markers required for laying out work.

1.9 COST BREAKDOWN

.1 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price. Departmental Representative will provide the required forms for application of progress payment.

.2 Provide cost breakdown in same format as the numerical and subject title system used in this specification project manual and thereafter sub-divided into major work components as directed by Departmental Representative.

.3 Upon approval by Departmental Representative, cost breakdown will be used as basis for progress payment.

.4 All work items not designated in the unit price table as a measurement for payment, are to be included in the fixed price arrangement, as noted on the Bid and Acceptance Form.

1.10 WORK SCHEDULE

.1 Submit within 7 work days of notification of acceptance of bid, a construction schedule showing commencement and completion of all work within the time stated on the Bid and Acceptance Form and the date stated in the bid acceptance letter.

.2 Provide sufficient details in schedule to clearly illustrate entire implementation plan, depicting efficient coordination of tasks and resources, to achieve completion of work on time and permit effective monitoring of work progress in relation to established milestones.

.3 As a minimum, work schedule to be prepared and submitted in the form of Bar (GANTT) Charts, indicating work activities, tasks and other project elements, their anticipated durations and planned dates for achieving key activities and major project milestones provided in sufficient details and supported by narratives to demonstrate a reasonable plan for completion of project within designated time, e.g., show target dates for the installation of the metal siding, if applicable. Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.

.4 Submit schedule updates on a minimum monthly basis and more often, when requested by Departmental Representative, due to frequent changing project conditions. Provide a narrative explanation of necessary changes and schedule revisions at each update.

.5 The schedule, including all updates, shall be to Departmental Representative's approval. Take necessary measures to complete work within approved time. Do not change schedule without Departmental Representative's approval.

.6 All work on the project will be completed within the time indicated on the Bid and Acceptance Form.

1.11 ABBREVIATIONS

.1 Following abbreviations of standard specifications have been used in this specification and on the drawings:
CGSB - Canadian Government Specifications Board
CSA - Canadian Standards Association
NLGA - National Lumber Grades Authority
ASTM - American Society for Testing and

1.11 ABBREVIATIONS (Cont'd)

Materials

.2 Where these abbreviations and standards are used in this project, latest edition in effect on date of bid call will be considered applicable.

1.12 SITE OPERATIONS

.1 Arrange for sufficient space adjacent to project site for conduct of operations, storage of materials and so on. Exercise care so as not to obstruct or damage public or private property in area. Do not interfere with normal day-to-day operations in progress at site. All arrangements for space and access will be made by Contractor.

.2 Remove snow and ice as required to maintain safe access in a manner that does not damage existing structures or interfere with the operations of others.

1.13 PROJECT MEETINGS

.1 Departmental Representative will arrange project meetings and assume responsibility for setting times and recording minutes.

.2 Project meetings will take place on site of work unless so directed by the Departmental Representative.

.3 Departmental Representative will assume responsibility for recording minutes of meetings and forwarding copies to all parties present at the meetings.

.4 Have a responsible member of firm present at all project meetings.

1.14 PROTECTION

.1 Store all materials and equipment to be incorporated into work to prevent damage by any means.

.2 Repair or replace all materials or equipment damaged in transit or storage to the satisfaction of Departmental Representative and at no cost to Canada.

1.15 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy of the following:
.1 Contract Drawings
.2 Specifications
.3 Addenda
.4 Reviewed Shop Drawing
.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 Site specific Health and Safety Plan and other safety related documents
.11 Other documents as stipulated elsewhere in the Contract Documents.

1.16 PERMITS

.1 Obtain and pay for all permits, certificates and licenses as required by Municipal, Provincial, Federal and other Authorities.

.2 Provide appropriate notifications of project to municipal and provincial inspection authorities.

.3 Obtain compliance certificates as prescribed by legislative and regulatory provisions of municipal, provincial and federal authorities as applicable to the performance of work.

.4 Submit to Departmental Representative, copy of application submissions and approval documents received for above referenced authorities.

.5 Comply with all requirements, recommendations and advise by all regulatory authorities unless otherwise agreed in writing by Departmental Representative. Make requests for such deviations to these requirements sufficiently in advance of related work.

1.17 CUTTING, FITTING AND PATCHING

.1 Execute cutting, including excavation, fitting and patching required to make work fit properly.

.2 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work. This includes patching of openings in existing work resulting from removal of existing services.

.3 Do not cut, bore, or sleeve load-bearing members.

1.17 CUTTING, FITTING AND PATCHING (Cont'd)

.4 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.

1.18 LOCATION OF EQUIPMENT

.1 Location of doors, windows, lighting, electrical, fixtures, shown or specified shall be considered as approximate. Actual location shall be as required to suit conditions at time of installation and as is reasonable. Obtain approval of Departmental Representative.

.2 Inform Departmental Representative when impending installation conflicts with other new or existing components. Follow directives for actual location.

.3 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.19 ACCEPTANCE

.1 Prior to the issuance of the Certificate of Substantial Performance, in company with Departmental Representative, make a check of all work. Correct all discrepancies before final inspection and acceptance.

1.20 WORKS COORDINATION

.1 Responsible for coordinating the work of the various trades, where the work of such trades interfaces with each other.

.2 Convene meetings between trades whose work interfaces and ensure that they are fully aware of the areas and the extent of where interfacing is required. Provide each trade with the plans and specifications of the interfacing trade, as required, to assist them in planning and carrying out their respective work.

.3 Canada will not be responsible for or held accountable for any extra costs incurred as a result of the failure to carry out coordination work. Disputes between the various trades as a result of those trades not being informed of the areas and extent of interface work shall be the sole responsibility of the General Contractor and shall be resolved at no extra cost to Canada.

1.21 CONTRACTOR'S USE OF SITE

.1 Construction operations, including storage of materials for this contract, not to interfere with the fishing activity and/or operations at this harbour facility.

.2 Responsible for arranging the storage of materials on or off site, and any materials stored at the site which interfere with any of the day to day activities at or near the site will be moved promptly at the Contractor's expense, upon request by Departmental Representative.

.3 Contractor will take adequate precautions to protect existing concrete decks and asphalt when operating tracked equipment.

.4 Exercise care so as not to obstruct or damage public or private property in the area.

.5 At completion of work, restore area to its original condition. Damage to ground and property will be repaired by Contractor. Remove all construction materials, residue, excess, etc., and leave site in a condition acceptable to Departmental Representative.

1.22 WORK COMMENCEMENT

.1 Mobilization to project site is to commence immediately after acceptance of bid and submission of Site Specific Safety Plan, unless otherwise agreed by Departmental Representative.

.2 Project work on site is to commence as soon as possible, with a continuous reasonable work force, unless otherwise agreed by Departmental Representative.

.3 Weather conditions, short construction season, delivery challenges and the location of the work site may require the use of longer working days and additional work force to complete the project within the specified completion time.

.4 Make every effort to ensure that sufficient material and equipment is delivered to site at the earliest possible date after acceptance of bid and replenished as required.

1.23 FACILITY SMOKING ENVIRONMENT

.1 Comply with smoking restrictions.

1.24 INTERPRETATION OF DOCUMENTS

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

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Inspecting and testing by inspecting firms or testing laboratories designated by Departmental Representative.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

.1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under various sections.

1.3 APPOINTMENT AND PAYMENT

.1 Departmental Representative will appoint and pay for services of testing laboratory except for the following:
.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
.2 Inspection and testing performed exclusively for Contractor's convenience.
.3 Mill tests and certificates of compliance.
.4 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
.5 Tests requested by Departmental Representative to confirm material specifications when the applicable manufacturer's documentation or test results are unavailable.
.6 Additional tests specified in the following paragraph.

.2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

1.4 CONTRACTOR'S RESPONSIBILITIES

.1 Provide labour, equipment and facilities to: testing.
.1 Provide access to Work to be inspected and tested.
.2 Facilitate inspections and tests.
.3 Make good Work disturbed by inspection and test.

1.4 CONTRACTOR'S RESPONSIBILITIES (Cont'd)

.1 (Cont'd)

.4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.

.2 Notify Departmental Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.

.3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

.4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Departmental Representative.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Shop drawings and product data.

.2 Samples.

.3 Certificates.

1.2 SUBMITTAL GENERAL REQUIREMENTS

.1 Submit to Departmental Representative for review submittals listed, including shop drawings, samples certificates and other data, as specified in other sections of the Specifications.

.2 Submit with reasonable promptness and in orderly sequence so as to allow for Departmental Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.3 Do not proceed with Work until relevant submissions are reviewed by Departmental Representative.

.4 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.5 Where items or information is not produced in SI Metric units, provide soft converted values.

.6 Review submittals prior to submission to Departmental Representative. Ensure during review that necessary requirements have been determined and verified, required field measurements or data have been taken, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.
.1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Departmental Representative and considered rejected.

.7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.8 Verify field measurements and affected adjacent Work are co-ordinated.

1.2 SUBMITTAL GENERAL REQUIREMENTS (Cont'd)

.9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.

.11 Submit format: paper originals, or alternatively clear and fully legible photocopies of originals. Facsimiles are not acceptable, except in special circumstances pre-approved by Departmental Representative. Poorly printed non-legible photocopies or facsimiles will not be accepted and be returned for resubmission.

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

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

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, product data, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

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

.3 Shop Drawings Content and Format:
.1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where items or equipment attach or connect to other items or equipment, confirm that all interrelated work have been coordinated, regardless of section or trade from which the adjacent work is being supplied and installed.

1.3 SHOP DRAWINGS AND PRODUCT DATA (Cont'd)

.3 (Cont'd)

.2 Shop Drawings Format:

.1 Opaque white prints or photocopies of original drawings or standard drawings modified to clearly illustrate work specific to project requirements. Maximum sheet size to be 1000 x 707 mm.

.2 Product Data from manufacturer's standard catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products, to be original full colour brochures, clearly marked indicating applicable data and deleting information not applicable to project.

.3 Non or poorly legible drawings, photocopies or facsimiles will not be accepted and returned not reviewed.

.3 Supplement manufacturer's standard drawings and literature with additional information to provide details applicable to project.

.4 Delete information not applicable to project on all submittals.

.4 Allow 15 calendar days for Departmental Representative's review of each submission.

.5 Adjustments or corrections made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, advise Departmental Representative in writing prior to proceeding with Work.

.6 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections and comments are made, fabrication and installation may proceed upon receipt of shop drawings. If shop drawings are rejected and noted to be Resubmitted, do not proceed with that portion of work until resubmission and review of corrected shop drawings, through same submission procedures indicated above.

.7 Accompany submissions with transmittal letter, containing:

.1 Date.

.2 Project title and number.

.3 Contractor's name and address.

.4 Identification and quantity of each shop drawing, product data and sample.

.5 Other pertinent data.

.8 Submissions include:

.1 Date and revision dates.

1.3 SHOP DRAWINGS AND PRODUCT DATA (Cont'd)

.8 (Cont'd)
.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 Cross references to particular details of contract drawings and specifications section number for which shop drawing submission addresses.
.6 Details of appropriate portions of Work as applicable:
.1 Fabrication.
.2 Layout, showing dimensions, including identified field dimensions, and clearances.
.3 Setting or erection details.
.4 Capacities.
.5 Performance characteristics.
.6 Standards.
.7 Operating weight.
.8 Wiring diagrams.
.9 Single line and schematic diagrams.
.10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 The review of shop drawings by the Departmental Representative or their delegated representative is for sole purpose of ascertaining conformance with general concept. This review shall not mean that Small Craft Harbours approves the detail design inherent in the shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of the construction and Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.4 SCHEDULE, PERMITS AND CERTIFICATES

.1 Upon acceptance of bid, submit to Departmental Representative copy of Work Schedule and various other schedules, permits, certification documents and project management plans as specified in other sections of the Specifications.

.2 Submit copy of permits, notices, compliance Certificates received by Regulatory Agencies having jurisdiction and as applicable to the Work.

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

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Fire Safety Requirements.

.2 Hot Work Permit.

1.2 RELATED WORK

.1 Section 01 35 25 - Special Procedures on Lockout Requirements.

.2 Section 01 35 29 - Health and Safety Requirements.

1.3 REFERENCES

.1 Fire Protection Standards issued by Fire Protection Services of Human Resources Development Canada as follows:
.1 FCC No. 301-June 1982 Standard for Construction Operations (http://ccinfoweb2.ccohs.ca/legislation/documents/fpfcstde/fc301_e.htm).
.2 FCC No. 302-June 1982 Standard for Welding and Cutting (http://ccinfoweb2.ccohs.ca/legislation/documents/fpfcstde/fc302_e.htm).

.2 National Fire Code 2015.

.3 National Building Code 2015.

1.4 DEFINITIONS

.1 Hot Work defined as:
.1 Welding work.
.2 Cutting of materials by use of torch or other open flame devices.
.3 Grinding with equipment which produces sparks.
.4 Use of open flame torches such as for roofing work.

1.5 SUBMITTALS

.1 Submit copy of Hot Work Procedures and sample of Hot Work permit to Departmental Representative for review, within 14 calendar days after notification of acceptance of bid.

.2 Submit in accordance with the Submittal General Requirements specified in Section 01 33 00-Submittal Procedures.

1.6 FIRE SAFETY REQUIREMENTS

.1 Implement and follow fire safety measures during Work. Comply with following:
.1 National Fire Code, 2015
.2 Fire Protection Standards FCC 301 and FCC 302.
.3 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29 - Health and Safety Requirements.

.2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.

1.7 HOT WORK AUTHORIZATION

.1 Obtain Departmental Representative's written "Authorization to Proceed" before conducting any form of Hot work on site.

.2 To obtain authorization submit to Departmental Representative:
.1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
.2 Description of the type and frequency of Hot Work required.
.3 Sample Hot Work Permit to be used.

.3 Upon review and confirmation that effective fire safety measures will be implemented during performance of hot work, Departmental Representative will provide authorization to proceed as follows:
.1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
.2 Separate work, or segregate certain parts of work, into individual entities. Each entity requiring a separately written "Authorization to Proceed" from Departmental Representative. Follow Departmental Representative's directives in this regard.

.4 Requirement for individual authorization based on:
.1 Nature or phasing of work;
.2 Risk to Facility operations;
.3 Quantity of various trades needing to perform hot work on project or;
.4 Other situation deemed necessary by Departmental Representative to ensure fire safety on premises.

.5 Do not perform any Hot Work until receipt of Departmental Representative's written "Authorization to Proceed" for that portion of work.

1.8 HOT WORK PROCEDURES

.1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.

.2 Procedures to include:
.1 Requirement to perform hazard assessment of site and immediate hot work area for each hot work event in accordance with Hazard Assessment and Safety Plan requirements of Section 01 35 29 -Health and Safety Requirements.
.2 Use of a Hot Work Permit system for each hot work event.
.3 The step by step process of how to prepare and issue permit.
.4 Permit shall be issued by Contractor's site Superintendent, or other authorized person designated by Contractor, granting permission to worker or subcontractor to proceed with hot work.
.5 Provision of a designated person to carryout a Fire Safety Watch for a minimum of 60 minutes immediately upon completion of the hot work.
.6 Compliance with fire safety codes and standards specified herein and occupational health and safety regulations specified in Section 01 35 29 Health and Safety Requirements.

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

.4 Hot Work Procedures shall clearly establish worker instructions and allocate responsibilities of:
.1 Worker(s),
.2 Authorized person issuing the Hot Work Permit,
.3 Fire Safety Watcher,
.4 Subcontractors and Contractor.

.5 Brief all workers and subcontractors on Hot Work Procedures and Permit system established for project. Stringently enforce compliance.
.1 Failure to comply with the established procedures may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 29 - Health and Safety Requirements.

1.9 HOT WORK PERMIT

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

1.9 HOT WORK PERMIT (Cont'd)

.1 (Cont'd)

.1 Project name and project number.

.2 Building name, address and specific room or area where hot work will be performed.

.3 Date when permit issued.

.4 Description of hot work type to be performed.

.5 Special precautions required, including type of fire extinguisher needed.

.6 Name and signature of person authorized to issue the permit.

.7 Name of worker (clearly printed) to which the permit is being issued.

.8 Time Duration that permit is valid (not to exceed 8 hours). Indicate start time and date, and completion time and date.

.9 Worker signature with date and time upon hot work termination.

.10 Specified time period requiring safety watch.

.11 Name and signature of designated Fire Safety Watcher, complete with time and date when safety watch terminated, certifying that surrounding area was under continual surveillance and inspection during the full watch time period specified in Permit and commenced immediately upon completion of Hot Work.

.2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.

.3 Each Hot Work Permit to be completed in full and signed as follows:

.1 Authorized person issuing Permit before hot work commences.

.2 Worker upon completion of Hot Work.

.3 Fire Safety Watcher upon termination of safety watch.

.4 Returned to Contractor's Site Superintendent for safe keeping.

1.10 FIRE PROTECTION AND ALARM SYSTEMS

.1 Fire protection and alarm systems shall not be:

.1 Obstructed.

.2 Shut-off, unless approved by Departmental Representative.

.3 Left inactive at the end of a working day or shift.

.2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.

1.10 FIRE PROTECTION AND ALARM SYSTEMS (Cont'd)

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

1.11 DOCUMENTS ON SITE

.1 Keep Hot Work Permits and Hazard assessment documentation on site for duration of Work.

.2 Upon request, make available to Departmental Representative or to authorized safety representative for inspection.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Procedures to isolate and lockout electrical facility or other equipment from energy source.

1.2 RELATED WORK

.1 Section 01 35 24 - Special Procedures On Fire Safety Requirements.

.2 Section 01 35 29- Health and Safety Requirements.

1.3 REFERENCES

.1 C22.1-15 - Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.

.2 CAN/CSA C22.3 No. 1-15 - Overhead Systems.

.3 CAN/CSA C22.3 No. 7-15 - Underground Systems.

.4 COHS, Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.

1.4 DEFINITIONS

.1 Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons.

.2 Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment is isolated.

.3 De-energize: in the electrical sense, that a piece of equipment is isolated and grounded, e.g. if the equipment is not grounded, it cannot be considered de-energized (DEAD).

.4 Guarded: means that an equipment or facility is covered, shielded, fenced, enclosed, inaccessible by location, or otherwise protected in a manner that, to the extent that is reasonably practicable, will prevent or reduce danger to any person who might touch or go near such item.

1.4 DEFINITIONS (Cont'd)

.5 Isolate: means that an electrical facility, mechanical equipment or machinery is separated or disconnected from every source of electrical, mechanical, hydraulic, pneumatic or other kind of energy that is capable of making it dangerous.

.6 Live/alive: means that an electrical facility produces, contains, stores or is electrically connected to a source of alternating or direct current of an amperage and voltage that is dangerous or contains any hydraulic, pneumatic or other kind of energy that is capable of making the facility dangerous to persons.

1.5 COMPLIANCE REQUIREMENTS

.1 Perform lockouts in compliance with:
.1 Canadian Electrical Code 2015.
.2 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29 - Health and Safety Requirements.
.3 Regulations and code of practice as applicable to mechanical equipment or other machinery being de-energized.
.4 Procedures specified herein.

.2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.

1.6 SUBMITTALS

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

.2 Submit documentation within 7 calendar days of acceptance of bid. Do not proceed with work until submittal has been reviewed by Departmental Representative.

.3 Submit above documents in accordance with the submittal requirements specified in Section 01 33 00- Submittal Procedures.

.4 Resubmit Lockout Procedures with noted revisions as may result from Departmental Representative's review.

1.7 ISOLATION OF EXISTING SERVICES

.1 Obtain Departmental Representative's written authorization prior to conducting work on an existing active, energized service or facility required as part of the work and before proceeding with lockout of such services or facility.

.2 To obtain authorization, submit to Departmental Representative the following documentation:
.1 Written Request for Isolation of the service or facility and;
.2 Copy of Contractor's Lockout Procedures.

.3 Make a Request for Isolation for each event, unless directed otherwise by Departmental Representative, and as follows:
.1 Fill-out standard forms in current use at the Facility when so directed by Departmental Representative or;
.2 Where no form exist at Facility, make request in writing identifying:
.1 Identification of system or equipment to be isolated, including it's location;
.2 Time duration, indicating Start time and date, and Completion time and date when isolation will be in effect;
.3 Voltage of service feed to system or equipment being isolated;
.4 Name of person making the request.
.3 Document to be in typewritten format.

.4 Do not proceed until receipt of written notification from Departmental Representative granting the Isolation Request and authorizating to proceed with the isolation of designated equipment or facility. Departmental Representative may designate other individual at the Facility as the person authorized to grant the Isolation Request.

.5 Conduct safe, orderly shut down of equipment or facilities, de-energize and isolate power and other sources of energy and lockout items in accordance with requirement of clause 1.8 below.

.6 Plan and schedule shut down of existing services in consultation with the Departmental Representative and the Facility Manager. Minimize impact and downtime of facility operations.

1.7 ISOLATION OF EXISTING SERVICES (Cont'd)

.7 Determine in advance, as much as possible, in cooperation with the Departmental Representative, the type and frequency of situations which will require a Request for Isolation. Follow Departmental Representative's directives in this regard.

.8 Conduct hazard assessment as part of the planning process of isolating existing equipment and facilities. Hazard Assessments to conform with requirements of Health and Safety Section 01 35 29 - Health and Safety Requirements.

1.8 LOCKOUTS

.1 Isolate and lockout electrical facilities, mechanical equipment and machinery from all potential energy sources prior to starting work on such items.

.2 Develop and implement lockout procedures to be followed on site as an integral part of the Work.

.3 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.

.4 Use industry standard lockout tags.

.5 Provide appropriate safety grounding and guards as required.

.6 Prepare Lockout Procedures in writing. Describe safe work practices, work functions and sequence of activities to be followed on site to safely isolate all potential energy sources and lockout/tagout facilities and equipment.

.7 Include within procedures a system of worker request and issuance of individual lockout permit by a person, employed by Contractor, designated to be "in-charge" and being responsible for:

.1 Controlling issuance of permits or tags to workers.

.2 Determining permit duration.

.3 Maintaining record of permits and tags issued.

.4 Submitting a Request for Isolation to Departmental Representative when required in accordance with Clause 1.7 above.

.5 Designating a Safety Watcher, when one is required based on type of work.

1.8 LOCKOUTS (Cont'd)

.7 (Cont'd)

.6 Ensuring equipment or facility has been properly isolated, providing a Guarantee of Isolation to worker(s) prior to proceeding with work.

.7 Collecting and safekeeping lockout tags, returned by workers, as a record of the event.

.8 Clearly establish, describe and allocate, within procedures, the responsibilities of:

.1 Workers.

.2 Designated person controlling issuance of lockout tags/permits.

.3 Safety Watcher.

.4 Subcontractors and General Contractor.

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

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

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

.11 Procedures to be in typewritten format.

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

1.9 CONFORMANCE

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

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

.3 Failure to perform lockouts in accordance with regulatory requirements or follow procedures specified herein may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 29 - Health and Safety Requirements.

1.10 DOCUMENTS ON SITE

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

.2 Keep copies of Request for Isolation submitted to Departmental Representative and lockout permits or tags issued to workers during the course of work for full project duration.

.3 Upon request, make such data available to Departmental Representative or to authorized safety representative for inspection.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK

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

.2 Section 01 35 25 - Special Procedures on Lockout Requirements.

1.2 DEFINITIONS

.1 COHS: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.

.2 Competent Person: means a person who is:
.1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;
.2 Knowledge about the provisions of occupational health and safety statutes and regulations that apply to the Work and;
.3 Knowledgeable about potential or actual danger to health and safety associated with the Work.

.3 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.

.4 PPE: personal protective equipment.

.5 Work Site: where used in this section shall mean areas, located at the premises where Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.

1.3 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Closeout Submittals.

.2 Submit site-specific Health and Safety Plan prior to commencement of Work.
.1 Submit within 10 work days of notification of Bid Acceptance. Provide 3 copies. Allow for 5-10 days for Departmental Review and recommendations prior to the commencement of work.

1.3 SUBMITTALS (Cont'd)

.2 (Cont'd)

.2 Departmental Representative will review Health and Safety Plan and provide comments.

.3 Revise the Plan as appropriate and resubmit within 5 work days after receipt of comments.

.4 Departmental Representative's review and comments made of the Plan shall not be construed as an endorsement, approval or implied warranty of any kind by Canada and does not reduce Contractor's overall responsibility for Occupational Health and Safety of the Work.

.3 Submit name of designated Health & Safety Site Representative and support documentation specified in the Safety Plan.

.4 Submit building permit, compliance certificates and other permits obtained.

.5 Submit copy of Letter in Good Standing from Provincial Workers Compensation or other department of labour organization.

.1 Submit update of Letter of Good Standing whenever expiration date occurs during the period of Work.

.6 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.7 Submit copies of incident reports.

.8 Submit WHMIS MSDS - Material Safety Data Sheets.

1.4 COMPLIANCE REQUIREMENTS

.1 Comply with the Occupational Health and Safety Act for the Province of Newfoundland and Labrador, and the Occupational Health and Safety Regulations made pursuant to the Act.

.2 Comply with Canada Labour Code Part II, (entitled Occupational Health and Safety) and the Canada Occupational Safety and Health Regulations (COSH) as well as any other regulations made pursuant to the Act.

.1 The Canada Labour Code can be viewed at: http://laws.justice.gc.ca/eng/L-2/.

.2 COSH can be viewed at: http://laws.justice.gc.ca/eng/SOR-86-304/ne.html.

1.4 COMPLIANCE REQUIREMENTS (Cont'd)

.2 (Cont'd)
.3 A copy may be obtained at: Canadian Government Publishing Public & Works & Government Services Canada Ottawa, Ontario, K1A 0S9 Tel: (819) 956-4800 (1-800-635-7943) Publication No. L31-85/2000 E or F).

.3 Treasury Borad of Canada Secretariat (TBS):
.1 Treasury Board, Fire Protection Standard April 1, 2010 www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316&sectio=text.

.4 Canadian Standards Association (CSA):
.1 CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

.5 Observe construction safety measures of:
.1 Part 8 of National Building Code 2015.
.2 Provincial Worker's Compensation Board.
.3 Municipal by-laws and ordinances.

.6 In case of conflict or discrepancy between any specified requirements, the more stringent shall apply.

.7 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof of clearance through submission of Letter of Good Standing.

.8 Medical Surveillance: Where prescribed by legislation or regulation, obtain and maintain worker medical surveillance documentation.

1.5 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property and for protection of persons and environment adjacent to the site to extent that they may be affected by conduct of the Work.

.2 Comply with and enforce compliance by all workers, sub-contractors and other persons granted access to work site with safety requirements of Contract Documents, applicable Federal, Provincial, and local by-laws, regulations, and ordinances, and with site specific Health and Safety Plan.

1.6 SITE CONTROL AND ACCESS

.1 Control the work and entry points to Work Site. Approve and grant access only to workers and authorized persons.

.1 Departmental Representative will provide names of those persons authorized by Departmental Representative to enter onto Work Site and will ensure that such authorized personnel have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however, Contractor remains responsible for the health and safety of authorized persons while at the Work Site.

.2 Isolate work site from other areas of the premises by use of appropriate means.

.1 Erect fences, hoarding, barricades and temporary lighting as required to effectively delineate the Work Site, stop non-authorized entry, and to protect pedestrians and vehicular traffic around and adjacent to the Work and create a safe environment.

.2 Post signage at entry points and other strategic locations indicating restricted access and conditions for access.

.3 Use professionally made signs with bilingual message in the 2 official languages or international know graphic symbols.

.3 Provide safety orientation session to persons granted access to Work site. Advise of hazards and safety rules to be observed while on site.

.4 Ensure persons granted site access wear appropriate personal protective equipment (PPE). Supply PPE to inspection authorities who require access to conduct tests or perform inspections.

.5 Secure Work Site against entry when inactive or unoccupied and to protect persons against harm. Provide security guard where adequate protection cannot be achieved by other means.

1.7 PROTECTION

.1 Give precedence to safety and health of persons and protection of environment over cost and schedule considerations for Work.

1.7 PROTECTION (Cont'd)

.2 Should unforseen or peculiar safety related hazard or condition become evident during performance of work, immediately take measures to rectify the situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

1.8 FILING OF NOTICE

.1 File Notice of Project with pertinent provincial health and safety authorities prior to beginning of Work.
.1 Departmental Representative will assist in locating address if needed.

1.9 PERMITS

.1 Post permits, licenses and compliance certificate,specified in section 01 10 10, at Work site.

.2 Where particular permit or compliance certificate cannot be obtained, notify Departmental Representative in writing and obtain approval to proceed prior to carrying out application portion of work.

1.10 HAZARD ASSESSMENTS

.1 Perform site specific health and safety hazard assessment of the work and its site.

.2 Carry out initial assessment prior to commencementof work with further assessments as needed during progress of work, including when new trades and subcontractors arrive on site.

.3 Record results and address in Health and Safety Plan.

.4 Keep documentation on site for entire duration of the Work.

1.11 PROJECT/SITE CONDITIONS

.1 The following are known or potential project related safety hazards at site:
.1 The following are known or potential project related safety hazards at site:
.1 Working in close proximity of water.
.2 Wet and slippery conditions.
.3 Inclement weather.

1.11 PROJECT/SITE CONDITIONS (Cont'd)

.1 (Cont'd)

.1 (Cont'd)

.4 Rock moving activities involving large armour stone.
.5 Heavy equipment activity.
.6 Heavy lifting.
.7 Working at heights.
.8 Cutting tools and other construction power tools.
.9 Overhead and underground power/utility lines.
.10 Risk of electric shock.
.11 Vehicular and pedestrian traffic.
.12 Hot/cold temperature extremes.
.13 Work with hazardous products.

.2 Above list shall not be construed as being complete and inclusive of potential health, and safety hazards encountered during work.

.3 Include above items into hazard assessment process.

.4 MSDS Data sheets of pertinent hazardous and controlled products stored on site can be obtained from Departmental Representative.

1.12 MEETINGS

.1 Attend pre-construction health and safety meeting, convened and chaired by Departmental Representative, prior to commencement of Work, at time, date and location determined by Departmental Representative. Ensure attendance of:
.1 Superintendent of work.
.2 Designated Health and Safety Site Representative.
.3 Subcontractors.

.2 Conduct regularly schedule tool box and safety meetings during the work in conformance with occupational Health and Safety Regulations.

.3 Keep documents on site.

1.13 HEALTH AND SAFETY PLAN

.1 Prior to commencement of Work, develop written Health and Safety Plan specific to the work. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.

1.13 HEALTH AND SAFETY PLAN (Cont'd)

.2 Health and Safety Plan shall include the following components:
.1 List of health risks and safety hazards identified by hazard assessment.
.2 Control measures used to mitigate risks and hazards identified.
.3 On-Site Contingency and Emergency Response Plan as specified below.
.4 On-Site Communications Plan as specified below.
.5 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.
.6 Names, competence and reporting relationship of other supervisory personnel used in the Work for occupational health and safety purposes.

.3 On-site Contingency and Emergency Response Plan shall include:
.1 Operational Procedures, evacuation measures and communication process to be implemented in the event of an emergency.
.2 Evacuation Plan: site and floor plan layouts showing escape routes, marshaling areas. Details on alarm notification methods, fire drills, location of fire fighting equipment and other related data.
.3 Name, duties and responsibilities of persons designated as Emergency Warden(s) and deputies.
.4 Emergency Contacts: name and telephone number of officials from:
.1 General Contractor and subcontractors.
.2 Pertinent Federal and Provincial Departments and Authorities having jurisdiction.
.3 Local emergency resource organizations.
.5 Harmonize Plan with Facility's Emergency Response and Evacuation Plan. Departmental Representative will provide pertinent data including name or DFO and Facility Management Contacts.

.4 On-site Communication Plan:
.1 Procedures for sharing of work related safety information to workers and subcontractors, including emergency and evacuation measures.
.2 List of critical work activities to be communicated with Facility manager which have a risk of endangering health and safety of Facility users.

1.13 HEALTH AND SAFETY PLAN (Cont'd)

.5 Address all work activities of the work including those of subcontractors.

.6 Review Health and Safety Plan regularly during the Work. Update as conditions warrant to address emerging risks and hazards, such as whenever new trade or subcontractor arrive at Work Site.

.7 Departmental Representative will respond in writing, where deficiencies or concerns are noted and may request re-submission of the Plan with correction of deficiencies or concerns.

.8 Post copy of Plan and updates, prominently on work site.

1.14 SAFETY SUPERVISION

.1 Employ Health & Safety Site Representative responsible for daily supervision of health and safety of the Work.

.2 Health & Safety Site Representative may be the Superintendent of the Work or other person designated by Contractor and shall be assigned the responsibiity and authority to:
.1 Implement, monitor and enforce daily compliance withy health and safety requirements of the Work.
.2 Monitor and enforce Contractor's site-specific Health and Safety Plan.
.3 Conduct site safety orientation session to persons granted access to Work Site.
.4 Ensure that persons allowed site access are knowledgeable and trained in health and safety pertinent ot their activities at the site of are escorted by a competent person while on the Work Site.
.5 Stop the Work as deemed necessary for reasons of health and safety.

.3 Health & Safety Site Representative must:
.1 Be qualified and competent person in occupational health and safety.
.2 Have site-related working experience specific to activities of the Work.
.3 Be on Work Site at all times during execution of the Work.
.4 All supervisory personnel assigned to the Work shall also be competent persons.
.5 Inspections:

1.14 SAFETY SUPERVISION (Cont'd)

.3 (Cont'd)

.5 (Cont'd)

.1 Conduct regularly scheduled safety inspections of the Work on a minimum bi-weekly basis. Record deficiencies and remedial action taken.

.2 Conduct formal inspections on a minimum monthly basis. Use standardized safety inspection forms. Distribute to subcontractors.

.3 Follow-up and ensure corrective measuresare taken.

.6 Cooperate with Facility's Occupational Health and Safety representative should one be designated by Departmental Representative.

.7 Keep inspection reports and supervision related documentation on site.

1.15 TRAINING

.1 Use only skilled workers on Work Site who are effectively trained in occupational health and safety procedures and practices pertinent to their assigned task.

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

.3 When unforeseen or peculiar safety-related hazard, or condition occur during performance or Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.16 MINIMUM SITE SAFETY RULES

.1 Notwithstanding the requirement to abide by federal and provincial health and safety regulations, ensure the following minimum safety rules are obeyed by persons granted access to Work Site:

.1 Wear appropriate personnel protective equipment (PPE) pertinent to the work or assigned task; minimum being hard hat, safety footwear, safety glasses and hearing protection.

.2 Immediately report unsafe condition at site, near-miss accident, injury and damage.

.3 Maintain site and storage areas in a tidy condition free of hazards causing injury.

.4 Obey warning signs and safety tags.

1.16 MINIMUM SITE SAFETY RULES (Cont'd)

.2 Brief persons of disciplinary protocols to be taken for non-compliance. Post rules on site.

1.17 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Departmental Representative will stop Work if non-compliance of health and safety regulations is not corrected in a timely manner.

1.18 INCIDENT REPORTING

.1 Investigate and report the following incidents to Departmental Representative:
.1 Incidents requiring notification to Provincial Department of Occupational Safety and Health, Workers Compensation Board or to other regulatory Agency.
.2 Medical aid injuries.
.3 Property damage in excess of $10,000.00.
.4 Interruptions to Facility operations resulting in an operational loss to a Federal Department in excess of $5000.00.

.2 Submit report in writing.

1.19 HAZARDOUS PRODUCTS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).

.2 Keep MSDS data sheets for all products delivered to site.
.1 Post on site.
.2 Submit copy to Departmental Representative.

1.20 TOOLS AND EQUIPMENT SAFETY

.1 Routinely check and maintain tools, equipment and machinery for safe operation.

.2 Conduct checks as part of site safety inspections. When requested, submit proof that checks and maintenance have been carried out.

1.20 TOOLS AND EQUIPMENT SAFETY (Cont'd)

.3 Tag and immediately remove from site items found faulty or defective.

1.21 BLASTING

.1 Blasting or other use of explosives is not permitted on site without prior receipt of written permission and instructions from Departmental Representative.

.2 Do blasting operations in accordance with local and provincial codes.

1.22 POWDER ACTUATED DEVICES

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

1.23 CONFINED SPACES

.1 Abide by occupational health and safety regulations regarding work in confined spaces.

.2 Obtain an Entry Permit in accordance with Part XI of the Canada Occupational Health and Safety Regulations for entry into an existing identified confined space located at the Facility of premises of Work.

.1 Obtain permit from Facility Manager.

.2 Keep copy of permit issued.

.3 Safety for Inspectors:

.1 Provide PPE and training to Departmental Representative and other persons who require entry into confined space to perform inspections.

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

1.24 SITE RECORDS

.1 Maintain on work site a copy of safety regulated documentation and reports stipulated to be produced in compliance with Acts and Regulations of authorities having jurisdiction and of those documents specified herein.

.2 Upon request, make available to Departmental Representative, or authorized safety officer for inspection.

1.25 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on Work Site in accordance with Acts and Regulations of Province having jurisdiction.

.2 Post other documents as specified herein, including:
.1 Site specific Health and Safety Plan.
.2 WHMIS data sheets.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 74 19 - Waste Management and Disposal.

1.2 DEFINITIONS

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

1.3 FIRES

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

1.4 DISPOSAL OF WASTES AND HAZARDOUS MATERIALS

.1 Dispose of construction waste materials and demolition debris, resulting from work, at approved landfill sites only. Carryout such disposal in strict accordance with provincial and municipal rules and regulations. Separate out and prevent improper disposal of items banned from landfills.

.2 Reuse/storage of creosote/CCA or preservative treated timbers outside of the work site is strictly prohibited.

.3 Do not bury rubbish and waste materials on site. Dispose at approved landfill sites as specified in Section 01 74 19 - Waste Management and Disposal.

.4 Do not dispose of hazardous waste or volatile materials, such as mineral spirits, paints, thinners, oil or fuel into waterways, storm or sanitary sewers or waste landfill sites.

.5 Store, handle and dispose of hazardous materials and hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.

1.4 DISPOSAL OF WASTES AND HAZARDOUS MATERIALS (Cont'd)

.6 Establish methods and undertake construction practices which will minimize waste and optimize use of construction materials. Separate at source all construction waste materials, demolition debris and product packaging and delivery containers into various waste categories in order to maximize recycling abilities of various materials and avoid disposal of debris at landfill site(s) in a "mixed state". Where recycling firms, specializing in recycling of specific materials exist, transport such materials to the recycling facility and avoid disposal at landfill sites.

.7 Communicate with landfill operator prior to commencement of work, to determine what specific construction, demolition and renovation waste materials have been banned from disposal at the landfill and at transfer stations.

1.5 DRAINAGE

.1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

.2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with governing regulations and requirements.

.4 Pumped water must meet applicable federal, provincial, and municipal standards before it can be discharged to a surface water body. If regulatory guidelines exceedences are noted, the Departmental Representative has the right to issue stop pumping instructions to the Contractor. Contractor will not be compensated for any delays associated with retrofitting equipment to meet guidelines.

.5 Provide control devices such as filter fabrics, sediment traps and settling ponds to control drainage and prevent erosion of adjacent land. Maintain in good order for duration of work.

1.6 PERMIT

.1 All guidelines and instructions stated on permits must be strictly adhered to.

1.7 WORK ADJACENT TO WATERWAYS

.1 Do not operate construction equipment in waterways.

.2 Do not use waterway beds for borrow material.

.3 Do not dump excavated fill, waste material or debris in waterways.

.4 At borrow sites, design and construct temporary crossings to minimize erosion to waterways in strict conformance with provincial and federal environmental regulations.

.5 Do not skid logs or construction materials across waterways.

.6 Do not refuel any type of equipment within 100 m of a water body. Maintain equipment in good working condition with no fluid leaks, loose hoses or fittings.

1.8 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this contract.

.2 Control emissions from equipment and plant to local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads and around entire construction site.

.5 Maintain inventory of hazardous materials and hazardous waste stored on site. List items by product name, quantity and date when storage began.

.6 Have emergency spill response equipment and rapid clean-up kit, appropriate to work, at site. Locate adjacent to work and where hazardous materials are stored. Provide personal protective equipment as required for clean-up.

1.8 POLLUTION CONTROL (Cont'd)

.7 Report, to Federal and Provincial Department of the Environment, spills of petroleum and other hazardous materials as well as accidents having potential of polluting the environment. Also notify Departmental Representative and submit a written spill report to Departmental Representative within 24 hours of occurrence.

1.9 WILDLIFE PROTECTION

.1 Should nests of migratory birds be encountered during work, immediately notify Departmental Representative for directives to be followed.

.1 Do not disturb nest site and neighbouring vegetataion until nesting is completed.

.2 Minimize work immediately adjacent to such areas until nesting is completed.

.3 Protect these areas by following recommendations of Canadian Wildlife Service.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Inspection and testing, administrative and enforcement requirements.

.2 Tests and mix designs.

.3 Mock-ups.

.4 Mill tests.

.5 Equipment and system adjust and balance.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 78 00 - Closeout Submittals.

1.3 INSPECTION

.1 Facilitate Departmental Representative's access to Work. If part of Work is being fabricated at locations other than construction site, make preparations to allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection of Work designated for special tests, inspections or approvals by Departmental Representative or by inspection authorities having jurisdiction.

.3 If Contractor covers or permits to be covered Work designated for special tests, inspections or approvals before such is made, uncover Work until particular inspections or tests have been fully and satisfactorily completed and until such time as Departmental Representative gives permission to proceed. Pay costs to uncover and make good such Work.

.4 In accordance with the General Conditions, Departmental Representative may order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.

1.4 INDEPENDENT INSPECTION AGENCIES

.1 Departmental Representative will engage and pay for service of Independent Inspection and Testing Agencies for purpose of inspecting and testing portions of Work except for the following which remain part of Contractor's responsibilities:
.1 Inspection and testing required by laws, ordinances, rules, regulations, or orders of public authorities.
.2 Inspection and testing performed exclusively for Contractor's convenience.
.3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
.4 Mill tests and certificates of compliance.
.5 Tests as specified within various sections designated to be carried out by Contractor under the supervision of Departmental Representative.
.6 Additional tests specified in Clause 1.4.2.

.2 Where tests or inspections by designated Testing Agency reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests or inspections as Departmental Representative may require to verify acceptability of corrected work.

.3 Employment of inspection and testing agencies by Departmental Representative does not relax responsibility to perform Work in accordance with Contract Documents.

1.5 ACCESS TO WORK

.1 Furnish labour and facility to provide access to the work being inspected and tested.

.2 Co-operate to facilitate such inspections and tests.

.3 Make good work disturbed by inspections and tests.

1.6 PROCEDURES

.1 Notify Departmental Representative sufficiently in advance of when work is ready for tests, in order for Departmental Representative to make attendance arrangements with Testing Agency. When directed by Departmental Representative, notify such Agency directly.

1.6 PROCEDURES (Cont'd)

.2 Submit representative samples of materials specified to be tested. Deliver in required quantities to Testing Agency. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.

.3 Provide labour and facilities to obtain and handle samples on site. Provide sufficient space on site for Testing Agency's exclusive use to store equipment and cure test samples.

1.7 REJECTED WORK

.1 Remove and replace defective Work, whether result of poor workmanship, use of defective or damaged products and whether incorporated in Work or not, which has been identified by Departmental Representative as failing to conform to Contract Documents.

.2 Make good damages to existing or new work, including work of other Contracts, resulting from removal or replacement of defective work.

1.8 TESTING BY CONTRACTOR

.1 Provide all necessary instruments, equipment and qualified personnel to perform tests designated as Contractor's responsibilities herein or elsewhere in the Contract Documents.

.2 At completion of test, turn over 2 copies of fully documented test reports to Departmental Representative. Additionally, obtain other copies in sufficient quantities to enable one complete set of test reports to be placed in each of the maintenance manuals specfied in Section 01 78 00 - Closeout Submittals.

.3 Submit mill test certificates and other certificates as specified in various sections.

.4 Furnish test results and mix designs as specified in various sections.

1.9 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in various trade sections. Include in each mock-up all related work components representative of final assembly.

1.9 MOCK-UPS (Cont'd)

.2 Construct in locations acceptable to Departmental Representative.

.3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in orderly sequence, so as not not to cause any delay in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.

.6 Remove mock-up at conclusion of Work or when acceptable to Departmental Representative unless approval is given to remain as part of Work.

END OF SECTION

PART 1 - GENERAL

1.1 ACCESS

.1 Provide and maintain adequate access to project site.

.2 Maintain access roads for duration of contract and make good damage resulting from Contractors' use of roads.

1.2 CONTRACTOR'S SITE OFFICE

.1 Be responsible for and provide own site office, if required, including electricity, heat, lights and telephone. Locate site office as directed by Departmental Representative.

1.3 DEPARTMENTAL REPRESENTATIVE'S SITE OFFICE

.1 Provide or construct a separate site office for the use of the Departmental Representative and the Site Representative. The building must be in place prior to commencement of work.

.2 Provide heating system to maintain 22°C inside temperature at -20°C outside temperature.

.3 The building will be approximately 2400 mm x 3600 mm. It will have a suitable frame covered with a weatherproof siding and lined with plywood or other approved material. The floor will be of 19 mm thick material. It will be provided with suitable window with at least 1 m^2 of glass and arranged to provide at least 0.5 m^2 of screened opening. The door will be fitted with a lockset and 2 keys.

.4 The office will be equipped with a drafting chair and a 900 mm x 1500 mm table having a hinged, smooth wooden top suitable for drafting.

.5 Install electrical lighting system to provide minimum 750 lux using surface mounted, shielded commercial fixtures with 10% upward light component.

.6 Maintain office in clean condition.

.7 Arrange and pay for telephone and facsimile machine in the Departmental Representative's Office for Site Representative's exclusive use. Long distance calls or faxes placed on this phone by the Departmental Representative or the Site Representative will be paid by the Departmental Representative.

1.3 DEPARTMENTAL REPRESENTATIVE'S SITE OFFICE (Cont'd)

.8 Contractor may, on approval of Departmental Representative, provide cellular or mobile phone. If approval to use cellular or mobile phone is granted, be responsible for all services, airtime, license and network access fees, and all other fees or charges required to utilize the phone as intended by the manufacturer.

1.4 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.5 POWER

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

.2 Supply and install all temporary facilities for power such as pole lines and underground cables to approval of local power supply authority.

1.6 WATER SUPPLY

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

1.7 SCAFFOLDING

.1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with Z797-09 (R2014).

.2 Erect scaffolding independent of walls. Remove when no longer required.

1.8 CONSTRUCTION SIGN AND NOTICES

.1 Contractor or subcontractor advertisement signboards are not permitted on site.

.2 Only notices of safety or instructions are permitted on site.

.3 Safety and Instruction Signs and Notices:

1.8 CONSTRUCTION SIGN AND NOTICES (Cont'd)

.3 (Cont'd)

.1 Signs and notices for safety and instruction shall be in both official languages. Graphic symbols shall conform to CAN/CSA-Z321-96 (R2006).

.4 Maintenance and Disposal of Site Signs:

.1 Maintain approved signs and notices in good condition for duration of project and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.9 REMOVAL OF TEMPORARY FACILITIES

.1 Remove temporary facilities from site when directed by Departmental Representative.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Barriers.

.2 Traffic Controls.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.3 HOARDING

.1 Erect temporary site enclosures using 1.8 m high x 2.4 m long welded wire galvanized mesh panel with end post of 32 mm dia. galvanized tubes. Each panel shall have a "hook" end of clamp system to engage the top of the adjoining panel post. Panel support base plate of 12 ga. galvanized steel plate with double "stems" to engage and support tube frame ends.

.2 Provide (2) swing frame gates using galvanized steel tube 50 mm and vertical and horizontal bars rigid frame wire mesh to match fence panels. Provide hinge to structurally support all gates without deformation gravity system that is self-latching. Provide one drop bar to secure in closed position and padlock for night security. Keys to be supplied to Departmental Representative.

.3 Secure fencing at established boundary lines inside property lines as shown on drawings and/or determined by Departmental Representative. Second base plates to ground with 15 mm x 250 mm long (2 pen plate) lag screws placed into existing asphalt. After removal, fill holes with cold patch.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around open excavations.

.2 Provide barricades along wharf structure when wheelguard is not in place.

.3 Provide as required by governing authorities.

1.5 ACCESS TO SITE

.1 Provide and maintain access to adjacent harbour facilities.

1.6 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect the public.

1.7 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.8 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

END OF SECTION

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for board, lodgings and related services to be provided by the Contractor for the Inspector.

.2 Due to the location of this site, it is a requirement of this contract that the Contractor provide and pay for all board and lodgings for the Inspector's sole use for the duration of the project. Provide for and maintain acceptable living accommodations for the Inspector's sole use. The minimum requirement would be a self-contained unit with private sleeping accommodation and shower or bath or other arrangement approved by the Inspector.

1.2 BOARD AND LODGINGS

.1 For the purpose of this contract board and lodgings shall include but not necessarily be limited to: sleeping accommodation, meals and dining facilities, washroom facilities, laundry facilities, electrical and heating service, linens and bedding, etc. and any reasonable service as directed by the Inspector.

.2 Board and lodgings must be approved by the Inspector and Contractor will cooperate in providing all services required to maintain an acceptable standard of living during construction period.

.3 The Contractor shall include all calendar days, including weekends and statutory holidays in determining the cost.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

.1 Comply with any or all applicable Agencies regulation of the Province of Newfoundland and Labrador, relating to the set up, servicing and maintenance of accommodations for the Inspector.

1.4 MEASUREMENT FOR PAYMENT

.1 No measurement for payment to be made under this section including all cost of this section in the lump sum items of this contract.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL

.1 Use new material and equipment unless otherwise specified.

.2 Within 7 days of written request by Departmental Representative, submit following information for any materials and products proposed for supply:
.1 name and address of manufacturer;
.2 trade name, model and catalogue number;
.3 performance, descriptive and test data;
.4 manufacturer's installation or application instructions;
.5 evidence of arrangements to procure;
.6 evidence of manufacturer delivery problems or unforseen delays.

.3 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.

.4 Use products of one manufacturer for equipment or material of same type or classifications unless otherwise specified.

.5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.2 PRODUCT QUALITY AND REFERENCED STANDARDS

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

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

1.3 ACCEPTABLE MATERIALS AND ALTERNATIVES

.1 Acceptable Materials: When materials specified include trade names or trade marks or manufacturer's or supplier's name as part of the material description, select and only use one of the names listed for incorporation into the Work.

1.3 ACCEPTABLE MATERIALS AND ALTERNATIVES (Cont'd)

.2 Alternative Materials: Submission of alternative materials to trade names or manufacturer's names specified must be done during the bidding period following procedures indicated in the Instructions to Bidders.

.3 Substitutions: After acceptance of bid, substitution of a specified material will be dealt with as a change to the Work in accorance with the General Conditions of the Contract.

1.4 MANUFACTURERS INSTRUCTIONS

.1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods to be used. Do not rely on labels or enclosure provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Departmental Representative in writing of any conflict between these specifications and manufacturers instructions, so that Departmental Representative will designate which document is to be followed.

1.5 AVAILABILITY

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

1.6 WORKMANSHIP

.1 Ensure quality of work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed.

.2 Remove unsuitable or incompetent workers from site as stipulated in General Conditions.

.3 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision on site at all times.

.4 Coordinate work between trades and subcontractors.

.5 Coordinate placement of openings, sleeves and accessories.

1.7 FASTENINGS - GENERAL

.1 Provide metal fastenings and accessories in same texture, colour and finish as base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work and in humid areas.

.2 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage. Wood or organic material plugs not acceptable.

.3 Keep exposed fastenings to minimum, space evenly and lay out neatly.

.4 Fastenings which cause spalling or cracking of material to which anchorage is made, are not acceptable.

.5 Do not use explosive actuated fastening devices unless approved by Departmental Representative. See Section 01 35 29 - Health and Safety Requirements in this regard.

1.8 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.9 STORAGE, HANDLING AND PROTECTION

.1 Deliver, handle and store materials in manner to prevent deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled materials in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work. Provide additional cover where manufacturer's packaging is insufficient to provide adequate protection.

1.9 STORAGE, HANDLING AND PROTECTION (Cont'd)

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear or earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Immediately remove damaged or rejected materials from site.

.9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Requirements and limitations for cutting and patching.

1.2 RELATED REQUIREMENTS

.1 Section 01 11 00 - General Instructions.

.2 Section 01 33 00 - Submittal Procedures.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit written request in advance of cutting or alteration which affects:
.1 Structural integrity of elements of project.
.2 Integrity of weather-exposed or moisture-resistant elements.
.3 Efficiency, maintenance, or safety of operational elements.
.4 Visual qualities of sight-exposed elements.
.5 Work of Owner or separate contractor.

.3 Include in request:
.1 Identification of project.
.2 Location and description of affected Work.
.3 Statement on necessity for cutting or alteration.
.4 Description of proposed Work, and products to be used.
.5 Alternatives to cutting and patching.
.6 Effect on Work of Owner or separate contractor.
.7 Written permission of affected separate contractor.
.8 Date and time work will be executed.

1.4 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.5 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.6 EXECUTION

.1 Execute cutting, fitting, and patching to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

.5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.

.6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.7 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.8 Restore work with new products in accordance with requirements of Contract Documents.

.9 Fit Work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.10 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse in accordance with Section 01 74 19 - Waste Management And Disposal.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL

.1 Conduct cleaning and disposal operations to comply with local ordinaces and anti-pollution laws.

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

.3 Prevent accumulation of wastes which create hazardous conditions.

.4 Provide adequate ventilation during use of volatile or noxious substances.

1.2 MATERIALS

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

1.3 CLEANING DURING CONSTRUCTION

.1 Maintain project grounds and public properties in a tidy condition, free from accumulations of waste material and debris. Clean areas on a daily basis.

.2 Provide on-site garbage containers for collection of waste materials and debris.

.3 Remove waste materials and debris from site on a daily basis.

1.4 FINAL CLEANING

.1 In preparation for acceptance of the Work perform final cleaning.

.2 Inspect finishes, fitments and equipment. Ensure specified workmanship and operation.

.3 Broom clean exterior paved and concrete surfaces; rake clean other surfaces of grounds.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 35 43 - Environmental Procedures.

.2 Section 02 41 16 - Structure Demolition.

1.2 WASTE MANAGEMENT PLAN

.1 Prior to commencement of work, prepare waste Management Workplan.

.2 Workplan to include:
.1 Waste audit.
.2 Waste reduction practices.
.3 Material source separation process.
.4 Procedures for sending recyclables to recycling facilities.
.5 Procedures for sending non-salvageable items and waste to approved waste processing facility or landfill site.
.6 Training and supervising workforce on waste management at site.

.3 Workplan to incorporate waste management requirements specified herein and in other sections of the Specifications.

.4 Develop Workplan in collaboration with all subcontractors to ensure all waste management issues and opportunities are addressed.

1.3 WASTE AUDIT

.1 At project start-up, conduct waste audit of:
.1 Site conditions identifying salvageable and non-salvageable items and waste resulting from demolition and removal work.
.2 Projected waste resulting from product packaging and from material leftover after installation work.

.2 Develop written list. Record type, composition and quantity of various salvageable items and waste anticipated, reasons for waste generation and operational factors which contribute to waste.

1.4 WASTE REDUCTION

.1 Based on waste audit, develop waste reduction program.

1.4 WASTE REDUCTION (Cont'd)

.2 Structure program to prioritize actions, with waste reduction as first priority, followed by salvage and recycling effort, then disposal as solid waste.

.3 Identify materials and equipment to be:
.1 Protected and turned over to Departmental Representative when indicated.
.2 Salvaged for resale by Contractor.
.3 Sent to recycling facility.
.4 Sent to waste processing/landfill site for their recycling effort.
.5 Disposed of in approved landfill site.

.4 Reduce construction waste during installation work. Undertake practices which will minimize waste and optimize full use of new materials on site, such as:
.1 Use of a central cutting area to allow for easy access to off-cuts;
.2 Use of off-cuts for blocking and bridging elsewhere.
.3 Use of effective and strategically placed facilities on site for storage and staging of left-over or partially cut materials to allow for easy incorporation into work whenever possible avoiding unnecessary waste.

.5 Develop other strategies and innovative procedures to reduce waste such as minimizing the extent of packaging used for delivery of materials to site, etc.

1.5 MATERIALS SOURCE SEPARATION PROCESS

.1 Develop and implement material source separation process at commencement of work as part of mobilization and waste management at site.

.2 Provide on-site facilities to collect, handle, and store anticipated quantities of reusable, salvageable and recyclable materials.
.1 Use suitable containers for individual collection of items based on intended purpose.
.2 Locate to facilitate deposit but without hindering daily operations of existing building tenants.
.3 Clearly mark containers and stockpiles as to purpose and use.

.3 Perform demolition and removal of existing components and equipment following a systematic deconstruction process.

1.5 MATERIALS SOURCE SEPARATION PROCESS (Cont'd)

.3 (Cont'd)

.1 Separate materials and equipment at source, carefully dismantling, labelling and stockpiling alike items for the following purposes:

.1 Reinstallation into the work where indicated.

.2 Salvaging resusable items not needed in project which Contractor may sell to other parties. Sale of such items not permitted on site.

.3 Sending as many items as possible to locally available recycling facility.

.4 Segregating remaining waste and debris into various individual waste categories for disposal in a "non-mixed state" as recommended by waste processing/landfill sites.

.4 Isolate product packaging and delivery containers from general waste stream. Send to recycling facility or return to supplier/manufacturer.

.5 Send leftover material resulting from installation work for recycling whenever possible.

.6 Establish methods whereby hazardous and toxic waste materials, and their containers, encountered or used in the course work are properly isolated, stored on site and disposed in accordance with applicable laws and regulations from authorities having jurisdiction.

.7 Isolate and store existing materials and equipment identified for re-incorporation into the Work. Protect against damage.

1.6 WORKER TRAINING AND SUPERVISION

.1 Provide adequate training to workforce, through meetings and demonstrations, to emphasize purpose and worker responsibilities in carrying out the Waste Management Plan.

.2 Waste Management Coordinator: designate full-time person on site, experienced in waste management and having knowledge of the purpose and content of Waste Management Plan to:

.1 Oversee and supervise waste management during work.

.2 Provide instructions and directions to all workers and subcontractors on waste reduction, source separation and disposal practices.

1.6 WORKER TRAINING AND SUPERVISION (Cont'd)

.3 Post a copy of Plan in a prominent location on site for review by workers.

1.7 CERTIFICATION OF MATERIAL DIVERSION

.1 Submit to Departmental Representative, copies of certified weigh bills from authorized waste processing sites and sale receipts from recycling/reuse facilities confirming receipt of building materials and quantity of waste diverted from landfill.

.2 Submit data at pre-determined project milestones as determined by Departmental Representative.

.3 Compare actual quantities diverted from landfill with projections made during waste audit.

1.8 DISPOSAL REQUIREMENTS

.1 Contact the authority having jurisdiction prior to commencement of work, to determine what, if any, demolition and construction waste materials have been banned from disposal in landfills and at transfer stations. Take appropriate action to isolate such banned materials at site of work and dispose in strict accordance with provincial and municipal regulations.

.2 Transport waste intended for landfill in separated condition, following rules and recommendations of Landfill Operator in support of their effort to divert, recycle and reduce amount of solid waste placed in landfill.

.3 Dispose of waste only at approved waste processing facility or landfill sites approved by authority having jurisdiction.

.4 Dispose of treated wood, end pieces, wood scraps and sawdust at a sanitary landfill.

.5 Do not dispose of preservative treated wood through incineration.

.6 Do not dispose of preservative treated wood through incineration.

1.8 DISPOSAL REQUIREMENTS (Cont'd)

.7 Disposal of waste, volatile materials, mineral spirits, oil, paint, paint thinner or unused perservative material into waterways, storm, or sanitary sewers is prohibited.

.8 Burying or burning of rubbish and waste materials is prohibited.

.9 Collect, bundle and transport salvaged materials to be recycled in separated categories and condition as directed by recycling facility. Ship materials only to approved recycling facilities.

.10 Sale of salvaged items by Contractor to other parties not permitted on site.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Project Record Documents as follows:
- .1 As-built drawings;
- .2 As-built specifications;
- .3 Reviewed shop drawings.

1.2 PROJECT RECORD DOCUMENTS

.1 Departmental Representative will provide two white print sets of contract drawings and two copies of Specifications Manual specifically for "as-built" purposes.

.2 Maintain at site one set of the contract drawings and specifications to record actual as-built site conditions.

.3 Maintain up-to-date, real time as-built drawings and specifications in good condition and make available for inspection by the Departmental Representative at any time during construction.

.4 As-Built Drawings:

.1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of project and prior to final inspection, neatly transfer notations to second set (also by use of red ink). Submit both sets to Departmental Representative. All drawings of both sets shall be stamped "As-Built Drawings" and be signed and dated by Contractor.

.2 Show all modifications, substitions and deviations from what is shown on the contract drawings or in specifications.

.3 Record following information:

- .1 Horizontal and vertical location of various elements in relation to CHS Chart Datum.
- .2 Field changes of dimension and detail.
- .3 All design elevations, sections, and details dimensioned and marked-up to consistently report finished installation conditions.
- .4 Any details produced in the course of the contract by the Departmental Representative to supplement or to change existing design drawings must also be marked-up and dimensioned to reflect final as-built conditions and appended to the as-built drawing document.

1.2 PROJECT RECORD DOCUMENTS (Cont'd)

.4 (Cont'd)

.3 (Cont'd)

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

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

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

.2 Changes made by Addenda and Change Orders.

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

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

.7 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

.8 Provide digital photos, if requested, for site records.

1.3 EQUIPMENT AND SYSTEMS

.1 For each item of equipment and each system include description of unit or system and component specifications.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communication.

.3 Include installed colour coded wiring diagrams.

1.3 EQUIPMENT AND SYSTEMS (Cont'd)

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
.1 Include regulation, control, stopping, shut-down, and emergency instructions.
.2 Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.9 Provide installed control diagrams by controls manufacturer.

.10 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.11 Additional requirements: as specified in individual specification sections.

1.4 WARRANTIES AND BONDS

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.

.3 Submit Warranty information made available during construction phase to Departmental Representative for approval prior to each monthly pay estimate.

.4 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

1.4 WARRANTIES AND BONDS (Cont'd)

.4 (Cont'd)

.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 Retain warranties and bonds until time specified for submittal.

.5 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.6 Respond in a timely manner to oral or written notification of required construction warranty repair work.

1.5 REVIEWED SHOP DRAWINGS

.1 Compile 2 full sets of all reviewed shop drawings.

END OF SECTION

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for demolishing and removing wholly or in part various items designated to be removed or partially removed.

1.2 RELATED REQUIREMENTS

.1 Section 01 10 00 - General Instructions.

.2 Section 01 35 29 - Health and Safety Requirements.

.3 Section 01 35 43 - Environmental Procedures.

.4 Section 01 56 00 - Temporary Barriers and Enclosures.

.5 Section 01 74 19 - Waste Management and Disposal.

1.3 REFERENCE STANDARDS

.1 CSA International
.1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

.2 National Research Council Canada (NRC)
.1 National Building Code of Canada 2015 (NBC).
.2 National Fire Code of Canada 2015 (NFC).

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures and 01 74 19 - Waste Management Disposal.

1.5 SITE CONDITIONS

.1 Review "Designated Substance Report" and take precautions to protect environment.

.2 If material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
.1 Proceed only after receipt of written instructions have been received from Departmental Representative.

1.5 SITE CONDITIONS (Cont'd)

.3 Notify Departmental Representative before disrupting building access or services.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Inspect building and site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

.4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.
.1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.
.2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PREPARATION

.1 Protection of In-Place Conditions:
.1 Keep noise, dust, and inconvenience to occupants to minimum.
.2 Protect building systems, services and equipment.

3.2 PREPARATION (Cont'd)

.1 (Cont'd)

.3 Provide temporary dust screens, covers, railings, supports and other protection as required.

.4 Do Work in accordance with Section 01 35 29 - Health and Safety Requirements.

.2 Demolition/Removal:

.1 Remove one (1) existing overhead doors and associated components as indicated on drawings.

.2 Remove and dispose of three (3) man doors c/w hardware as indicated on drawings.

.3 Remove ten (10) existing windows as shown on drawings.

.4 Remove and dispose of existing shingles.

.5 Remove and dispose of existing wooden eave fascia and soffits as indicated on drawings.

.6 Remove and disposal of existing metal siding as indicated on drawings.

.7 Disconnect and remove existing light fixtures as indicated on drawings.

.8 Remove three (3) existing roof turbines and vents.

.9 Disconnect and remove, dispose of existing hot water tank as indicated on drawings.

.10 Remove existing plywood from the ceiling inside the bait depot as shown on drawings.

.11 Remove two (2) existing heaters in the upper office space as indicated on drawings.

.12 Remove parts of existing building to permit new construction as indicated on drawings.

.13 Trim edges of partially demolished building elements to tolerance as defined by Departmental Representative to suit future use.

.14 Remove and dispose of 6 existing wharf ladders.

.15 Remove and dispose of approximately 40 LM of existing metal guiderail and wooden PT posts.

.16 Saw cut and chip out concrete floor slab as shown on drawings.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Refer to demolition drawings and specifications for items to be salvaged for reuse.

3.3 CLEANING (Cont'd)

.4 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

PART 1 - GENERAL

1.1 SITE OF WORK

.1 Repairs to existing concrete floor slab.

1.2 SCOPE OF WORK

.1 The scope of work covered by this specification includes but is not limited to the supply of labour, material and equipment for:

.1 Chipping and breaking out all deteriorated, defective concrete floor surface.

.2 The supply and placement application of a waterproofing topping over the floor slab surface as indicated on the drawings.

1.3 SUBMITTALS

.1 The following submittals are required for the work:

.1 Product Data for:

.1 Submit manufacturer's instructions, printed product literature and data sheets for bonding agent traffic topping and migrating corrosion inhibitor, include product characteristics, performance criteria, physical properties, finish and limitations.

.2 Submit a proposed work plan for approval by Departmental Representative. Work plan to include a list of materials and proposed plan to be implemented to perform the work.

1.4 REFERENCES

.1 The standards and guidelines referenced below form a part of this specification:

.1 CAN/CSA-A23.1 (latest edition) - Concrete Materials and Methods of Concrete Construction.

.2 Gem-Crete HDO Waterproofing Heavy-Duty Traffic Topping - Guide Specification.

.3 Standards and guidelines referenced in product data for materials used.

PART 2 - PRODUCTS

2.1 PRODUCT DELIVERY, STORAGE AND HANDLING

.1 Deliver materials to the site in an undamaged condition, with the manufacturer's wrappings and labels intact.

2.1 PRODUCT DELIVERY, STORAGE AND HANDLING (Cont'd)

.2 Store materials in a clean, dry area. Ensure that materials remain dry and free of contaminants.

2.2 JOB CONDITIONS

.1 Protect surroundinig surfaces against damage due to work of this trade.

.2 Maintain a minimum temperature at 40°F (4°C) during application and for a minimum of two days after installation.

.3 Protect finished surface from accelerated drying.

.4 Co-ordinate work of this section with the work of other trades.

2.3 WARRANTY

.1 Provide one (1) year unconditional warranty on all materials and workmanship.

2.4 SAFETY

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

2.5 BONDING AGENT FOR TRAFFIC TOPPING

.1 Cem-Kote Barrier Cote 100.

2.6 TRAFFIC TOPPING

.1 Gem-Crete HDO. Pre-mix, heavy-duty overlay.

2.7 CRACK SEALANT

.1 Sonalastic SL2, Sikaflex 2C SL.

2.8 GREY PORTLAND CEMENT

.1 CSA A5, Type 10.

2.9 MASONRY MORTAR SAND

.1 CSA A 82-56.

2.10 WATER .1 Potable.

PART 3 - EXECUTION

3.1 GENERAL .1 Not used.

3.2 MATERIAL MIXING .1 Masonry Mortar Sand

Sand Gradation Sieve Size No.	Percentage Passing Each Sieve
4	100
8	95 - 100
16	62 - 100
30	35 - 70
50	15 - 35
100	0 - 15

.1 The aggregate shall not have more than 50% retained between any two consecutive sieves nor more than 25% between No. 50 and No. 100 sieve. Gradation of the sand that approaches the maximum percentage permitted by the specification for fine particles is to be avoided. The fineness modulus of sand is to fall between 2.3 and 2.5. Sand samples are to be submitted for sieve testing trial mixes for the test sample, the sand is to be weighed and the amount adjusted for moisture is to be used for further mixing with moisture contents checked periodically.

.2 Traffic Topping Mix Design

Gem-Crete HDO	16 kg
Masonry Mortar Sand (Air Dry Weight)	135 kg
Cement	80 kg
Water	36 L

.1 Use mortar paddle or helix mixer, not a concrete mixer (minimum 220 liters). Place water into the mixer. Withhold part of the water to adjust consistency at the end of the mixing sequence. The amount of water given is a minimum, adjust the water to get approximately 150 mm slump.

3.2 MATERIAL MIXING (Cont'd)

.2 (Cont'd)

.2 Place Gem-Crete HDO dry additives into the mixer, add the sand and cement and mix for a minimum of 5 minutes to obtain a lump free mix. Gradually add the reinforcing fibres and mix for 1 minute. Adjust the water to approximately a 150 to180 mm slump. The material must be very easily screeded; it should flow under the screed.

.3 Traffic Topping Bonding Agent Mix Design

.1 Dry Component A as provided by Gemite Liquid Component B as provided by Gemite.

.2 Mix the contents of the bag, 50 lb. (22.7 kg), component A with the liquid component B. Use clean standard paddle or helix screw type mortar mixer of heavy-duty drill with a mixing paddle. Pour all the liquid component B into the mixing container (mixer) and gradually add the dry material into the liquid and mix until a smooth and lump free mix is obtained. Lumps will form if the dry material is added suddenly into the liquid. Depending on application, add the remaining liquid as required for a given application consistency. A small amount of water can be added if required at higher ambient temperatures.

3.3 PREPARATION

.1 Utilizing a milling machine or hammer buster remove a minimum of 38 mm to a maximum of 50 mm of concrete from the entire surface to have traffic topping applied. The resultant slab is to have a surface profile of a minimum 6 mm deep from highs to lows.

.1 Saw cuts to be made at perimeters where indicated on the drawings.

.2 It is important to remove all grease, oil, and other bond inhibiting materials which have penetrated into the concrete.

.3 Concrete to be disposed of off site at an approved location.

3.3 PREPARATION (Cont'd)

.2 After removal of the surface layer of concrete, it is necessary to remove any weak and bruied areas remaining as a result of the initial removals. In addition, all cracks requiring treatment are to be cleaned out. The work is to be done with high pressure water at a minimum pressure of 65 Mpa using a rotating nozzle. Care is to be taken to not remove any sound concrete. Areas that are left for more than 48 hours prior to topping are to be recleaned using high pressure water at a minimum pressure of 30 Mpa. Care is to be taken not to disturb crack treatment installations.

3.4 PLACEMENT

.1 Prepared surfaces are to be kep saturated and covered with water for a minimum of 4 hours before placing of the topping. Ponded water is to be removed with compressed air and brooming assuring that no ponding occurs especially in the keyways and crack and control joint treatments are not disturbed.

.2 Thoroughly trowel or brush apply one coat of the Cem-Kote bonding agent into the wetted surface. The bonding agent is not to be placed further than 1,000 to 2,000 mm ahead of the traffic topping. Care is to be taken to keep the prepared surface clean of all contaminants including droppings of bonding agent or traffic topping prior to placement of the bonding agent and to maintain the surface in a damp condition with the misting equipment. Bonding agent is not to be placed onto a dry surface. The bonding agent is to be worked well into all areas including where mesh reinforcement has been used taking care not to disturb the crack or control joint sealant.

.3 Deliver the mixed traffic topping to the area of placement and spread using hoes and rakes.

.4 The top surface is to be uniform using a hand screed to level the topping. Finished slopes are to be as per original slab slopes to maintain drainage. The surface is to be compacted and finished using magnesium bull bloat or magnesium hand float taking care not to overwork the surface. Steel trowels are not to be used. The finished surface is to have a light broomed finishas determined by the test sample.

3.4 PLACEMENT (Cont'd)

.5 Wet joints between batches and the joint left out by removing the screed bar supports if used are tobe remixed with a hand float to avoid joints without fibre across the joint which might result in cracking.

.6 At all times, especially during warm and windy weather, extreme care is to be taken to prevent rapid drying of the toppings surface by misting the surface regularly with water between finishingand the final set. Failure to do this will result in surface crazing, plastic shrinkage, cracking and debonding. Misting equipment is to allow for as a minimum 25 Mpa water "blowing it" into the air above the surface. The high pressure is to allow for reaching the furthest areas of the topping being placed.

.1 The most critical time in curing the topping is between finishing and the final set. It is necessary to maintain a surface "sheen" of a water film. This "sheen" of water film is visible when looking at a particular "sharp" angle at the surface. When this film disappears, it is necessary to commence misting. The sign of "whitish" areas when looking at the "sharf" angle at the surface is an indication that the misting must be immediately applied. The water mist must not wash away or disturb the surface. Placements on windy days with direct sun are to be avoided and are to be scheduled for late in the day into the night.

.7 As soon as the finished surface allows walking on the topping is to be completely moist cured for three days using a wet burlap covered with polyethylene or approved equal. Methods employed must ensure no drying of the surface occurs. The Contractor is to provide for continuous monitoring of the curing during this three-day period.

.8 At the end of the three (3) day curing period, curing materials and temporary formwork are to be removed.

3.5 SEALANT MATERIAL DESIGNATIONS

.1 Polyurethane Sealant:

.1 Self-Leveling one-part polyurethane sealant to CAN/CGSB-19.13 M87, Classification C01025-B-N, Premium Grade, colour to match concrete.

.2 Non-Sag to CAN/CGSB-19.24, colour to match concrete.

.3 Meets ASTM C920, types, Grade P, Class 25.

3.5 SEALANT MATERIAL DESIGNATIONS (Cont'd)

.1 (Cont'd)

.4 Federal specifications TT-S-00230C, Type 1, Class A.

.5 Service temperature range of -44 to 77 °C.

3.6 JOINT CLEANER

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

.2 Primer: as recommended by manufacturer.

3.7 SURFACE PREPARATION

.1 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.

.2 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed toensure compatibility of materials. Remove coatings as required.

.3 Ensure joint surfaces are dry and frost free.

.4 Prepare surfaces in accordance with manufacturer's directions.

3.8 APPLICATION

.1 Sealant

.1 Apply sealant in accordance with manufacturer's written instructions.

.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.

.3 Apply sealant in continuous beads.

.4 Apply sealant using gun with proper size nozzle.

.5 Use sufficient pressure to fill voids and joints solid.

.6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.

.7 Tool exposed surfaces before skinning begins to give slightly concave shape.

.8 Remove excess compound promptly as work progresses and upon completion.

.2 Curing.

3.8 APPLICATION (Cont'd)

.2 (Cont'd)

.1 Cure sealants in accordance with sealant manufacturer's instructions.

.2 Do not cover up sealants until proper curing has taken place.

.3 Cleanup.

.1 Clean adjacent surfaces immediately and leave work neat and clean.

.2 Remove excess and droppings, using recommended cleaners as work progresses.

.3 Remove masking tape after initial set of sealant.

3.9 INSPECTION

.1 Departmental Representative will inspect work for:

.1 Adherence to specific procedures and materials.

.2 Final cleanliness and completion.

.3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.10 CLEANING

.1 Leave work area clean at end of each working day.

.2 Dispose of waste in accordance with applicable local, Provincial/Territorial and National regulations.

.3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment from site.

.4 Waste Management: separate waste materials in accordance with Waste Management and Disposal.

3.11 PROTECTION OF COMPLETED WORK

.1 Protect adjacent finished work against damage which may be caused by on-going work.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 19 - Waste Management and Disposal.

.3 Section 06 11 00 - Rough Carpentry.

1.2 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)
.1 ASTM A53/A53M-12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Steamless.
.2 ASTM A269-15a, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
.3 ASTM A307-14, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.
.2 CAN/CGSB-1.181-92, Ready-Mixed, Organic Zinc-Rich Coating.

.3 Canadian Standards Association (CSA International)
.1 CAN/CSA-G40.20-13/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
.2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
.3 CAN/CSA-S16-14, Design of Steel Structures.
.4 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding.
.5 CSA W59-13,Welded Steel Construction (Metal Arc Welding).

.4 The Environmental Choice Program
.1 CCD-047a-98, Paints, Surface Coatings.
.2 CCD-048-98, Surface Coatings - Recycled Water-borne.

1.3 SUBMITTALS

.1 Product Data:

1.3 SUBMITTALS (Cont'd)

.1 (Cont'd)

.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:

.1 For finishes, coatings, primers and paints.

.2 Shop Drawings

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 QUALITY ASSURANCE

.1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

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

.2 Storage and Protection:

.1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.

.2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 19 - Waste Management and Disposal.

1.6 WASTE MANAGEMENT AND DISPOSAL (Cont'd)

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.

.4 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 350W.

.2 Welding materials: to CSA W59.

.3 Welding electrodes: to CSA W48 Series.

.4 Bolts and anchor bolts: to ASTM A307.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Where possible, fit and shop assemble work, ready for erection.

.3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m^2 to CAN/CSA-G164.

.2 Shop coat primer: to CAN/CGSB-1.40.

.3 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

2.4 SHOP PAINTING

.1 Apply one shop coat of primer to metal items, with exception of aluminum or concrete encased items.

2.4 SHOP PAINTING (Cont'd)

.2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.

.3 Clean surfaces to be field welded; do not paint.

.4 Prepare and coat outdoor fabrications as follows:
.1 Surface Preparation: Abrasive blast to SSPC-SP-10 near white metal to achieve an anchor profile of 2.0 mils.
.2 Primer: One coat of Amercoat 68A zinc epoxy primer to 3 mils dry film thickness, or approved equal.
.3 Intermediate Coat: One coat of Amerlock # 2 surface tolerant epoxy to 6 mils dry film thickness, or approved equal.
.4 Top Coat: One coat of Amershield abrasion resistant urethane to 4 mils dry film thickness, or approved equal. Colour to be black unless noted.

2.5 PIPE SLEEVE

.1 Steel pipe: 75 mm dia. x 450 mm long Schedule 40 galvanized pipe. Install at location as shown on drawings.

.2 Flange Plate: 300 mm x 300 mm x 55 mm thick plate, weld to steel pipe, complete with openings for anchoring devices.

.3 Finish: Paint two coats marine enamel, black.

PART 3 - EXECUTION

3.1 ERECTION

.1 Do welding work in accordance with CSA W59 unless specified otherwise.

.2 Erect metal work square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

.4 The joints will be spaced such that two (2) 12mm fillet welds can be made all around each channel.

3.1 ERECTION (Cont'd)

.5 Exposed fastening devices to match finish and be compatible with material through which they pass.

.6 Make field connections with bolts to CAN/CSA-S16.1, or weld.

.7 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.

.8 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 06 20 00 - Finished Carpentry.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)
.1 ANSI/NPA A208.1-2009, Particleboard, Mat Formed Wood.

.2 American Society for Testing and Materials International (ASTM)
.1 ASTM A 653/A 653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealled) by the Hot-Dip Process.
.2 ASTM D 1761-06, Standard Test Methods for Mechanical Fasteners in Wood.
.3 ASTM D 5456-11, Standard Specification for Evaluation of Structural Composite Lumber Products.

.3 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-11.3-M87, Hardboard.
.2 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
.3 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.4 Canadian Standards Association (CSA International)
.1 CSA A123.2-03(R2008), Asphalt Coated Roofing Sheets.
.2 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
.3 CSA O112 9-10, CSA Standards for Wood Adhesives.
.4 CSA O121-08, Douglas Fir Plywood.
.5 CSA O141-05(2009), Softwood Lumber.
.6 CSA O151-09, Canadian Softwood Plywood.
.7 CSA O153-M1980(R2008), Poplar Plywood.
.8 CAN/CSA-O325.0-92(R2003), Construction Sheathing.
.9 CSA O437 Series-93(R2011), Standards on OSB and Waferboard.

.5 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber 2010.

.6 ASTM E 2112: Standard Practice for Installation of Exterior Windows, Doors and Skylights.

1.2 REFERENCES (Cont'd)

.7 AAMA 711-05: Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products.

1.3 SUBMITTALS

.1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.

1.4 QUALITY ASSURANCE

.1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 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.

.2 Protect materials from weather while in transit to the job site. Store materials on site in such a way as to prevent deterioration or the loss or impairment of their structural and other essential properties. Ensure that the wood is kept dry, ventilated and free from wrapping, bending and surface damage.

.3 Keep all materials inside, on site and as directed by current product MSDS for proper storage and handling.

PART 2 - PRODUCTS

2.1 FRAMING AND STRUCTURAL MATERIALS

.1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
.1 CSA 0141.
.2 NLGA Standard Grading Rules for Canadian Lumber.
.3 Forestry Stewardship Council (FSC) certified.

.2 Wood shall be sound and free from shakes, loose or dead knots and warping.

2.1 FRAMING AND STRUCTURAL MATERIALS (Cont'd)

.3 Spruce: Eastern Spruce No. 2 or better. Use for general framing, rough carpentry where wood type is not indicated and for sheathing where indicated on drawings and/or scope of work.

.4 Plywood: Spruce plywood sheathing grade conforming to CSA 0121M. Use waterproof bonded type for exterior work.

.5 Wood Preservative: Pigmented Pentox, or approved equal. Colour to be selected by Engineer.

.6 All wood below grade: Preserved wood meeting or exceeding CSA -3022 requirements.

.7 All rough hardware such as nails, screws, bolts, dowels and straps of exterior application shall be hot dipped galvanized alumina or stainless steel.

.8 Nails: Zinc coated steel and annular ring to CSA B111-1974, sized as required.

.9 Screws: Cadminum plated steel, purpose made to CSA B35.4.

.10 Sill gasket: expanded polystyrene.

2.2 PANEL MATERIALS

.1 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.0.
.1 Forest Stewardship Council (FSC) certified.

.2 Douglas fir plywood (DFP): to CSA O121, standard construction.
.1 Forest Stewardship Council (FSC) certified.

.3 Canadian softwood plywood (CSP): to CSA O151, standard construction.
.1 Forest Stewardship Council (FSC) certified.

2.3 ACCESSORIES

.1 Polyethylene film: to CAN/CGSB-51.34, Type 1, 0.15 mm thick.

.2 Ice and water barrier: to ASTM D1970, SBS modified bitumen membrane self-adhered.

.3 Air seal: closed cell polyurethane or polyethylene.

2.3 ACCESSORIES (Cont'd)

.4 Air Barrier: self-adhering reinforced modified polyolefin tri-laminate sheet air barrier membrane for wall construction, specifically designed to be water resistant and vapour permeable..
- .1 Physical properties:
  - .1 Thickness: 1.0 mm (40 mils).
  - .2 Film thickness: 0.1 mm (4.0 mils).
  - .3 Flow (ASTM D5147): pass @ 110°C.
  - .4 Puncture Resistant: 180N to ASTM E154.
  - .5 Tensile Strength: 5723 psi ASTM D882.
  - .6 Tear Resistant: 200N to ASTM D1004.
  - .7 Low Temp. Flexibility: -30°C to CGSB37-GP-561.
- .2 Adhesive primer as required by air barrier supplier.
- .3 Install to manufacturer's instructions.

.5 Sealants: in accordance with Section 07 92 00 - Joint Sealants SCAQMD Rule 1168- Adhesives and Sealants Applications.

.6 General purpose adhesive: to CSA O112 Series.
- .1 Maximum allowable VOC limit 140 g/L.

.7 Nails, spikes and staples: to CSA B111.

.8 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

.9 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs.

.10 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, fibre, formed to prevent dishing. Bell or cup shapes not acceptable.

.11 Roof sheathing H-Clips: formed "H" shape, thickness to suit panel material, extruded 6063-T6 aluminum alloy type approved by Departmental Representative Engineer Consultant.

2.4 FASTENER FINISHES

.1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior work interior highly humid areas pressure-preservative fire-retardant treated lumber.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Store wood products.

3.2 INSTALLATION

.1 Comply with requirements of NBC 2015 Part 9 supplemented by following paragraphs.

.2 Install members true to line, levels and elevations, square and plumb.

.3 Construct continuous members from pieces of longest practical length.

.4 Install spanning members with "crown-edge" up.

.5 Select exposed framing for appearance. Install lumber and panel materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.

.6 Install wall sheathing in accordance with manufacturer's printed instructions.

.7 Install self-adhered water resistant air barrier membrane to manufacturer's instructions.

.8 Install roof sheathing in accordance with requirements of NBC.

.9 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding electrical equipment mounting boards, and other work as required.

.10 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.
.1 Align and plumb faces of furring and blocking to tolerance of 1:600.

.11 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

.12 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

3.3 ERECTION

.1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.2 Countersink bolts where necessary to provide clearance for other work.

.3 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

3.4 SCHEDULES

.1 Roof sheathing:
.1 Plywood, standard sheathing grade, T&G edge, 15 mm thick.
.2 Construction sheathing product: end use mark.

.2 Exterior wall sheathing:
.1 Plywood, CSP sheathing standard sheathing grade, 12 mm thick or thickness required to match existing.

.3 Electrical equipment mounting boards:
.1 Plywood, CSP grade, square edge 19 mm thick.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 03 71 00 - Door Hardware.

.2 Section 06 10 00 - Rough Carpentry.

.3 Section 08 11 00 - Metal Doors and Frames.

.4 Section 08 50 00 - Windows.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)
.1 ANSI A208.1-09, Particleboard.
.2 ANSI A208.2-09, Medium Density Fibreboard (MDF).
.3 ANSI/HPVA HP-1-2016, Standard for Hardwood and Decorative Plywood.

.2 American Society for Testing and Materials International (ASTM)
.1 ASTM E 1333-96(2014), Standard Test Method for Determining Formaldehyde Concentrations in Air and Emissions Rates from Wood Products Using a Large Chamber.

.3 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
.1 Architectural Woodwork Standards Manual (Edition 2).

.4 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-11.3-M87, Hardboard.

.5 Canadian Plywood Association (CanPly)
.1 The Plywood Handbook 2012.

.6 Canadian Standards Association (CSA International)
.1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.
.2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
.3 CSA O121-08(R2013), Douglas Fir Plywood.
.4 CAN/CSA O141-05(R2014), Softwood Lumber.
.5 CSA O151-09(R2014), Canadian Softwood Plywood.

.7 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber 2005.

1.2 REFERENCES (Cont'd)

.8 Underwriters Laboratories of Canada (ULC)
.1 CAN4-S104-80(R1985), Standard Method for Fire Tests of Door Assemblies.

1.3 SUBMITTALS

.1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Sustainable Submittals:
.1 Co-ordinate submittal requirements and provide submittals required by Section 01 33 00 - Submittal Procedures: Construction.

.3 Shop Drawings Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
.1 Indicate details of construction, profiles, jointing, fastening and other related details.
.2 Indicate materials, thicknesses, finishes and hardware.

1.4 QUALITY ASSURANCE

.1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
.1 Protect materials against dampness during and after delivery.
.2 Store materials in ventilated areas, protected from extreme changes of temperature or humidity.

.2 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.

PART 2 - PRODUCTS

2.1 LUMBER MATERIAL

.1 Softwood lumber: unless specified otherwise, S4S, moisture content 19% or less in accordance with following standards:

2.1 LUMBER MATERIAL (Cont'd)

.1 (Cont'd)
.1 CAN/CSA-O141.
.2 NLGA Standard Grading Rules for Canadian Lumber.
.3 AWMAC premium grade, moisture content as specified.

2.2 PANEL MATERIAL

.1 Douglas fir plywood (DFP): to CSA O121, standard construction.
.1 Forestry Stewardship Council (FSC) certified.

.2 Canadian softwood plywood (CSP): to CSA O151, standard construction.
.1 Forestry Stewardship Council (FSC) certified.

.3 Hardwood plywood: to ANSI/HPVA HP-1.

2.3 ACCESSORIES

.1 Nails and staples: to CSA B111; galvanized to CAN/CSA-G164 for exterior work, interior humid areas and for treated lumber; galvanized stainless steel finish elsewhere.

.2 Wood screws: copper, galvanized, stainless steel, type and size to suit application.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Do finish carpentry to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.

.2 Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate piping, columns, fixtures, outlets, or other projecting, intersecting or penetrating objects.

.3 Form joints to conceal shrinkage.

3.2 CONSTRUCTION

.1 Fastening:
.1 Position items of finished carpentry work accurately, level, plumb, true and fasten or anchor securely.

3.2 CONSTRUCTION (Cont'd)

.1 (Cont'd)

.2 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.

.3 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round smooth cut hole and plug with wood plug to match material being secured.

.4 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.

.2 In so far as practicable assemble the work at the mill and deliver to the site ready for installation.

.3 Where it will be necessary to cut and fit on the job, fabricate with ample allowance for cutting and fitting.

.4 Fabricate work according to job measurements.

.5 Mouldings and trim shall be true to detail and cleanly cut with sharp profiles.

.6 Machine sand all exposed surfaces to a smooth, even surface and leave ready for finishing.

.7 Make joints with concealed nailing and screwing where practicable or with mortise, tenons, dowels and glued joints.

.8 Do all nailing in hardware in predrilled countersunk holes.

.9 Countersink exposed nails where use is unavoidable, fill the holes neatly.

.10 Use only water-resistant glue conforming with the applicable CSA Specification.

.11 Scribe, mitre, join accurately and neatly to conform with details. All joints unless otherwise detailed shall be hairline.

.12 Neatly cope intersecting moulding and internal corners (do not mitre).

.13 Fabrication and installation shall be performed only by craftsmen skilled and experienced in this work.

.14 Install finished work plumb, true and square as indicated and detailed on the drawings.

3.2 CONSTRUCTION (Cont'd)

.15 Blind nail finished work to nailing strips, blocking, furring, grounds, etc.

3.3 DOOR HANGING

.1 Refer to Section 08 11 00 - Metal Door and Frame for door installation.

.2 Unless otherwise specified elsewhere in the specification, insulated metal door hardware for these doors as supplied under Section 08 71 00 - Door Hardware.

.3 Co-operate fully with other trades so as not to interrupt schedules and ensure smooth and continuous progress of work.

3.4 SETTING OF DOOR FRAMES

.1 Install all door frames to exact locations as indicated on the drawings and/or scope of work.

.2 Co-operate fully with other trades so as not to interrupt schedules and sure smooth and continuous progress of work.

.3 Door frames shall be set plumb, square and true, properly braced and complete with bottom spacer and clip angles.

.4 Ensure that all anchors are in place and adjustable and the the work is ready for proper building in.

.5 Brace frames solidly in position where being built into masonry or drywall. Install temporary horizontal wood spreader at mid-height of frame until adjacent work is completed.

3.5 HARDWARE

.1 Take delivery of hardware and assume full responsibility for it until building is handed over to the Owner.

.2 Install hardware as specified and according to schedules.

.3 Install finishing hardware supplied by Section 08 71 00 - Door Hardware and other hardware required for installation and function work of this section. Accurately locate and cut for hardware using tools and jigs recommended by Supplier. Adjust to function as intended.

3.5 HARDWARE (Cont'd)

.4 Adjust doors and hardware to operate smoothly and without binding. Adjust doors to fit tightly and to remain place at all stages of opening. Lubricate hardware as recommended by supplier.

.5 Clean hardware, as recommended by supplier, and wood to leave free from finish defects on any exposed surface.

.6 Do all cutting and fitting required for hardware installation.

.7 Handle hardware items carefully. Keep free from scratches, dents and other defacements.

.8 Cover knobs, handles and the like until completion of painting.

.9 Examine hardware at work completion. Test, oil grease, ease and adjust hardware in perfect condition.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Materials and installation methods providing primary air/vapour barrier materials and assemblies.

.2 Air/vapour barrier materials to provide continuous seal between components of building envelope and building penetrations.

1.2 RELATED REQUIREMENTS

.1 Section 01 45 00 - Quality Control.

.2 Section 01 51 00 - Temporary Utilities.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 07 92 00 - Joint Sealants.

1.3 REFERENCE STANDARDS

.1 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-19.13M-M87, Sealing Compound, One Component, Elastomeric Chemical Curing.
.2 CAN/CGSB-19.24M-M90, Multi-Component, Chemical Curing Sealing Compound.
.3 CGSB 19-GP-14M-84, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.

.2 Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification.

.3 National Building code of Canada (NBCC) 2015.
.1 NBCC, Part 5 - Environmental Separation.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

1.5 QUALITY ASSURANCE

.1 Perform work in accordance with Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification requirements for materials and installation.

.2 Perform work in accordance with National Air Barrier Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.

.3 Manufacturer's Representative:
.1 Inspect substrate prior to commencement of work, twice during application of membrane and at commissioning to ascertain that air/vapour barrier system is installed according to membrane manufacturer's most current published specifications and details.
.2 Provide technical assistance to applicator and assist where required in correct installation of membrane.
.3 Provide certificate of quality compliance upon satisfactory completion of installation.

.4 Maintain one copy of documents on site.

1.6 DELIVERY, STORAGE AND HANDLING

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

.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.3 Avoid spillage: immediately notify Departmental Representative if spillage occurs and start clean up procedures.

.4 Clean spills and leave area as it was prior to spill.

.5 Store roll material on ends in original packaging.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 191 - Waste Management and Disposal.

.2 Place materials defined as hazardous or toxic waste in designated containers.

1.7 WASTE MANAGEMENT AND DISPOSAL (Cont'd)

.3 Ensure emptied containers are sealed and stored safely for disposal away from children.

1.8 AMBIENT CONDITIONS

.1 Install solvent curing sealants and vapour release adhesive materials in open spaces with ventilation.

.2 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.

1.9 PERFORMANCE REQUIREMENTS

.1 Provide an air barrier membrane system constructed to perform as a continuous air barrier, and as a liquid water drainage plane flashed to discharge to the exterior any incidental condensation or water penetration. Membrane system shall accommodate movements of building materials by providing expansion and control joints as required, with accessory air sealant materials at such locations, changes in substrate, perimeter conditions and penetrations.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Membrane self-adhered air and vapour barrier membrane for wood wall construction. Membrane shall have the following properties:
.1 Membrane thickness: (19 mils).
.2 Low temperature flexibility: -30 degrees F to ASTM D146 ICC-ESAC38/3.3.4.
.3 Water Vapour Transmission 234 g/m²/24 hrs ASTM E96, method A.
.4 Minimum Puncture Resistance to ASTM D1970 mod AAMA 711-05.
.5 Lap Peel Strength 905 N/m width to ICC-ES AC48.

.2 Meets the requirements of ASTM E331 and ICC-ESR-2975.

.3 Primer - Low VOC primer for primary self-adhering water resistive air barrier membrane. Primer as specified by membrane supplier.

2.2 SEALANTS

.1 Sealants in accordance with Section 07 92 00 - Joint Sealants.

.2 Primer: recommended by sealant manufacturer appropriate to application.

.3 Substrate Cleaner: non-corrosive type recommended by sealant manufacturer compatible with adjacent materials.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 EXAMINATION

.1 Verify that surfaces and conditions are ready to accept work of this section.

.2 Ensure surfaces are clean, dry, sound, smooth, continuous and comply with air barrier manufacturer's requirements.

.3 Report unsatisfactory conditions to Departmental Representative in writing.

.4 Do not start work until deficiencies have been corrected.
.1 Beginning of Work implies acceptance of conditions.

3.3 PREPARATION

.1 Remove loose or foreign matter, which might impair adhesion of materials.

.2 Ensure substrates are clean of oil or excess dust; masonry joints struck flush, and open joints filled; and concrete surfaces free of large voids, spalled areas or sharp protrusions.

.3 Ensure substrates are free of surface moisture prior to application of self-adhesive membrane and primer.

.4 Ensure metal closures are free of sharp edges and burrs.

3.3 PREPARATION (Cont'd)

.5 Prime substrate surfaces to receive adhesive and sealants in accordance with manufacturer's instructions.

3.4 INSTALLATION

.1 Install materials in accordance with manufacturer's instructions.

3.5 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

3.6 PROTECTION OF WORK

.1 Protect finished work in accordance with Section 01 61 00 - Common Product Requirements.

.2 Do not permit adjacent work to damage work of this section.

.3 Ensure finished work is protected from climatic conditions.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Materials, installation of asphalt shingles and ice and water barrier.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 45 00 - Testing and Quality Control.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 01 74 19 - Waste Management And Disposal.

.5 Section 01 78 00 - Closeout Submittals.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB).
.1 CAN/CGSB-37.4-M89, Fibrated, Cutback Asphalt, Lap Cement for Asphalt Roofing.
.2 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.
.3 CAN/CGSB-51.34-M86, Vapour Barrier Polyethylene Sheet, for Use in Building Construction.

.2 Canadian Roofing Contractors' Association (CRCA).
.1 CRCA Roofing Specification Manual - 1997.

.3 Canadian Standards Association (CSA International).
.1 A123.5-16, Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules.
.2 CSA A123.2-03(R2013), Asphalt-Coated Roofing Sheets.
.3 CAN/CSA-A123.3-05(R2015), Asphalt Saturated Organic Roofing Felt.
.4 CAN3-A123.51-14, Asphalt Shingle Application on Roof Slopes 1:3 and Steeper.
.5 CSA B111-1974 (R1998), Wire Nails, Spikes and Staples.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
.1 Material Safety Data Sheets (MSDS).

1.4 SUBMITTALS

.1 Submit proof of manufacturer's CCMC Listing and listing number to Departmental Representative.

1.4 SUBMITTALS (Cont'd)

.2 Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, cleaning procedures.

.3 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.4 Submit product data sheets for asphalt shingles. Include:
- .1 Product characteristics.
- .2 Performance criteria.
- .3 Installation instructions.
- .4 Limitations.
- .5 Colour and finish.

1.5 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit duplicate samples of full size specified shingles.

.3 Submit sample of the ice and water barrier as specified.

1.6 DELIVERY, STORAGE AND HANDLING

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

.2 Provide and maintain dry, off-ground weatherproof storage.

.3 Remove only in quantities required for same day use.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 19 - Waste Management And Disposal.

.2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.4 Place materials defined as hazardous or toxic in designated containers.

1.7 WASTE MANAGEMENT AND DISPOSAL (Cont'd)

.5 Divert unused asphalt shingle materials from landfill to asphalt recycling facility approved by Departmental Representative.

.6 Dispose of unused asphaltic cement type materials at official hazardous material collections site approved by Departmental Representative.

.7 Fold up metal banding, flatten and place in designated area for recycling.

1.8 EXTRA MATERIALS

.1 All unused shingles remain property of owner.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Asphalt shingles: fiberglass-reinforced asphalt shingles to CSA A123.1/A123.5.

.2 Asphalt shingles: to CSA A123.1/A123.5.
- .1 15 year warranty.
- .2 FM 4473 Class 4 impact resistance rating.
- .3 Type: self-seal.
- .4 Mass: minimum 95 kg/3m^2 for type 1.
- .5 Colours: to match existing.
- .6 D3161 wind Class F.
- .7 Pipe resistance UL 790 fire Class A.

.3 Ice and water shield: modified bitumen to CSA A123.2, Type M 20 kg.
- .1 Roll roofing with self-adhesive backing (57 mil) 1.5 mm thickness.

.4 Asphaltic Cement:
- .1 Plastic cement: to CAN/CGSB-37.5.
- .2 Lap cement: to CAN/CGSB-37.4.

.5 PVC drip edge: extruded profile of unplasticized polyvinyl chloride of minimum thickness of 0.8 mm.

.6 Nails: to CSA B111, of galvanized steel, sufficient length to penetrate 19 mm into deck.

.7 Staples: chisel point galvanized steel 25 mm crown 1.5 mm thick, sufficient length to penetrate 20 mm into deck tubelock nails for soffit substrates.

.8 Ridge vent: 305 mm wide ridge cap exhaust vent 18.3 sq in./linear ft.

2.1 MATERIALS (Cont'd)

.9 Heavy-duty turbine ventilators: (3) three required. 300 mm dia. collar galvanized wind braced turbine c/w vent base required.

PART 3 - EXECUTION

3.1 APPLICATION

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

.2 Install drip edge along eaves, overhanging 12 mm, with minimum 50 mm flange extending onto roof decking. Nail to deck at 400 mm on centre.

.3 Install ice and water shield over entire roof prior to installation of asphalt shingles.

.4 Install asphalt shingles on roof slopes 1:3 and steeper in accordance with CAN3-A123.51.

.5 Install ridge vent and cap with shingles.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 74 19 - Waste Management and Disposal.

.2 Section 06 10 00 - Rough Carpentry.

.3 Section 07 62 00 - Sheet Metal Flashing and Trim.

.4 Section 07 92 00 - Joint Sealants.

.5 Section 07 27 00.01 - Air Barriers - Descriptive or Proprietary.

1.2 REFERENCE STANDARDS

.1 American Society of Mechanical Engineers (ASME)
.1 ASME B18.6.3-2011, Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series).

.2 ASTM International
.1 ASTM D 2369-10e1, Test Method for Volatile Content of Coatings.
.2 ASTM D 2832-92(2011), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
.3 ASTM D 5116-10, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.

.3 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
.2 CAN/CGSB-93.3-M91, Prefinished Galvanized and Aluminum-Zinc Alloy Steel Sheet for Residential Use.
.3 CAN/CGSB-93.4-92, Galvanized and Aluminum-Zinc Alloy Coated Steel Siding Soffits and Fascia, Prefinished, Residential.
.4 CAN/CGSB-93.5-92, Installation of Metal Residential Siding, Soffits and Fascia.

.4 CSA International
.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.5 Environmental Choice Program (ECP)
.1 CCD-045-95, Sealants and Caulking Compounds.

.6 Underwriters' Laboratories of Canada (ULC)

1.2 REFERENCE STANDARDS (Cont'd)

.6 (Cont'd)
.1 CAN/ULC-S706-09, Standard for Wood Fibre Insulating Boards for Buildings.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for metal siding and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Submit 1 copy of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements, 01 35 43 - Environmental Procedures.
.1 Indicate VOC's for caulking materials during application and curing.

.3 Shop Drawings:
.1 Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, fascia, metal furring, and related work.

.4 Samples:
.1 Submit duplicate 600 x 600 mm samples of siding material, of colour and profile specified.

1.4 QUALITY ASSURANCE

.1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

1.5 DELIVERY, STORAGE AND HANDLING (Cont'd)

.3 Storage and Handling Requirements:
.1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect metal siding from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 STEEL CLADDING AND COMPONENTS

.1 Metal siding: to CAN/CGSB-93.4, ASTM A792M Grade A2 150 galvalume vertical, channel wall.
.1 Finish coating: pre-painted cladding coating.
.2 Colour: colour selected by Departmental Representative.
.3 Gloss: medium.
.4 Thickness: 26 gauge base metal thickness.
.5 Profile: 13 mm deep, preformed interlocking joints, fastener holes prepunched.

.2 Soffit: to CAN/CGSB-93.4, Class plain patterned:
.1 Finish coating: pre-finished paint.
.2 Colour: colour selected by Departmental Representative.
.3 Gloss: medium.
.4 Thickness: .76 mm base metal thickness.
.5 Profile: flat sheet 'V' crimped for stiffness, vented 0.1 m^2 of opening for every 30 m^2 of building area.

.3 Fascia facings and exposed trim: to CAN/CGSB-93.4, Class plain patterned:
.1 Finish coating: Pre-finished paint.
.2 Colour: colour selected by Departmental Representative Consultant.
.3 Gloss: medium.
.4 Thickness: .76 mm base metal thickness.
.5 Profile: manufacturer's standard as indicated.

2.2 FASTENERS

.1 Nails: CSA B111. Screws: ASME B18.6.3. Purpose made stainless steel, cadmium plated steel.

2.3 CAULKING .1 Sealants: in accordance with Section 07 92 00-Joint Sealants.
.1 Test for acceptable VOC emissions in accordance with ASTM D 2369 and ASTM D 2832.
.2 Adhesives and sealants: VOC limit 70 250 g/L maximum to SCAQMD Rule 1168.

2.4 ACCESSORIES .1 Exposed trim: inside corners, outside corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of same material, colour as cladding, with fastener holes pre-punched.

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.
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform 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 to proceed from Departmental Representative.

3.2 MANUFACTURER'S INSTRUCTIONS .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.3 INSTALLATION .1 Install cladding in accordance with CGSB 93.5, and manufacturer's written instructions.

.2 Install air barrier exterior wall sheathing vertically lapping edges 150 mm.

.3 Install continuous starter strips, inside and outside corners, edgings, soffit, drip, cap, sill and window/door opening flashings as indicated.

3.3 INSTALLATION (Cont'd)

.4 Install outside corners, fillers and closure strips with carefully formed and profiled work.

.5 Install soffit and fascia cladding as indicated.

.6 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.

.7 Attach components in manner not restricting thermal movement.

.8 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealants.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by preformed metal siding installation.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 06 10 00 - Rough Carpentry.

.3 Section 06 20 00 - Finish Carpentry.

.4 Section 07 31 13 - Asphalt Shingles.

.5 Section 07 46 19 - Steel Siding.

.6 Section 07 92 10 - Joint Sealing.

1.2 REFERENCES

.1 The Aluminum Association Inc. (AAI)
.1 AAI-Aluminum Sheet Metal Work in Building Construction-2002.

.2 American Society for Testing and Materials International (ASTM)
.1 ASTM A 606-04, Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
.2 ASTM A 653/A 653M-07, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
.3 ASTM A 792/A 792M-06a, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

.3 Canadian Roofing Contractors Association (CRCA)
.1 Roofing Specifications Manual 1997.

.4 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
.2 CAN/CGSB-93.1-M85, Sheet Aluminum Alloy, Prefinished, Residential.

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

1.3 SUBMITTALS (Cont'd)

.2 (Cont'd)

.1 Submit manufacturer's printed product literature for sheet metal flashing systems materials, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:

.1 Submit duplicate 50 mm x 50 mm samples of each type of sheet metal material, finishes and colours.

1.4 DELIVERY, STORAGE AND HANDLING

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

.2 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.

PART 2 - PRODUCTS

2.1 SHEET METAL FLASHING MATERIALS

.1 Galvanized steel roll flashing .010 thickness and a width of 600 mm.

2.2 PREFINISHED STEEL SHEET FASCIA

.1 Prefinished steel with factory applied polyvinylidene fluoride.

.1 Class F1S.

.2 Colour white.

.3 Specular gloss: 30 units +/- in accordance with ASTM D 523.

.4 Coating thickness: not less than 22 micrometres.

.5 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20% to ASTM D 822 as follows:

.1 Outdoor exposure period 2500 hours.

.2 Humidity resistance exposure period 5000 hours.

.6 Thickness 0.76 mm commercial quality to ASTM A653/A653M with Z275 zinc coating.

2.3 ACCESSORIES

.1 Isolation coating: alkali resistant bituminous paint.

2.3 ACCESSORIES (Cont'd)

.2 Plastic cement: to CAN/CGSB 37.5.

.3 Underlay for metal flashing: dry sheathing to CAN/CGSB-51.32 No. 15 perforated asphalt felt to CSA A123.3.

.4 Sealants: See Section 07 92 10 - Joint Sealing.

.5 Fasteners: of same material as sheet metal, to CSA B111, ring thread flat head roofing nails of length and thickness suitable for metal flashing application.

.6 Washers: of same material as sheet metal, 1 mm thick with rubber packings.

.7 Touch-up paint: as recommended by prefinished material manufacturer.
.1 Maximum VOC limit 50 g/L to Standard GS-11.

2.4 FABRICATION

.1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details.

.2 Fabricate aluminum flashings and other sheet aluminum work in accordance with AAI-Aluminum Sheet Metal Work in Building Construction.

.3 Form pieces in 2400 mm maximum lengths.
.1 Make allowance for expansion at joints.

.4 Hem exposed edges on underside 12 mm.
.1 Mitre and seal corners with sealant.

.5 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

.6 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.5 METAL FLASHINGS

.1 Form flashings, copings and fascias to profiles indicated of 0.76 mm thick prefinished steel.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Install sheet metal work as detailed.

.2 Use concealed fastenings except where approved before installation.

.3 Provide underlay under sheet metal.
.1 Secure in place and lap joints 100 mm.

.4 Lock end joints and caulk with sealant.

.5 Insert metal flashing under drip flashing to form weather tight junction.

.6 Caulk flashing at cap flashing with sealant.

3.3 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

.3 Leave work areas clean, free from grease, finger marks and stains.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Materials, preparation and application for caulking and sealants.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 45 00 - Quality Control.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 01 74 19 - Waste Management and Disposal.

.5 Section 07 46 19 - Steel Siding.

.6 Section 08 11 00 - Metal Doors and Frame.

.7 Section 08 50 00 - Windows.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB)

.2 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

.3 Department of Justice Canada (Jus)
.1 Canadian Environmental Protection Act, 1999 (CEPA).

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.5 Transport Canada (TC)
.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.4 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Manufacturer's product to describe.
.1 Caulking compound.
.2 Primers.
.3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

1.4 SUBMITTALS (Cont'd)

.3 Submit manufacturer's instructions in accordance with Section 01 33 00 - Submittal Procedures.
.1 Instructions to include installation instructions for each product used.

1.5 DELIVERY, STORAGE, AND HANDLING

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

.2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material, in appropriate on-site bins, for recycling in accordance with Waste Management Plan.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.6 Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

.7 Divert unused joint sealing material from landfill to official hazardous material collections site approved by Departmental Representative.

.8 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.

.9 Fold up metal banding, flatten, and place in designated area for recycling.

1.7 PROJECT CONDITIONS

.1 Environmental Limitations:
.1 Do not proceed with installation of joint sealants under following conditions:
.1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
.2 When joint substrates are wet.

.2 Joint-Width Conditions:
.1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:
.1 Do not proceed with installation of joint sealants until contaminants capable of interferring with adhesion are removed from joint substrates.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Labour Canada.

.2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

PART 2 - PRODUCTS

2.1 SEALANT MATERIALS

.1 Sealants and Caulking compounds must:
.1 Meet of exceed all applicable governmental and industrial safety and performance standards; and
.2 Be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the Fisheries Act and the Canadian Environmental Protection Act (CEPA).

2.1 SEALANT MATERIALS (Cont'd)

.2 Sealant and caulking compounds must not be formulated or manufactured with: aromatic solvents, fibrous talc or asbestos, formaldehyde, halogenated solvents, mercury, lead, cadium, hexavalent chromium, barium or their compounds, except barium sulphate.

.3 Sealant and caulking compounds must not contain a total of volatile organic compound (VOC's) in excess of 5% by height as calculated from records of the amounts of constituents used to make the product.

.4 Sealant and caulking compounds must be accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance, and information describing proper disposal methods.

.5 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.

.6 When low toxicity caulks are not possible, confine confine usage to areas which off-gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.

.7 Where sealants are qualified with primers use only these primers.

.8 Sealants acceptable for use on this project must be listed on CGSB Qualified Products List issued by CGSB Qualification Board for Joint Sealants. Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Polyurethane Sealant:
.1 Self-Leveling to CAN/CGSB-19.13 M87, Classification C-1-25-B-N, Premium Grade, colour to match concrete, metal siding and paint colours.
.2 Non-Sag to CAN/CGSB-19.24, colour to match.

.2 Preformed Compressible and Non-Compressible back-up materials.
.1 Polyethylene or Neoprene Foam.
.1 Extruded closed cell foam backer rod.
.2 Size: oversize 30 to 50%.
.2 Neoprene or Butyl Rubber.
.1 Round solid rod, Shore A hardness 70.

2.2 SEALANT MATERIAL DESIGNATIONS (Cont'd)

.2 (Cont'd)

.3 High Density Foam.

.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m^3 density, or neoprene foam backer, size as recommended by manufacturer.

.4 Bond Breaker Tape.

.1 Polyethylene bond breaker tape which will not bond to sealant.

2.3 SEALANT SELECTION

.1 Expansion and control joints in exterior surfaces of poured-in-place concrete: Sealant type: mono, acrylic terpolymer.

.2 Control and expansion joints in exterior surfaces of walls: Sealant type: thermo plastic elastomeric sealant.

.3 Sealants for metal siding to be as per siding manufacturer's instructions.

.4 Interior - water based latex caulking, colour white.

2.4 JOINT CLEANER

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

.2 Primer: as recommended by manufacturer.

PART 3 - EXECUTION

3.1 PROTECTION

.1 Protect installed Work of other trades from staining or contamination.

3.2 SURFACE PREPARATION

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.

3.2 SURFACE PREPARATION (Cont'd)

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

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

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

3.4 BACKUP MATERIAL

.1 Apply bond breaker tape where required to manufacturer's instructions.

.2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 APPLICATION

.1 Sealant.

.1 Apply sealant in accordance with manufacturer's written instructions.

.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.

.3 Apply sealant in continuous beads.

.4 Apply sealant using gun with proper size nozzle.

.5 Use sufficient pressure to fill voids and joints solid.

.6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.

.7 Tool exposed surfaces before skinning begins to give slightly concave shape.

3.6 APPLICATION (Cont'd)

.1 (Cont'd)

.8 Remove excess compound promptly as work progresses and upon completion.

.2 Curing.

.1 Cure sealants in accordance with sealant manufacturer's instructions.

.2 Do not cover up sealants until proper curing has taken place.

.3 Cleanup.

.1 Clean adjacent surfaces immediately and leave Work neat and clean.

.2 Remove excess and droppings, using recommended cleaners as work progresses.

.3 Remove masking tape after initial set of sealant.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 61 00 - Common Product.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 07 92 00 - Joint Sealants.

.4 Section 08 71 00 - Door Hardware.

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
.1 ASTM A 653/A 653M-06a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
.2 ASTM B 29-03, Standard Specification for Refined Lead.
.3 ASTM B 749-03, Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.

.2 Canadian Standards Association (CSA International)
.1 CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
.2 CSA W59-03, Welded Steel Construction (Metal Arc Welding).

.3 Canadian Steel Door Manufacturers' Association (CSDMA)
.1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.
.2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, 1990.

1.3 SYSTEM DESCRIPTION

.1 Design Requirements:
.1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35 degrees C to 35 degrees C.
.2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.4 SUBMITTALS (Cont'd)

.2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.

.3 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.
.1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed louvred, arrangement of hardware and fire rating and finishes.
.2 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing fire rating finishes.

1.5 DELIVERY, STORAGE AND HANDLING

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

.2 Waste Management and Disposal:
.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Overhead Door size:
.1 1525 mm wide x 2000 mm high.

.2 Man Door Size: 910 mmx 2133 mm.

.3 Overhead Sheet steel: 1.2 mm, commercial grade steel to ASTM A525M-80.

.4 Overhead Door Core: 45 mm thick with foamed in place polyurethane insulation.

.5 Man door to be insulated fiberglass flush smooth white c/w vinyl door frame and stainless steel hinges. Outswing door.

2.2 PRIMER

.1 Touch-up prime CAN/CGSB-1.181.
.1 Maximum VOC limit 50 g/L to GC-03.

2.3 PAINT

.1 Pre-painted, steel doors. Provide final finish free of scratches or other blemishes.

.2 Two coats baked on paint system. Colour: white.

2.4 ACCESSORIES

.1 Door seals: single stud rubber/neoprene type.

.2 Exterior and interior top and side caps: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma steel.

.3 Door bottom seal: bulb shaped weather strip, continuous retainer, full width. Door bottom.

2.5 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Reinforce frames for surface mounted hardware.

.4 Conceal fastenings except where exposed fastenings are indicated.

.5 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

2.6 DOOR HARDWARE

.1 Overhead Door:

.1 Track: Rool formed from commercial galvanized steel. Horizontal track curb with 406 mm radius. 76 mm track 2.7 mm thick commercial galvanized steel.

.2 Rollers: 73 mm dia. with ten 7.9 mm dia. ball bearings, hardener steel race. 11 mm dia. standard stem.

.3 Brackets - bolted type, field adjustable, rib reinforced, stampted from 3.1 mm thick commercial steel.

.4 Track hangers - perforated type 32 mm x 32 mm angles roll formed from 2 mm thick commercial steel as supplied by door manufacturer.

.5 Hinges - linear type, fabricated from 2.7 mm thick zinc plated steel sheet, embossment for higher loads.

.6 Counter balance, helically wound torsion springs, aluminum die cast grooved drums.

2.6 DOOR HARDWARE (Cont'd)

.1 (Cont'd)
.7 Provide interior locking bracket and lifting handle.

.2 Exterior man door: See drawing 5 of 8 for hardware selection. Section 08 71 00 - Door Hardware.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION GENERAL

.1 Install doors and frames to CSDMA Installation Guide.

3.3 FRAME INSTALLATION

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

.5 Caulk perimeter of frames between frame and adjacent material.

3.4 DOOR INSTALLATION

.1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Door Hardware.

.2 Adjust operable parts for correct function.

3.5 FINISH REPAIRS

.1 Touch up with primer finishes damaged during installation.

.2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 19 - Waste Management and Disposal.

.3 Section 01 78 00 - Closeout Submittals.

.4 Section 07 92 00 - Joint Sealants.

1.2 REFERENCE STANDARDS

.1 CSA Group
.1 CAN/CSA-A440.4-07(R2012), Window, Door, and Skylight Installation
.2 CAN/CSA-A440.2/A440.3-09, Fenestration energy performance/User guide to CSA A440.2, Fenestration energy performance.
.3 CAN/CSA-Z91-02(R2013), Health and Safety Code for Suspended Equipment Operations.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for windows and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Shop drawings to include continuation of air barrier and vapour barrier between wall assembly and vinyl window.
.3 Submit one complete full size window sample of each type window.
.4 Include frame, sash, sill, glazing and weatherproofing method, insect screens, surface finish and hardware. Show location of manufacturer's nameplates.
.5 Include 150 mm long samples of head, jamb, sill, meeting rail, mullions to indicate profile.

1.4 TEST REPORTS

.1 Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:
.1 Windows classifications.
.2 Air tightness.
.3 Water tightness.

1.4 TEST REPORTS (Cont'd)

.1 (Cont'd)
.4 Wind load resistance.
.5 Condensation resistance.
.6 Forced entry resistance.
.7 Insect screens.
.8 Glazing.
.9 Safety drop - vertical sliding windows only.
.10 Ease of operation - windows with operable lights.
.11 Sash pull-off - vinyl windows.

1.5 WARRANTY

.1 Provide a written warranty for work under this Section from Manufacturer for failure due to defective materials and from Contractor for failure due to defective installation, workmanship for ten (10) years respectively from the date of Substantial Completion.

1.6 CLOSEOUT SUBMITTALS

.1 Provide operation and maintenance data for windows for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.7 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for windows for incorporation into manual.

1.8 QUALITY ASSURANCE

.1 Certifications: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.9 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

1.9 DELIVERY, STORAGE AND HANDLING (Cont'd)

.3 Storage and Handling Requirements:
.1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect windows from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Materials: to CSA 101/I.S.2/A440 supplemented as follows:

.2 All windows by same manufacturer.

.3 Sash: vinyl, aluminum thermally broken.

.4 Main frame: vinyl thermally broken.

.5 Glass: 25 mm, Low E, Argon gas filled.

.6 Screens: to ASTM E 1748 SMA 1201R on the ventilating portion of the the entire area of the windows according to instructions.
.1 Insect screening mesh: count 18 x 14.
.2 Fasteners: tamper proof.
.3 Screen frames: vinyl colour to match window frames.
.4 Mount screen frames for interior replacement.

2.2 WINDOW TYPE AND CLASSIFICATION

.1 Product type:
.1 C - Casement window.

.2 Classification rating: to CSA 101/I.S.2/A440.
.1 Primary designation:
.1 Port aux Basques A3, B6, C4, I40, F1, S1.
.2 Secondary designation:
.1 Island Region (exluding Nortern Peninsula).
.1 Zone B.

2.3 FABRICATION

.1 Fabricate in accordance with CSA 101/I.S.2/A440 supplemented as follows:

2.3 FABRICATION (Cont'd)

.2 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.

.3 Face dimensions detailed are maximum permissible sizes.

.4 Brace frames to maintain squareness and rigidity during shipment and installation.

2.4 VINYL FINISHES

.1 Vinyl finishes: in accordance with CSA 101/I.S.2/A440, including appendices, supplemented as follows:
.1 White colour Departmental Representative's sample.

2.5 GLAZING

.1 Glaze windows in accordance with CSA 101/I.S.2/A440.
.1 See window schedule.

2.6 HARDWARE

.1 Hardware: stainless steel or white bronze sash locks and aluminum handles to provide security and permit easy operation of units.

.2 Locks: provide operating sash with spring loading locking device, to provide automatic locking in closed position.

.3 Include special keyed opening device for windows normally locked.

2.7 AIR BARRIER AND VAPOUR RETARDER

.1 Provide low expanding, single component polyurethane foam sealant installed at head, jamb and sill perimeter of window for sealing to building air barrier, vapour retarder and window frame. Foam sealahnt width to be adequate to provide required air tightness and vapour diffusion control to building air barrier and vapour retarder foam interior.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform 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 to proceed from Departmental Representative.

3.2 INSTALLATION

.1 Window installation:
.1 Install in accordance with CSA 101/I.S.2/A440.
.2 Arrange components to prevent abrupt variation in colour.

.2 Install shims between windows and building frame at each installation screw location. Shim and fasten windows in accordance with manufacturer's recommendations and CAN/CSA A440.4.
.1 Fasten [expansion joint cover plates] [and] [drip deflectors] with self tapping stainless steel screws.

.3 Caulking:
.1 Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.
.2 Apply sealant in accordance with Section 07 92 00 - Joint Sealants. Conceal sealant within window units except where exposed use is permitted by Departmental Representative.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.

3.3 CLEANING (Cont'd)

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.4 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by window installation.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 61 00 - Common Product Requirements.

.3 Section 01 78 00 - Closeout Submittals.

.4 Section 08 11 00 - Metal Doors and Frames.

1.2 REFERENCES

.1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).
.1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.

.2 Canadian General Standards Board (CGSB).
.1 CAN/CGSB-69.17-M86(R1993), Bored and Preassembled Locks and Latches.
.2 CAN/CGSB-69.18-M90/ANSI/BHMA A156.1-1981, Butts and Hinges.
.3 CAN/CGSB-69.22-M90/ANSI/BHMA A156.6-1986, Architectural Door Trim.
.4 CAN/CGSB-69.28-M90/ANSI/BHMA A156.12-1986, Interconnected Locks and Latches.
.5 CAN/CGSB-69.29-93/ANSI/BHMA A156.13-1987, Mortise Locks and Latches.
.6 CAN/CGSB-69.31-M89/ANSI/BHMA A156.15-1981, Closer/Holder Release Device.

1.3 SUBMITTALS

.1 Product Data:
.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Samples:
.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
.2 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
.3 After approval samples will be returned for incorporation in the Work.

.3 Hardware List:

1.3 SUBMITTALS (Cont'd)

.3 (Cont'd)
.1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Procedures.
.2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

.4 Manufacturer's Instructions:
.1 Submit manufacturer's installation instructions.

.5 Closeout Submittals
.1 Provide operation and maintenance data for door closers, locksets, door holders for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 QUALITY ASSURANCE

.1 Regulatory Requirements:

.2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Packing, Shipping, Handling and Unloading:
.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
.2 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

.2 Storage and Protection:
.1 Store finishing hardware in locked, clean and dry area.

1.6 WASTE DISPOSAL AND MANAGEMENT

.1 Separate and recycle waste materials in accordance with Section 01 74 19 - Waste Management And Disposal.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

1.6 WASTE DISPOSAL AND MANAGEMENT (Cont'd)

.3 Dispose of corrugated cardboard polystyrene plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

1.7 MAINTENANCE

.1 Extra Materials:
.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
.2 Supply two sets of wrenches for door closers locksets.

1.8 WARRANTY

.1 Provide a written manufacturer's warranty for work of this Sectrion for failure due to defective materials for five (5) years, dated from substantial completion certificate.

.2 Provide a written Contractor's warranty for work of this Section for failure due to defective installation workmanship for one (1) year, dated from submittal completion certificate.

PART 2 - PRODUCTS

2.1 HARDWARE ITEMS

.1 Only door locksets and latches listed on ANSI/BHMA Standards list are acceptable for use on this project.

.2 use one manufacturer's products only for similar items.

2.2 DOOR HARDWARE

.1 Per hardware schedule listed on drawings.

2.3 FASTENINGS

.1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

.2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.3 Exposed fastening devices to match finish of hardware.

2.3 FASTENINGS (Cont'd)

.4 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.

.5 Use fasteners compatible with material through which they pass.

2.4 KEYING

.1 Doors, to be keyed alike great grand master keyed. Prepare detailed keying schedule in conjunction with Departmental Representative.

.2 Provide keys in duplicate for every lock in this Contract.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

.2 Furnish door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

.3 Furnish manufacturers' instructions for proper installation of each hardware component.

3.2 INSTALLATION

.1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Doors and Frames prepared by Canadian Door and Frame Manufacturers' Association.

3.3 ADJUSTING

.1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.

.2 Lubricate hardware, operating equipment and other moving parts.

3.3 ADJUSTING (Cont'd)

.3 Adjust door hardware to provide tight fit at contact points with frames.

3.4 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacture's instructions.

.3 Remove protective material from hardware items where present.

.4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

.1 Section Includes:
.1 Material and installation of site applied paint finishes to interior surfaces, including site painting of shop primed surfaces.

.2 Related Sections:
.1 Section 01 33 00 - Submittal Procedures.
.2 Section 01 35 29 - Health and Safety Requirements.
.3 Section 01 74 19 - Waste Management and Disposal.
.4 Section 01 78 00 - Closeout Submittals.

1.2 REFERENCES

.1 Department of Justice Canada (Jus)
.1 Canadian Environmental Protection Act (CEPA), 1999, c. 33

.2 Environmental Protection Agency (EPA)
.1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 - 2010, (for Surface Coatings).

.3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.4 Master Painters Institute (MPI)
.1 MPI Architectural Painting Specifications Manual, 2004.

.5 National Fire Code of Canada - 2015

1.3 QUALITY ASSURANCE

.1 Qualifications:
.1 Contractor: minimum of 3 years proven satisfactory experience. Provide list of last three comparable jobs including, job name and location, specifying authority, and project manager.
.2 Journeymen: qualified journeymen who have "Tradesman Qualification Certificate of Proficiency" engaged in painting work.
.3 Apprentices: working under direct supervision of qualified trades person in accordance with trade regulations.

1.4 SCHEDULING

.1 Submit work schedule for various stages of painting to Departmental Representative for review. Submit schedule minimum of 48 hours in advance of proposed operations.

.2 Obtain written authorization from Departmental Representative for changes in work schedule.

.3 Schedule painting operations to prevent disruption of occupants.

1.5 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Submit product data and instructions for each paint and coating product to be used.
.2 Submit product data for the use and application of paint thinner.

.3 Samples:
.1 Submit full range colour sample chips to indicate where colour availability is restricted.
.2 Manufacturer's Instructions:
.1 Submit manufacturer's installation and application instructions.
.3 Closeout Submittals: submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals include following:
.1 Product name, type and use.
.2 Manufacturer's product number.
.3 Colour numbers.
.4 MPI Environmentally Friendly classification system rating.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Packing, Shipping, Handling and Unloading:
.1 Pack, ship, handle and unload materials in accordance with Section 01 61 00 - Common Product Requirements and manufacturer's written instructions.

.2 Acceptance at Site:
.1 Identify products and materials with labels indicating:
.1 Manufacturer's name and address.
.2 Type of paint or coating.
.3 Compliance with applicable standard.
.4 Colour number in accordance with established colour schedule.

1.6 DELIVERY, STORAGE AND HANDLING (Cont'd)

.2 (Cont'd)
.1 (Cont'd)

.3 Remove damaged, opened and rejected materials from site.

.4 Storage and Protection:
.1 Provide and maintain dry, temperature controlled, secure storage.
.2 Store materials and supplies away from heat generating devices.
.3 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.

.5 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.

.6 Waste Management and Disposal:
.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
.3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan (WMP).
.4 Separate for reuse and recycling and place in designated containers Steel Metal Plastic waste in accordance with Waste Management Plan (WMP).
.5 Place materials defined as hazardous or toxic in designated containers.
.6 Ensure emptied containers are sealed and stored safely.
.7 Unused paint coating materials must be disposed of at official hazardous material collections site as approved by Departmental Representative.

1.7 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:
.1 Ventilate enclosed spaces in accordance with Section.
.2 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
.3 Provide continuous ventilation for seven days after completion of application of paint.
.4 Provide minimum lighting level of 323 Lux on surfaces to be painted.

1.7 SITE CONDITIONS (Cont'd)

.1 (Cont'd)
.5 Test concrete, masonry and plaster surfaces for alkalinity as required.

.2 Surface and Environmental Conditions:
.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
.2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.
.3 Apply paint when previous coat of paint is dry or adequately cured.

.3 Additional interior application requirements:
.1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.

.2 Provide paint materials for paint systems from single manufacturer.

.3 Conform to latest MPI requirements for interior painting work including preparation and priming.

.4 Materials (primers, paints) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.

.5 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids:
.1 Water-based Water soluble Water clean-up.
.2 non-flammable biodegradable.
.3 Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
.4 Manufactured without compounds which contribute to smog in the lower atmosphere.
.5 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.

2.2 COLOURS

.1 Submit proposed Colour Schedule to Departmental Representative for review.

2.2 COLOURS (Cont'd)

.2 Colour schedule will be based upon selection of 3 base colours.

2.3 INTERIOR PAINTING SYSTEMS

.1 Dressed lumber: including doors, door and window frames, casings, mouldings:
.1 INT 5.3A - High performance architectural latex semi gloss level finish. G5 finish.
.2 INT 6.3BB - Waterborne alkyd gloss finish interior doors and frames in non-humid locations only.

.2 Plywood ceiling sheathing: Oil base primer and oil base marine alkyd enamel, color grey, high gloss.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 GENERAL

.1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 PREPARATION

.1 Protection:
.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
.2 Protect items that are permanently attached such as Fire Labels on doors and frames.
.3 Protect factory finished products and equipment.
.4 Protect passing pedestrians, building occupants and general public in and about the building.

.2 Surface Preparation:

3.3 PREPARATION (Cont'd)

.2 (Cont'd)

.1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.

.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Departmental Representative.

.3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.

.2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.

.3 Allow surfaces to drain completely and allow to dry thoroughly.

.4 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.

.5 Use trigger operated spray nozzles for water hoses.

.6 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.

.4 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

.5 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

3.3 PREPARATION (Cont'd)

.6 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes blowing with clean dry compressed air or vacuum cleaning.

.7 Touch up of shop primers with primer as specified.

.8 Caulk around all windows and frames.

.9 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

3.4 APPLICATION

.1 Method of application to be as approved by Departmental Representative. Apply paint by brush roller. Conform to manufacturer's application instructions unless specified otherwise.

.2 Brush and Roller Application:
.1 Apply paint in uniform layer using brush and/or roller type suitable for application.
.2 Work paint into cracks, crevices and corners.
.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
.5 Remove runs, sags and brush marks from finished work and repaint.

.3 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.

.4 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.6 Sand and dust between coats to remove visible defects.

3.4 APPLICATION (Cont'd)

.7 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.8 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.5 FIELD QUALITY CONTROL

.1 Advise Departmental Representative when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.2 Cooperate with inspection firm and provide access to areas of work.

3.6 RESTORATION

.1 Clean and re-install hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 19 - Waste Management and Disposal.

.3 Section 01 45 00 - Testing and Quality Control.

.4 Section 01 61 00 - Common Product Requirements.

1.2 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA International)
.1 CAN/CSA C22.2 No.110-94(R2004), Construction and Test of Electric Storage Tank Water Heaters.
.2 CAN/CSA-C191-04, Performance of Electric Storage Tank Water Heaters for Household Service.

.2 National Research Council Canada (NRC)
.1 National Plumbing Code of Canada 2015 (NPC).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Provide manufacturer's printed product literature and datasheets for domestic water heater, and include product characteristics, performance criteria, physical size, finish and limitations.

1.4 CLOSEOUT SUBMITTALS

.1 Provide maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.5 DELIVERY, STORAGE AND HANDLING

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

.2 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.

1.6 WARRANTY

.1 For the Work of this Section 22 30 05 - Domestic Water Heaters, 12 months warranty period prescribed in subsection GC 32.1 of General Conditions "C" is extended to number of years specified for each product.

.2 Contractor hereby warrants domestic water heaters in accordance with CCDC2, but for number of years specified for each product.

PART 2 - PRODUCTS

2.1 COMPONENTS

.1 Sustainable Requirements:
.1 Materials and products in accordance with Section 01 47 15 - Sustainable Requirements: Construction.

2.2 ELECTRIC WATER HEATER

.1 To CAN/CSA C22.2 No.110, CAN/CSA-C191 and CAN/CSA-C309 for glass-lined storage tanks, with immersion type elements, 3800 W each, and surface mounted or immersion type adjustable thermostats.

.2 Tank: 284 L, glass lined, 600 mm diameter, 60 mm mineral wool or CFC-free foam insulation enamelled steel jacket, 8 year warranty certificate.

2.3 TRIM AND INSTRUMENTATION

.1 Top entry piping.

.2 Drain valve: Brass NPS 19 mm dia. hose end.

.3 Pressure gauge: 75 mm dial type with red pointer, syphon, and shut-off cock.

.4 ASME rated temperature and pressure relief valve sized for full capacity of heater control valve, having discharge terminating over floor drain and visible to operators.

.5 Magnesium anodes adequate for 20 years of operation and located for easy replacement.

.6 Vacuum Relief Valve: Tested and rated to ANSI Z21.22, CSA certified value. The vacuum relief valve shall have an all brass body and include a protective cap.

2.3 TRIM AND INSTRUMENTATION (Cont'd)

.7 Galvanized bottom pan or as detailed on drawings.

PART 3 - EXECUTION

3.1 APPLICATION

.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Install in accordance with manufacturer's recommendations and authority having jurisdiction.

3.3 FIELD QUALITY CONTROL

.1 Manufacturer's factory trained, certified Engineer to start up and commission DHW heaters. Contractor to have a certified personnel to start up and commission the hot water heater, provide documents to certify warranty.

3.4 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 61 00 - Common Product Requirements.

.3 Section 07 31 13 - Asphalt Shingles.

1.2 REFERENCE STANDARDS

.1 ASTM International
.1 ASTM E 90-09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

.2 National Research Council Canada (NRC)
.1 National Building Code of Canada 2015 (NBC).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for the vents and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Indicate following:
.1 Ventilated area.
.2 Vent size.
.3 Vent base type.
.4 Vent material type.

.3 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.4 Test Reports: submit certified data from independent laboratory substantiating acoustic and aerodynamic performance to ASTM E 90.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

1.4 DELIVERY, STORAGE AND HANDLING (Cont'd)

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 GRAVITY ROOF OUTSIDE AIR INTAKES AND RELIEF VENTS

.1 Factory manufactured aluminum.
.1 Complete with integral birdscreen of 2.7 mm diameter aluminum wire.
.2 Maximum throat velocity: 3.3 m/s intake.
.3 Maximum loss through unit: 15 Pa exhaust static pressure.
.4 Maximum velocity through damper area: 1.5 m/s.
.5 Shape: as indicated.

.2 355 mm dia. heavy duty turbine ventilater.

.3 Internally braced.

.4 Permanently lubricated upper and lower ball bearings.

.5 Mill finish.

.6 355 mm dia. adjustable base collar.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for louvres, intakes and vents installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate in presence of Departmental Representative.

3.1 EXAMINATION (Cont'd)

.1 (Cont'd)

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

.1 In accordance with manufacturer's and SMACNA recommendations.

.2 Reinforce and brace as indicated.

.3 Anchor securely into opening. Seal with caulking to ensure weather tightness.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

PART 1 - GENERAL

1.1 PRODUCT DATA AND SHOP DRAWINGS

.1 Submit product data and shop drawings in accordance with Division 01.

.2 Product Data to include:
- .1 Suspension of heating element.
- .2 Physical size.
- .3 Thermostat control if integral.
- .4 Finish.
- .5 KW rating.
- .6 Cabinet thickness.
- .7 Cabinet surface temperature.

PART 2 - MATERIALS

2.1 BASEBOARD CONVECTORS

.1 Epoxy/polyester powder paint.

.2 White in color.

.3 Rated 240 Volt.

.4 See Drawing for heater watt sizes.

.5 Cabinet:
- .1 20 gauge steel connection box.
- .2 22 gauge steel body.
- .3 20 gauge steel front panel.
- .4 Rounded upper corners.

.6 Linear high limit temperature control with automatic reset.

.7 Heating element to be nickel chromium, enclosed within a stainless steel sheath and aluminum fins.

.8 Floating heating element on high temperature nylon bushings.

.9 CSA certified for use in Canada.

2.2 CONTROLS

.1 Wall mounted thermostats: type line voltage. Supplied and installed as per manufacturer's instructions and electrical code 2015.

2.2 CONTROLS (Cont'd)

.2 Thermostats to be programmable, digital color-white.

2.3 WARRANTY

.1 Heater warranty to have a 10 year element warranty and a 1-year warranty on complete unit.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Install baseboard convector heaters, blank sections and controls.

.2 When wireway is used, remove knock-outs and insert insulating bushings between each unit.

.3 Install grounding wire to maintain ground integrity between heating, blank, and auxiliary sections.

.4 Make power and control connections.

3.2 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 Common Work Results for Electrical.

.2 Ensure heaters and controls operate correctly.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 10 10 - General Instructions.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 07 46 19 - Steel Siding.

1.2 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI)
.1 ANSI C82.1-04, Lamp Ballasts-Line Frequency Fluorescent Lamp Ballast.

.2 Canadian Standards Association (CSA International)

.3 Underwriters' Laboratories of Canada (ULC)

1.3 ACTION AND INFORMATIONAL

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Provide complete photometric data prepared by independent testing laboratory for luminaires where specified, for approval and review by Departmental Representative.
.3 Photometric data to include: VCP Table where applicable spacing criterion.

1.4 DELIVERY, STORAGE AND HANDLING

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

.2 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.

.3 Divert unused metal materials from landfill to metal recycling facility.

.4 Disposal and recycling of fluorescent lamps as per local regulations.

1.4 DELIVERY, STORAGE AND HANDLING (Cont'd)

.5 Disposal of old PCB filled ballasts.

PART 2 - PRODUCTS

2.1 LIGHTING FIXTURES

.1 Exterior wall mounted LED light fixture with the following properties:
- .1 Wall mounted.
- .2 Solid state - emitting drodes (LED).
- .3 Borosilicate glass door.
- .4 (6 package) 46W.
- .5 120V.
- .6 Color - black.
- .7 Button type internal photo control.
- .8 Pulled one piece die cast aluminum housing c/w silicone gasket and stainless steel hardware.

.2 Interior lighting fixture specifications:
- .1 Surface mounted low/mid bay linear.
- .2 LED fixture for hazardous and marine locations enclosed and gasketed.
- .3 UL1598/2108, CSA approved Class 1.
- .4 Fiberglass - reinforced polyester housing.
- .5 Impact modified frosted polycarbonate lens.
- .6 Stainless steel latches.
- .7 1220 mm long, 120V.

.3 Interior lighting fixture specifications:
- .1 Wall mounted heavy duty.
- .2 Compact LED watertight fixture.
- .3 UL rated, CSA approved, Class 1, Nema 4X.
- .4 Copper free aluminum, alloy powder coated finish.
- .5 Stainless steel hardware and guard.
- .6 Polycarbonate globe.
- .7 High power white LED module, 120V.

.4 Interior lighting fixture specifications:
- .1 Ceiling mounted heavy duty.
- .2 Compact LED watertight fixture.
- .3 UL rated, CSA approved, Class 1, Nema 4X.
- .4 Cast copper free aluminum, powder coated.
- .5 Stainless steel hardware and guard.
- .6 Polycarbonate globe.
- .7 High power white LED, 120V.

.5 Note: Connect fixtures to existing wiring.

2.2 FINISHES

.1 Light fixture finish and construction to meet ULC listing and CSA certification related to intended installation.

2.3 OPTICAL CONTROL DEVICES

.1 As indicated in luminaire schedule.

2.4 LUMINAIRES

.1 As indicated in schedule and on drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Locate and install luminaires as indicated.

.2 Provide adequate support to suit ceiling system and exterior wall system.

3.2 WIRING

.1 Connect luminaires to lighting circuits:
.1 Install flexible or rigid conduit for luminaire. Installation.
.2 Cement to existing wiring and circuits.

3.3 LUMINAIRE ALIGNMENT

.1 Align luminaires mounted in the same location as the fixtures that was removed.

.2 Align luminaires mounted individually parallel or perpendicular to building grid lines.

3.4 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.
.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for supply and installation of structural timber as follows:
.1 Supply and installation of untreated timber hardwood ladders, ladder handgrips, and associated hardware and painting.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM International)
.1 ASTM A307-12, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile.
.2 ASTM-A123/A123M-13, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
.3 ASTM F1667-13, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

.2 Canadian Standards Association (CSA International)
.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
.2 CAN/CSA-G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Steel.

.3 Canadian Wood Council
.1 Wood Design Manual.

.4 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber 2014 edition.

1.3 DIMENSIONS

.1 Check existing site dimensions and report discrepancies to Departmental Representative before commencing work.

1.4 PROTECTION

.1 Avoid dropping, bruising or breaking of wood fibres.

.2 Avoid breaking surfaces of treated timber.

.3 Do not damage surfaces of treated timber by boring holes or driving nails or spikes into them to support temporary material or staging.

1.4 PROTECTION (Cont'd)

.4 Treat cuts, breaks or abrasions on surfaces of treated timber with 3 brush coats of preservative to CSA 080.

.5 Treat bolt holes, cutoffs and field cuts in accordance with CSA 080.

1.5 DELIVERY AND STORAGE

.1 Store timber horizontally, evenly supported and open piled permit circulation when stored for prolonged period.

.2 When handling long timber, provide support at sufficient number of points, properly located to prevent damage due to excessive bending.

.3 Do not use sharp pointed tools to handle treated timber. Any timber so handled will be rejected and be replaced at Contractor's expense.

PART 2 - PRODUCTS

2.1 TIMBER MATERIALS

.1 Timber: Use timber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Administration Board of CSA.

.2 Species
.1 Hardwood ladder uprights: Birch or Maple untreated).

.3 Grade: No. 1 Structural Grade

.4 Grading Authority: NLGA

.5 Primer: Alkyd undercoat, exterior oil wood primer, similar to Pittsburgh 6-9, 6-809 or approved equal.

.6 Paint: Alkyd/Oil Resin paint similar to Pittsburgh Paints "Safety Yellow" Product ID 7-808C,"Safety Orange" Product ID 7-805C. Paint to conform to CAN/CGSB-1.61-2004, TT-E-489, TT-E-505.

.7 Ladder uprights to be painted "safety yellow".

2.2 MISCELLANEOUS STEEL AND FASTENINGS

.1 Miscellaneous Steel: All steel and fastenings to be CSA G40.21, Grade 300 W, galvanized.

.2 Nails and Spikes: to CSA B111 or ASTM F1667.

.3 Machine Bolts and Nuts: to ASTM A307. All machine bolts and nuts to be galvanized.

.4 Washers:
.1 Round Plate Washers: for 16 mm machine bolts will be 76 mm diameter by 6.4 mm thick, for 19 mm machine bolts will be 79 mm diameter by 7.9 mm thick and have a hole diameter of 18 mm and 21 mm diameter respectively. Washers to conform to G40.21. All washers to be galvanized.
.2 Round plate washers for 25 mm dia. machine bolts, 89 mm diameter by 7.9 mm thick and have a hole diameter of 28 mm. Washer to G40.21.
.3 Plain Washers: to CSA B19.1, Class 2. All washers to be galvanized.
.4 Square washers are not permitted.

.5 Galvanizing: will conform to ASTM A123/A123M. Unless otherwise specified, minimum weight of zinc coating will be as stated in this standard. Fabricator is to adhere to recommendations of standard.

.6 Ladder Rungs and Hand Grips: to CSA G40.21, galvanized.

.7 Lag Screws: to CSA B34, galvanized lag screw washers will conform to CSA B19.1

.8 Welding in accordance with CSA Standards. The welders will be qualified to the appropriate classification as stated in CSA W47.1 "Certification of Companies for Fusion Welding of Steel Structures." Conform welding to all appropriate requirements and recommendations of CSA Standard W59 "Welded Steel Construction" (metal arc welding).

PART 3 - EXECUTION

3.1 PREPARATION

.1 Install structural timbers to details shown on drawings or as specified.

3.2 LADDERS

.1 Install ladders on face of wharf in locations shown on drawings or designated by Departmental Representative.

.2 Ladder uprights to be 2-150 mm x 200 mm installed from 900 mm below LNT to wheelguard elevation. Uprights to be bevelled at 45° on top and painted as specified.

.3 Construction details and steel handgrips as per detail.

.4 Secure each upright with four (4) each evenly spaced 19 mm diameter galvanized lag screws. All lag screws to be countersunk.

3.3 PAINTING

.1 Paint four (4) sides of exposed sides of complete ladder uprights including notches and countersink holes as directed by the Departmental Representative.

.2 Use one (1) coat of exterior oil wood primer and two (2) coats of alkyd/oil resin paint as specified. Paint materials for each coat to be product of a single manufacturer as specified. Ensure previous coat of primer or paint is dry before second coat is applied.

3.4 BOLT SIZING

.1 Drift Bolts: Drift bolts used in the work will have a length equal to thickness of timbers being fastened less 50 mm unless otherwise specified. Holes for drift bolts will be bored 2 mm smaller diameter than size of steel used and for full length of bolts.

.2 Machine Bolts: Machine bolts used in work will have a length equal to thickness of timbers being fastened plus thickness of washers plus 40 mm. Where bolts are countersunk, the length will be as above less depth of countersinking. Machine bolts will be threaded for 64 mm. Holes will be drilled same diameter as bolt.

3.4 BOLT SIZING (Cont'd)

.3 Lag Screws: All lag screws used in the work will have a length equal to thickness of timbers being fastened less 50 mm and depth of countersinking. Holes for lag screws to be drilled same diameter as shank portion of screw and to inside thread diameter for threaded portion of screw and for full length. All lag screws will be countersunk, screwed, not driven in place, and will have one (1) standard washer under the head.

.4 Countersink drift bolts and/or lag screws in hardwood fenders, chocks and ladders, to the extent that the minimum distance from face of timber to head of bolt is 12 mm.

.5 Bolting of timbers without properly drilled bolt holes will not be accepted.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 45 00 - Quality Control.

.2 Section 01 74 19 - Waste Management and Disposal.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)
.1 ASTM C117-13, Standard Test Method for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.
.2 ASTM C131-06, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
.3 ASTM C117-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregate.
.4 ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft^3) (600kN-m/m^3).
.5 ASTM D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft^3) (2,700kN-m/m^3).
.6 ASTM D1883, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soil.
.7 ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Type 2 Granular Sub-Base Material to the following requirements:
.1 Gradation to be within following limits when tested to ASTM C136-82 and ASTM C117-80. The gradings shall not show marked fluctuations from opposite extremes of the limiting sizes, having a smooth curve without sharp breaks when plotted on a semi-log grading chart to ASTM E11-87.

2.1 MATERIALS (Cont'd)

.1 (Cont'd)

ASTM Sieve Designation	%Passing
50.8 mm	75-100
15.9 mm	45-80
4.76 mm	25-55
1.20 mm	12-35
0.300 mm	7-20
0.075 mm	3-6 (Pit Source) 3-8 (Rock Source)

.2 Other properties as follows:

.1 Liquid Limit ASTM D423-66 (1972) Maximum 25.

.2 Plasticity Index ASTM D424-59 (1971) Maximum 0.

.3 Los Angeles Abrasion ASTM C131-81 Maximum % Loss by Weight: 35.

.4 Crushed fragments: 50%. The percent of crushed particles will be determined by examining the fraction retained on the 4.76 mm sieve and dividing the weight of the crushed particles by the total weight retained on the 4.76 mm sieve.

.5 CBR: AASHTO T180-74 Method D.

.2 Other properties as follows:

.1 Liquid Limit: to ASTM D4318 (1972) maximum 25.

.2 Plasticity Index: to ASTM D4318-59 (1971) maximum 0.

.3 Los Angeles Abrasion: to ASTM C131-06. Maximum % loss by weight: 35.

.4 Crushed Fragments: 50%. The percent of crused particles will be determined by examining the fraction retained on the 4.76 mm sieve and dividing the weight of the crushed particles by the total weight retained on the 4.76 mm sieve.

.5 CBR:AASSHTO T 193-10 (2010) Min 100 when compacted to 100% of AASSHTO T 180-10 Method D.

PART 3 - EXECUTION

3.1 SEQUENCE OF OPERATIONS

.1 Place granular sub-base after common backfill is inspected and approved by Departmental Representative.

.2 Placing

.1 Construct granular base to depth and grade in areas indicated.

.2 Ensure no frozen material is placed.

.3 Place material only on clean unfrozen surface, free from snow and ice.

3.1 SEQUENCE OF OPERATIONS (Cont'd)

.2 (Cont'd)

.4 Place material to full width in uniform layers not exceeding 150mm compacted thickness. Department Representative may authorize thicker lifts (layers) if specified compaction can be achieved.

.5 Shape to smooth contour and compact to specified density before succeeding layer is placed.

.6 Remove and replace that portion of layer in which material becomes segregated during spreading.

.3 Compaction Equipment

.1 Compaction equipment to be capable of obtaining required material densities.

.4 Compacting

.1 Compact to density not less than 100% corrected maximum dry density ASTM D698.

.2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.

.3 Apply water as necessary during compacting to obtain specified density.

.4 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Department Representative.

3.2 SITE TOLERANCES

.1 Finished base surface to be within plus or minus 10 mm of established grade and cross section but not uniformly high or low.

3.3 PROTECTION

.1 Maintain finished base in condition conforming to this Section until succeeding material is applied or until acceptance by Departmental Representative.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 19 - Waste Management and Disposal.

1.2 REFERENCES

.1 American Association of State Highway and Transportation Officials (AASHTO)
.1 AASHTO M180-12, Standard Specification for Corrugated Sheet Steel Beams for Highway Guardrails.

.2 American Society for Testing and Materials (ASTM International)
.1 ASTM A307-12, Standard Specification for Carbon Steel Bolts Studs and Threaded Rod, 60 000 PSI Tensile Strength.

.3 ASTM A123/A123M-13, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.4 Canadian Standards Association (CSA International)
.1 CAN/CSA-O80 Series-08(R2012), Wood Preservation.

1.3 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Inform Departmental Representative at least 4 weeks prior to beginning Work, of proposed sources of guide rail and components.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 19 - Waste Management and Disposal.

.2 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.3 Place materials defined as hazardous or toxic in designated containers.

1.4 WASTE MANAGEMENT AND DISPOSAL (Cont'd)

.4 Divert unused metal materials from landfill to metal recycling facility as approved by Departmental Representative.

.5 Unused paint or coating material must be disposed of at an official hazardous material collections site as approved by Departmental Representative.

.6 Fold up metal banding, flatten and place in designated area for recycling.

.7 Do not dispose of unused paint material into sewer system, into streams, lakes, onto ground or in any other location where it will pose a health or environmental hazard.

.8 Do not dispose of preservative treated wood through incineration.

.9 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.

.10 Dispose of treated wood, end pieces, wood scraps and sawdust at a sanitary landfill.

.11 Dispose of unused preservative material at an official hazardous material collections site. Do not dispose of unused preservative material into the sewer system, streams, lakes, on ground or in any other location where they will pose a health or environmental hazard.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Steel W-beam guide rail as indicated and to following requirements:
.1 Steel rail and terminal sections: to AASHTO M180-78, class A Type 1 zinc coated.
.2 Bolts, nuts and washers: to ASTM A307, hot dip galvanized to ASTM A123/A123M (CSA G-164M).

.2 Organic zinc-rich coating: to CAN/CGSB-1.181.

.3 Sawn timber posts and offset blocks:
.1 Species: Hemlock or Douglas Fir.
.2 Type: pressure treated in accordance with CAN/CSA-O80 Series.
.3 Grade: No 1 Structural Grade.
.4 Dimensions: as indicated 200 mm x 200 mm x 2440 mm.

PART 3 - EXECUTION

3.1 ERECTION

.1 Set posts by instrument for alignment, and locations as indicated and as directed by Departmental Representative.

.2 Excavate post holes to depths as indicated and to diameter of 360 mm plus or minus 20 mm. Compact bottom to provide firm foundation. Set post plumb and square in hole.

.3 Backfill around posts using excavated material and compact in uniform layers not exceeding 150 mm compacted thickness.

.4 Cut off tops of posts as indicated, with tops parallel to grade of concrete apron edge.

.5 Worker protection: workers must wear gloves respirators dust masks long sleeved clothing eye protection protective clothing when handling, drilling, sawing, cutting or sanding preservative treated wood and applying preservative materials.

.6 Construct anchorages to details as indicated. Place and compact backfill for anchors as directed by Departmental Representative.

.7 Erect steel W-beam components to details as indicated. Lap joints in direction of traffic. Tighten nuts to 100 N.m torque. Maximum protrusion of bolt 12 mm beyond nut.

.8 Connect one end to existing guide rail post as shown on drawings.

.9 Install one (1) guide rail end section. See details on project drawings.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 19 - Waste Management And Disposal.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)
.1 ASTM C117-13, Standard Test Method for Material Finer than 0.075 mm Sieve in Mineral Aggregates by Washing.
.2 ASTM C136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire.
.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.3 SUBMITTALS

.1 Submit to Departmental Representative for approval, 4 weeks before blasting, details of proposed blasting operations showing types and quantities of explosives, loading charges and patterns, type of blasting caps, blasting techniques, blast protection measures, time of blasting and other pertinent details. Submit subsequent changes to Departmental Representative before proceeding.

.2 Samples
.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
.2 Inform Departmental Representative of proposed source of materials at least 2 weeks prior to commencing Work.
.3 Submit samples representative of quarry, minimum 2 weeks prior to beginning Work.
.4 Ship samples to approved testing lab for testing and results.
.5 Contractor is responsible for the supply of samples, cost of transport and cost of testing for the rock being used for the project.

.3 Submit testing results for review and approval by Departmental Representative proposed method of handling rip rap and armour stone. Submission to cover phases of handling, from removal from form to final position.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 19 - Waste Management And Disposal.

.2 Divert unused geotextiles from landfill to plastic recycling facility as approved by Departmental Representative.

.3 Divert unused rock materials from landfill to local quarry facility as approved by Departmental Representative.

1.5 INTERFERENCE TO NAVIGATION

.1 Be familiar with vessel movements and fishery activities in area affected by construction operations.

.2 Plan and execute work, in a manner that will not impede navigation, including movement of vessels at the facility.

.3 Plan and execute work, in a manner that will not interfere with fishing operations or access to marine structures by land and water.

.4 Departmental Representative will not be responsible for loss of time, equipment, material or any other charges related to interference with moored vessels in the harbour or other Contractor's operations.

.5 Keep the Marine Communications and Traffic Services' Centre, Fisheries and Oceans Canada, informed of construction operations, in order that necessary Notices to Mariners may be issued.

1.6 REGULATORY REQUIREMENTS

.1 Comply with municipal, provincial and national codes and regulations relating to project.

PART 2 - PRODUCTS

2.1 ROCK MATERIAL

.1 Hard, angular rock free from cracks, seams and other defects which may impair durability.

.2 Relative density, 2.65 minimum.

2.1 ROCK MATERIAL (Cont'd)

.3 Absorption, 1.5 to 2.0% maximum as determined by ASTM C127 test procedure.

.4 Durability, less than 35% abrasion Wear, ASTM C535 test procedure.

.5 Sulphate Soundness Determination maximum 12% by ASTM C88.

2.2 ARMOUR STONE

.1 Hard, dense with relative density (formally specific gravity) not less than 2.65, durable quarry stone, free from seams, cracks or other structural defects, to meet following size distribution for use intended.

.2 Material for armour stone to be blasted rock or field stone.

.3 Stone sizes to be in the range of 2 to 4 tonnes, in categories specified, well graded within each category.

.4 Greatest dimension of each stone not to exceed two (2) times least dimension.

.5 Supply rock spalls to fill open joints.

2.3 RIP-RAP

.1 Hard, dense with relative density (formally specific gravity) not less than 2.65, durable quarry stone, free from seams, cracks or other structural defects, to meet following size distribution for use intended.

.2 Material for armour stone to be blasted rock or field stone.

.3 Stone sizes to be in the range of (0.50 to 1 tonne), in categories specified, well graded within each category.

.4 Greatest dimension of each stone not to exceed two(2) times least dimension.

.5 Supply rock spalls to fill open joints.

PART 3 - EXECUTION

3.1 GENERAL

.1 Contractors will not be permitted to work the existing wharf deck. No equipment allowed on or operate from the structure or on existing asphalt surface.

3.2 PREPARATION

.1 Haul roads: construct and maintain haul roads.

3.3 PLACING

.1 Place armour stone to lines, grades and dimensions indicated on the drawings. Contractor should realize the distance required to place the armour stone out into the water, supply necessary equipment to complete as shown on drawings.

.2 Dumping of armour stone and rip-rap will not be permitted. Each stone will be lifted and individually placed.

.3 Side slopes to be 2.0 horizontal to 1.0 vertical unless otherwise indicated on the drawings.

.4 Place armour stone to a total layer thickness as indicated on the drawings.

.5 Choose stones and place them in such a way that the whole structure will be bonded and consolidated to as great an extent as nature or rock will allow. Rocks should vary in size so they don't grade lines as indicated on the drawings.

.6 Do not transport different categories of material in the same truckload. If rocks of markedly different sizes are present in the same load, Departmental Representative reserves the right to have each rock measured separately and sorted prior to installing in structure.

.7 Contractor to provide cross sections to the Departmental Representative at 5 metre stations to show that lines and grades have been achieved as shown on the drawings. Measurement for payment for this work will be included in the cost of the supply and installing the above item.

3.4 ROCK MATERIAL WASHED OUT OF WORK

.1 Should during the progress of the Work, any rock material be washed out of the Work, or through neglect or carelessness of the Contractor or their employees or from any other cause, be dumped into the water near the Work or anywhere within the harbour or channel so as to interfere in the opinion of the Departmental Representative with actual depths of water and/or impede navigation, it will be removed by the Contractor when ordered to do so by the Departmental Representative. Any material washed out of the Work or displaced beyond the contract limits will be replaced by the Contractor at no cost to Canada.

3.5 TOLERANCES

.1 Note: These tolerances are not to be considered pay limits but are specified to ensure contractor keeps within acceptable lines and grades.

.2 Completed component layers to be within the following tolerances of lines and grades as indicated:

.1 Armour stone +/-300 mm.

.2 Rip rap +/-200 mm.

END OF SECTION