SPECIFICATION

Light Tower Refurbishment 2015

Cape Race, NL

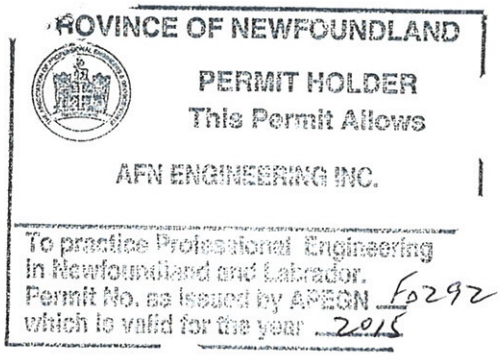
PROJECT NUMBER: F6879-151006

PREPARED FOR

Fisheries and Oceans Canada

DATE

February 12, 2015
Revision 1



Light Tower Refurbishment 2015
Cape Race, NL
F6879-151006 2015-02-12

DRAWING NO	TITLE
01K1101A051C1	Work Plan
01K1101A051C2	Details
01K1101A051E1	Lighthouse Elevation
01K1101A051E2	Electrical Details and Specification

1.1 SCOPE

.1 The work consists of the furnishing of all plant, labour, equipment and material for restoration of the exterior of the Cape Race Light Tower, NL, in strict accordance with specifications and accompanying drawings and subject to all terms and conditions of the Contract. The Site is accessible by gravel road (note that the gravel road is not snow-cleared during the winter months).

.2 All specifications related to the new lightning protection system are indicated on the drawings.

.3 DFO will schedule a mandatory site visit during the tender period. The site visit will occur over a one day period (Contractors wishing to visit site shall contact the Departmental Representative to obtain schedule). Contractor responsible for all costs associated with getting to/from the site in Cape Race. Note the following:

- If weather is poor on the scheduled site visit day, it will occur on the following day.
- A maximum of 2 persons per Contractor will be permitted entry into the building.
- Time allocated on site will be a maximum of 2 hours.
- 2 days advance notice is to be given to the Departmental Representative with respect to the company and individuals attending the visit.
- Contractor will be required to wear a half mask respirator with mercury vapour cartridge filters, in order to enter the light tower. The cost of the respirators and filters are the responsibility of the Contractor.

The Site visit will occur within 8

calendars days after posting of the project.

1.2 DESCRIPTION OF WORK

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

.1 Re-painting of the exterior galvanized steel catwalk railings and decorative trim sections above the catwalk that are designated to remain. General requirements will include pressure washing (or abrasive blasting) to remove all existing coatings that are on the steel surfaces. Power tool clean to SSPC-SP-11 to roughen the exposed galvanized surface and to remove all rust that has developed on the surface. Prime surface by applying 2 coats of Amerlock 2 Surface Tolerant Epoxy Coating (or approved equivalent) at 5-7 mils dry film thickness per coat. Apply one coat of Amershield High Solids Polyurethane coating (or approved equivalent) at 3-5 mils dry film thickness.

.2 For the concrete tower, square cut the opened cracked areas to a minimum of 50mm width to a depth of 25mm. Assume total length of concrete cracks is 100 linear metres. Assume an additional 50m^2 of concrete spalling. Once cracked and spalled area have been prepared, apply Master Emeco N425 (or approved equivalent) in accordance with manufacturer’s instructions. Allow repairs to cure. Once repairs have cured, pressure wash the entire exterior concrete structure to remove any loose coatings and other contaminants that are on the surface. Apply 1 coat touch up coat of Master Protect HB300 SB coating (or approved equivalent) to any bare concrete areas. Obtain Departmental Representative’s

approval before proceeding with subsequent coats. Apply 2 coats of Master Protect HB300 SB coating (or approved equivalent) to the entire concrete surface. Apply as per manufacturer's instructions.

.3 For the cast iron dome area, pressure wash using freshwater to remove all chlorides and contaminants that are on the surface. Abrasive blast the substrate to SSPC-SP-10 near white metal to achieve an anchor profile of 2.0 mils. The SSPC-SP10's definition of a near-white metal blast clean requires the surface to be free of all visible oil, grease, dust, dirt, mill scale, rust, coating, oxides, corrosion products, and other foreign matter when viewed without magnification. The standard also provides requirements for "random staining" on the surface which shall not exceed five percent of each unit area of surface. The surface shall be cleaned of oil, grease, and dust after the near-white metal blasting procedure. Any blasted areas that show pitting are to be filled with Belzona 1111 Super Metal Paste Grade Metallic Filler (or approved equivalent). Pits should be filled flush with surrounding steel area prior to priming. Once all pitting has been addressed apply one coat of Amercoat 370 Epoxy (or approved equivalent) at 5 mils Dry Film Thickness. Apply one coat (by Plural Spray) of PPG Amerthane 490 Elastomeric Polyurea Hibrid Coating (or approved equivalent) at 80 Mils Dry Film Thickness. Apply one coat of PPG Amershield High Solids Polyurethane (or approved equivalent) at 3 Mils Dry Film Thickness.

.4 Supply and installation of new asphalt shingles, door frame and door (complete with hardware and vent), for the

porch entrance.

.5 Supply and installation of new Cape Cod siding on the exterior of the porch entrance shed.

.6 Supply and installation of fall arrest tie-off points on the catwalk area, complete 12mm diameter aircraft cable around full perimeter of catwalk, as directed by the Departmental Representative.

.7 Supply and installation of signage on the hatch door to the catwalk area, to restrict access to maintenance personnel only.

.8 Supply and installation of new lightning protection system as indicated on the electrical drawings. Ensure all grounds are restored to their original condition following installation of lightning protection works.

Do not proceed with any portion of the work until the Departmental Representative has approved the Contractor's written work plan. Note that lead paint is present on the structure and measures will have to be implemented in the Contractor's work plan to limit occupational exposure to lead. All scaffolding used in the work is to bear the stamp of a professional engineer licensed to practice by PEG-NL.

1.3 SITE OF WORK

.1 Work will be carried out at Cape Race, NL. The Site is relatively remote, but is accessible by gravel road located in the community of Portugal Cove South.

1.4 DATUM

.1 Datum used for this project is Lowest Normal Tides (LNT). If requested by the Contractor, the Departmental

Representative will establish a benchmark prior to the start of deconstruction activities.

1.5 FAMILIARIZATION WITH SITE

.1 Before submitting a bid, bidders shall 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, 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 or costs to do the work. 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.

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

1.6 CODES AND STANDARDS

.1 Perform work in accordance with the latest edition of the National Building Code of Canada, and any other code of provincial or local application 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.

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 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.

.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 This will be a lump sum project. Individual work items will not be measured separately for payment.

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. Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.

.4 Submit schedule updates on a minimum bi-weekly 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 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. All arrangements for space and access will be made by Contractor.

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 damaged in transit or storage to the satisfaction of Departmental Representative and at no cost to Canada.

1.15 EXISTING SERVICES

.1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to site operations, and tenant operations.

.2 Before commencing work, establish location and extent of service lines in area of work and notify Departmental Representative of findings.

.3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility.

.4 Provide temporary services when directed by Departmental Representative to maintain critical facility systems.

1.16 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each of the following:
.1 Contract Drawings
.2 Specifications
.3 Addenda
.4 Contract and any resulting amendments signed by contracting authority.
.5 Test Reports
.6 Copy of Approved Work Schedule

.7 Site specific Health and Safety Plan and other safety related documents.

1.17 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 advice 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.

1.18 CUTTING, FITTING AND PATCHING

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

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 their 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 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.

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

.3 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 and insurance and bonding documentation, 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 MERCURY VAPOURS

.1 Work under this contract is expected to be limited to the exterior (with the exception of signage installation on the inside of the lantern room hatch door). Contractors are to note the minimum protection measures to be implemented to limit occupational exposure to mercury vapours when inside the building (refer to Appendix C for specific requirements).

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Product data.

.2 Samples.

.3 Certificates.

1.2 SUBMITTAL GENERAL REQUIREMENTS

.1 Submit to Departmental Representative for review submittals listed, including samples, certificates and other data, as specified in other sections of the Specifications. Note that any and all changes to the contract will have to be approved in writing by the Contracting Authority.

.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 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 and coordinate.

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

.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 PRODUCT DATA

.1 Product data includes drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit sufficient copies of product data 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 Allow 10 calendar days for Departmental Representative's review of each submission.

.4 Adjustments or corrections made on product data 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.

.5 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 product data are rejected and noted to be Resubmitted, do not proceed with that portion of work until resubmission and review of corrected product data, through same submission procedures indicated above.

.6 Accompany each submission with transmittal letter, containing:
.1 Date.
.2 Project title and project number.
.3 Contractor's name and address.

.4 Identification and quantity of each product data and sample.
.5 Other pertinent data.

.7 Submissions shall include:
.1 Date and revision dates.
.2 Project title and project number.
.3 Name and address of:
.1 Subcontractor.
.2 Supplier.
.3 Manufacturer.
.4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
.5 Cross references to particular details of contract drawings and specifications section number for which product data submission addresses.
.6 Details of appropriate portions of Work.

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

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

installation and for co-ordination of Work of all sub-trades.

1.4 SCHEDULES, 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.

1.1 SECTION INCLUDES

.1 Fire Safety Requirements.

.2 Hot Work Permit.

1.2 RELATED WORK

.1 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 National Fire Code - Standard for Construction Operations – latest edition (http://www.hrsdc.gc.ca/eng/labour/ fire_protection/policies_standards/ commissioner/301/page00.shtml).
.2 National Fire Code - Standard for Welding and Cutting – latest edition (http://www.hrsdc.gc.ca/eng/labour/ fire_protection/policies_standards/ commissioner/302/page00.shtml).
.3 FCC standards, may also be viewed at the Regional Labour Canada Office located at Baine Johnson Centre, 10 Fort William Place, St. John’s, NL, A1C 1K4; Telephone 1-800-641-4049; fax 1-709-772-5985.

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.

1.5 SUBMITTALS

.1 Submit copy of Hot Work Procedures and sample of Hot Work permit to Departmental Representative for review, within five (5) calendar days after notification of acceptance of bid.

.2 Submit in accordance with the Submittal General Requirements specified in Section

01 33 00.

1.6 FIRE SAFETY REQUIREMENTS

.1 Implement and follow fire safety measures during Work. Comply with following:
.1 National Fire Code, latest edition.
.2 Fire Protection Standards FCC 301 and FCC 302 – latest edition.
.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.
.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.

.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.

1.9 HOT WORK PERMIT

.1 Hot Work Permit to include, as a minimum, the following data:
.1 Project name and project number.
.2 Building name, address and specific room or area where hot work will be performed.
.3 Date when permit issued.
.4 Description of hot work type to be performed.
.5 Special precautions required, including type of fire extinguisher needed.
.6 Name and signature of person authorized to issue the permit.
.7 Name of worker (clearly printed) to

which the permit is being issued.
.8 Time Duration that permit is valid (not to exceed 8 hours). Indicate start time 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 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.

1.1 RELATED WORK

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

1.2 DEFINITIONS

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

.2 Competent Person: means a person who is:

.1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;

.2 Knowledgeable about the provisions of occupational health and safety statutes and regulations that apply to the Work and;

.3 Knowledgeable about potential or actual danger to health or safety associated with the Work.

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

.4 PPE: personal protective equipment.

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

1.3 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00.

.2 Submit to Departmental Representative, copies of the following documents including updates.

.1 Site specific Health and Safety Plan.
.2 Building permit, compliance certification and other permits obtained.
.3 Reports or directives issued by Federal and Provincial Inspectors and other Authorities having jurisdiction.
.4 Accident or incident reports.
.5 WHMIS – MSDS data sheets.
.6 Name of Contractor’s Representative designated to perform health and safety supervision in site.
.7 Certificate of clearance from Workplace Health Safety and Compensation Commission (Assessment Services Department) of Newfoundland and Labrador.

.3 Submit within five (5) work days of notification of Bid Acceptance. Provide one (1) copy.

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

.5 The Contractor will revise the Plan as appropriate and resubmit within five (5) work days after receipt of comments.

.6 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.

.7 Submit revisions and updates made to the Plan during the course of Work.

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 Health and Safety Regulations (COSH) as well as any other regulations made pursuant to the Act.

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

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

.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 Observe construction safety measures of:

.1 Part 8 of National Building Code.

.2 Municipal by-laws and ordinances.

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

.6 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof through submission of Certificate of Clearance from Workplace Health, Safety and Compensation Commission (Assessment Services Department) of Newfoundland and Labrador.

.7 Obtain and maintain worker medical surveillance documentation where prescribed by legislation or regulation.

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 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. Immediately stop and remove non-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 persons 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 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 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.

.2 Should unforeseen or peculiar safety related hazard or condition become evident during performance of Work, immediately take measures to rectify 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.

1.9 PERMITS

.1 Post permits, licenses and compliance Certificates at Work Site.

.2 Where a particular permit or compliance certificate cannot be obtained, notify Departmental Representative in writing and obtain approval to proceed before carrying

out applicable portion of work.

1.10 HAZARD ASSESSMENTS

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

.2 Carryout initial assessment prior to commencement of 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 Working in close proximity of water.
.2 Remote site location.
.3 Wet and slippery conditions.
.4 Inclement weather conditions.
.5 Heavy lifting.
.6 Working at heights.
.7 Cutting tools and other construction power tools.
.8 Hazardous materials, including lead paint.
.9 Sharp objects (construction debris).
.10 Surrounding steep terrain/cliffs/risk of falling.

.2 Above items 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.

1.12 MEETINGS

.1 Contractor to hold pre-construction health and safety meeting prior to commencement of Work. Ensure attendance of:
.1 Superintendent of Work.
.2 Contractor’s designated Health & Safety Site Representative.
.3 Subcontractor’s Health and Safety Site Representative.
.4 Health and Safety Site Coordinator.

.2 Conduct regularly scheduled 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.

.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 Communication 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.

.4 On-site Communication Plan:

.1 Procedures for sharing of work related safety information to workers and subcontractors, including emergency and evacuation measures.

.5 Address all 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 the 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 responsibility and authority to:

- .1 Implement, monitor and enforce daily compliance with 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 to their activities at the site or 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 Conduct regularly scheduled safety inspections of the Work on a minimum daily 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 measures are taken.

.6 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 of 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.

.4 All workers dealing with hazardous materials are required to provide evidence of training, in accordance with Provincial regulations.

1.16 MINIMUM SITE SAFETY RULES

.1 Notwithstanding 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 PPE pertinent to the Work or assigned task; minimum being hard hat, safety footwear, safety glasses safety vest 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.

.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.

.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 SITE RECORDS

.1 Maintain on Work Site copy of safety related 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.

1.21 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.

1.1 RELATED WORK

.1 Section 02 41 16 – Sitework, Demolition and Removal.

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 DISPOSAL OF WASTES AND HAZARDOUS MATERIALS

.1 Do not bury rubbish and waste materials on site.

.2 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.

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

.4 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.

.5 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.

.6 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.

1.6 PERMITS

.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 Ensure refueling of any type of equipment does not, either directly or indirectly, create pollution by causing or permitting any leaks or spills.

.7 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 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

.4 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.

.5 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 sea bird nests be encountered during work, immediately notify Departmental Representative for directives to be followed.

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

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

1.1 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.

1.2 WATER SUPPLY

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

1.3 SCAFFOLDING

.1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with CSA797-09, or other applicable standard acceptable to Departmental Representative. Scaffolding is to be designed and stamped by a Professional Engineer, licensed to practice by PEG-NL in the Province of NL. Provide stamped design drawings and design notes to Departmental Representative. Erect scaffolding independent of walls. Remove when no longer required.

1.4 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 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.

1.5 REMOVAL OF TEMPORARY FACILITIES

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

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Barriers.

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 enclosure if required by governing authorities, using new 1.2 m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4 m centres. Provide one lockable truck gate. Maintain fence in good repair.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades as required to protect against falls.

.2 Provide as required by governing authorities.

PART 1 - GENERAL

1.1 GENERAL

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

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

.3 Prevent accumulation of wastes which create hazardous conditions.

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

1.2 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.

1.3 FINAL CLEANING

.1 In preparation for acceptance of the Work perform final cleaning. Final cleaning to include exterior rake of work area, to satisfaction of Departmental Representative.

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, substitutions 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 Geodetic 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.

.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.

1.3 REVIEWED SHOP DRAWINGS	.1	Compile 2 full sets of all reviewed shop drawings.

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.

.2 Demolition and removal will consist of, but not necessarily be limited to, the following:

.1 Removal and disposal of the porch door and frame, as noted on the drawings.
.2 Removal and disposal of the porch wooden siding and asphalt shingles, as noted on the drawings.
.3 Removal and disposal of the top rail and vertical posts from the decorative trim above the catwalk.
.4 Removal of the exterior paint from the dome, steel catwalk railings and decorative trim support brackets (which are to remain) using abrasive blasting.
.5 Routing of cracks in the concrete tower in preparation for in-filling with grout, as per the manufacturer’s recommendations associated with the specified grouting product.

Refer to other sections of these specifications and the drawings for specific requirements to limit occupational exposure to lead dust during paint removal activities.

1.2 MEASUREMENT FOR PAYMENT

.1 This portion of the work will not be measured for payment but will be included in the Lump Sum Amount of the contract.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.1 EXECUTION

.1 Inspect site and verify with Departmental Representative objects designated for removal.

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

3.2 REMOVAL

.1 Remove in their entirety all materials and objects specified for removal. Do not disturb adjacent work designated to remain in place.

3.3 DISPOSAL OF MATERIAL

.1 All demolished materials will become property of contractor and will be removed from site and disposed of to satisfaction of Departmental Representative and in accordance with environmental guidelines. It is the sole responsibility of the contractor to dispose of all demolished materials at an approved disposal site. Ensure that disposal site is approved and willing to accommodate any materials disposed of from work site.

.2 Contractor shall obtain and pay for all necessary permits and disposal fees for use of an approved waste disposal site.

3.4 RESTORATION

.1 Upon completion of work, remove debris, trim surfaces and leave work site in clean condition.

.2 Reinstate areas and existing works outside areas of demolition to conditions that existed prior to commencement of work.

PART 1 – GENERAL

1.1 REFERENCES

.1 Guideline for Lead on Construction Projects from Occupational Health and Safety Branch, Ontario Ministry of Labour, April 2011.

.2 Health Canada
.1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).

.3 Human Resources and Social Development Canada (HRSDC)
.1 Canada Labour Code Occupational Health and Safety Regulations.

.4 Transport Canada (TC)
.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.5 Management of Disposal of Construction, Abatement and Demolition Waste Containing Lead-Based Paint, 2010, NL Department of Environment and Conservation.

1.2 SCOPE

.1 For this work scope, lead based paint is noted to be present on the existing structure. For the purposes of transportation and disposal, the lead based paint is non-leachable and can be disposed of as non-hazardous waste. Refer to the laboratory results appended to the specifications.

.2 Comply with requirements of this Section when performing following Work:

.1 Removal of lead based paint from the existing dome and steel railings, as indicated on the drawings. Consider this activity to be a Type 3b activity as defined in

the document referenced in Part 1.1.1 of this specification section.

.2 Removal of potential flaking/peeling paint from the concrete surfaces, as indicated on the drawings. Consider this activity to be a Type 2a activity as defined in the document referenced in Part 1.1.1 of this specification section.

.3 Disposal of lead based paint and abrasive blasting material in accordance with the NL Department of Environment Regulations, as defined in the reference document noted under Part 1.1.5 of this specification section. For the purposes of transportation and disposal, the lead paint is considered non-leachable and can be disposed of in the non-hazardous waste stream.

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

.2 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead based paint waste in accordance with requirements of authority having jurisdiction. Note that it is the Contractor’s responsibility to determine an approved waste site for all flaking/peeling paint and spent abrasives (while the paint is non-leachable, the Contractor is cautioned that landfill disposal on the Island may in fact be limited to the Regional Waste Disposal sites in Norris Arm or St. John’s).

.3 Provide proof of Contractor's General and Environmental Liability Insurance governing abatement of lead.

.4 Quality Control:

.1 Provide proof satisfactory to Departmental Representative that employees had instruction on hazards of lead exposure, respirator use, dress, entry and exit from Work Area, and aspects of work procedures and protective measures.

.2 Provide proof that supervisory personnel have attended lead abatement course, of not less than one day duration, approved by Departmental Representative. Minimum of one supervisor for every ten workers.

.5 Contractor to submit Shop Drawings on containment system under seal of Professional Engineer licensed to practice in Newfoundland & Labrador.

.6 All shop drawings for scaffolding, temporary supports and structures to be utilized in the work shall be submitted under seal of professional engineer licensed to practice in Newfoundland & Labrador.

1.4 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with federal, provincial/Territorial and local requirements pertaining to lead, in case of conflict among those requirements or with these specifications the more stringent requirement applies. Comply with regulations in effect at time work is performed.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Polyethylene 0.15 mm unless otherwise specified; in sheet size to minimize joints.

.2 FR polyethylene: 0.15 mm woven fibre reinforced fabric bonded both sides with polyethylene.

.3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.

.4 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for trapping residual lead paint residue.

.5 Lead waste containers: metal fibre type acceptable to dump operator with tightly fitting covers and 0.15 mm sealable polyethylene liners.

.1 Label containers with pre-printed cautionary warning “Lead” clearly visible when ready for removal to disposal site.

PART 3 - EXECUTION

3.1 SUPERVISION

.1 Approved Supervisor must remain within Work Area during disturbance, removal, or handling of lead based paints.

3.2 RESPIRATORS

.1 For Type 2a operation, as per Part 1.2.2 of this specification section, use half mask particulate respirator with N-, R- or P-series filter, and 95, 99 or 100% efficiency.

.2 For Type 3b operation, as per Part 1.2.1 of this specification section, use type CE abrasive blast supplied respirator operated in a positive pressure mode

with a tight fitting mask facepiece.

3.3 GENERAL

.1 Washing facilities to be established on site before removal of lead paint surfaces. Washing facilities to consists of a wash basin, water, soap and towels.

.2 No eating, drinking, chewing gum or smoking in work area.

.3 Drop sheets to be used below all lead operations which produce or may produce dust, chips or debris containing lead.

.4 Dust and waste to be cleaned up and removed by vacuuming with a HEPA filter equipped vacuum.

.5 Clean-up after ach operation to be done to prevent lead contamination and exposure to lead.

3.4 MEASURES

.1 Type 2a (removal of flaking/peeling paint for concrete surfaces):
.1 Post signs to warn of lead hazard.
.2 Where respirators in accordance with Part 3.2 of this specification, during all manual scraping activities.
.3 Where protective clothing to prevent skin contamination, including but not limited to coveralls, gloves, hats and footwear or disposable coverlets; safety glasses, face shields or goggles. All protective clothing to be removed at the end of each shift and be decontaminated.

.2 Type 3a (removal of paint from steel Railings and dome):
.1 Post signs to warn of lead hazard.
.2 Where respirators in accordance with Part 3.2 of this specification, during all paint removal activities, involving

pressure washing or abrasive blasting.

.3 Where protective clothing to prevent skin contamination, including but not limited to coveralls, gloves, hats and footwear or disposable coverlets; safety glasses, face shields or goggles. All protective clothing to be removed at the end of each shift and be decontaminated.

.4 Construct full tight enclosure (with tarps that are generally impermeable and fully sealed joints and entryways). Install negative pressure machine system and operate continuously from installation of polyethylene sheeting until completion of final cleanup.

.5 Seal off openings, polyethylene sheeting sealed with tape. Cover floor surfaces or working platform in work area from wall to wall with FR polyethylene drop sheets. Build airlocks at entrances and exits from work areas to ensure work areas are always closed off by one curtained doorway when workers enter or exit. At point of access to work areas install warning signs.

.6 Maintain emergency and fire exits from work areas, or establish alternative exits satisfactory to Authority having jurisdiction

.7 Where water application is required provide temporary water supply by use of appropriately sized hoses for application of water as required.

.8 Provide electrical power and shut off for operation of powered tools and equipment. Provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.9 Worker Decontamination Enclosure System includes Equipment and Access Room and Clean Room, as follows:

.1 Equipment and Access Room: construct between exit and work areas, with two curtained doorways, one to the rest of the site, and one to work area. Install waste receptor and storage facilities for workers' shoes and protective clothing to be re-worn in work areas. Build large enough to accommodate specified facilities, equipment needed, and at least one worker allowing sufficient space to change comfortably.
.2 Clean Room: construct with curtained doorway to outside of enclosures. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.10 Construction of Decontamination Enclosures:
.1 Construct framing for enclosures or otherwise provide portable enclosures as approved by the Departmental Representative. Line enclosure with polyethylene sheeting and seal with tape, apply two layers of FR polyethylene on floor.
.2 Construct curtain doorways between enclosures so when people move through or waste containers and equipment are moved through doorway, one of two closure comprising doorway always remains closed.
.3 Shower room in decontamination facility to be provided with the following:
.1 Hot and cold water or water of constant temperature not less than 40 degrees Celsius or more than 50 degrees Celsius.
.2 Individual controls inside to

regulate water flow and temperature.

.4 Prior to each shift in which a decontamination facility is being used, a competent person should inspect the facility to ensure that there are no defects that would allow lead-containing dust to escape. Defects should be repaired before the facility is used. The decontamination facility should be maintained in a clean and sanitary condition.

PART 1 GENERAL

1.1 REFERENCES

.1 Codes and standards referenced in this section refer to the latest edition thereof.

.2 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-37.4, Fibrated, Cutback Asphalt, Lap Cement for Asphalt Roofing.

.2 CAN/CGSB-37.5, Cutback Asphalt Plastic Cement.

.3 Canadian Roofing Contractors' Association (CRCA).

.1 CRCA Roofing Specification Manual.

.4 Canadian Standards Association (CSA International).

.1 CAN/CSA-A123.1/A123.5, Asphalt Shingles Made From Organic Felt and Surfaced With Mineral Granules/Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules.

.2 CSA A123.2, Asphalt-Coated Roofing Sheets.

.3 CAN/CSA-A123.3, Asphalt Saturated Organic Roofing Felt.

.4 CAN3-A123.51, Asphalt Shingle Application on Roof Slopes 1:3 and Greater.

.5 CAN3-A123.52, Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3.

.6 CSA B111, Wire Nails, Spikes and Staples.

.5 National Research Council Canada (NRC)/Institute for Research in Construction (IRC) - Canadian Construction Materials Centre (CCMC).

.1 CCMC, Registry of Product Evaluations.

1.2 SAMPLES

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

.2 Submit duplicate samples of full size specified shingles.

1.3 EXTRA MATERIALS

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide 2 unopened bundles of shingles. Store as directed by Departmental Representative.

1.4 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, cleaning procedures.

.3 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 DELIVERY, STORAGE AND HANDLING

.1 Provide and maintain dry, off-ground weatherproof storage.

.2 Remove only in quantities required for same day use.

1.6 WARRANTY

.1 Shingles: 25 year manufacturer’s warranty.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Asphalt shingles: to CSA A123.1/A123.5.

.1 Type: self-seal, standard, pattern rectangular.

.2 Mass: minimum 33 kg/3m².

.3 Colors: as selected by Departmental Representative.

.2 Roofing underlay: self-adhesive, non-woven glass fibre matt coated with SBS modified bitumen, minimum thickness 1.8 mm, bottom surface release film, top surface sanded.

.3 Plastic Cement: to CAN/CGSB-37.5.

PART 3 EXECUTION

3.1 APPLICATION

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

.2 Install layer of self-adhesive roof underlay over entire roof area.

.3 Install drip edge along eaves, overhanging 12 mm, with minimum 50 mm flange extending onto roof decking. Nail to deck at 400 mm oc.

.4 Install bottom step flashing (soaker base flashing) interleafed between shingles at vertical junctions.

.5 Install asphalt shingles on roof slopes 1:3 and steeper in accordance with CAN3-A123.51.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 Codes and standards referenced in this section refer to the latest edition thereof.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-11.3, Hardboard.
- .2 CAN/CGSB-11.5, Hardboard, Precoated, Factory Finished, for Exterior Cladding.
- .3 CAN/CGSB-11.6, Installation of Exterior Hardboard Cladding.
- .4 CAN/CGSB-51.32, Sheathing, Membrane, Breather Type.

.3 Canadian Standards Association (CSA)
- .1 CSA B111, Wire Nails, Spikes and Staples.
- .2 CSA O121, Douglas Fir Plywood.
- .3 CSA O151, Canadian Softwood Plywood.

.4 NLGA Standard Grading Rules for Canadian Lumber.

1.2 SUBMITTALS

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

.2 Submit duplicate 300 mm long sample of profile specified.

.3 Submit Shop Drawings in accordance with Section 01 33 00 – Submittal Procedures.

.4 Submit product information, color options for selection by Departmental Representative, and installation instructions. Incorporate approved shop drawings in Operation and Maintenance Manual.

1.3 DELIVERY, STORAGE AND HANDLING

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

.2 Deliver siding suitably packaged to avoid damage to finished surface.

.3 Store in an unheated structure or under cover until application. Siding may be temporarily stored outside if at least 4 inches off the ground and on a flat, well drained surface protected from moisture with a shed pack or waterproof cover.

1.4 WARRANTY

.1 Warranty Period: 15 years against cracking, peeling, blistering, chalking, loss of coating adhesion, yellowing with age, and no damage caused by rinse cleaning surface dirt. Warranty to extend from date of Substantial Completion.

1.5 QUALITY ASSURANCE

.1 If requested, provide Certificate of Quality Compliance from siding manufacturer upon completion of fabrication.

.2 If requested, provide Certificate of Quality Compliance upon satisfactory completion of installation.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Clapboard Siding: Western Lodgepole Pine or Eastern Spruce, No. 1 select or better grade, factory finished, saw texture, rabbeted bevel profile, cove or V-joint pattern, free of large knots, knot holes, or loose knots, maximum moisture content of 12%. Size: 5/8 inch (16mm) thickness, 6 inch (150mm) width. Cape Cod will be the standard of acceptance.

.2 Moldings and trim: Western Lodgepole Pine or Eastern Spruce, No. 1 select or better grade, factory finished same as siding.

.3 Strapping: Softwood Lumber, kiln dried, pressure treated.

.4 Nails: Mechanically galvanized, to securely and rigidly retain the work permanently in position, pre-finished baked-on coating to match siding finish.

.5 Exterior Sheathing Membrane: CAN/CGSB 51.32m, Spun bonded olefin sheeting, conforming to ASTM D3575, single ply laminated and coated.

.6 Sealant: thermoplastic, color to exactly match siding.

2.2 FINISH

.1 Pre-finish color: thermoplastic acrylic latex emulsion, factory coated under controlled environment conditions by a modified vacuum coat method, one prime coat and one finish coat, applied to all board surfaces, minimum 6 mil (0.15mm) dry film thickness.

.1 Standard color or custom color from manufacturer’s range of colors.
.2 Touch-Up Paint: thermoplastic acrylic latex emulsion, same type and color as siding.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verify that substrate surfaces and wall openings are ready to receive work.

3.2 PREPARATION

.1 Install one layer of sheathing membrane horizontally on sheathed walls, weather lap edges and ends minimum 6 inches (150mm). Stagger vertical laps. Tape all edges.

.2 Install strapping at 406 mm o.c., or as indicated on drawings.

.3 Apply sealant around window, door and other opening frames.

3.3 INSTALLATION

.1 Install siding and accessories to manufacturer’s printed instructions.

.2 Install screen at bottom of base trim.

.3 Install siding for natural watershed.

.4 Install siding in straight aligned lengths, set level with plumb ends and corners.

.5 Achieve siding joints no less than 32 inches (812 mm) apart in adjoining boards and distribute evenly over wall surface.

.6 Miter external and internal corners: Install corner strips, closures, frieze boards skirt boards and trim.

.7 Fasten siding securely to wood batten substrate.

.8 Face nail 1 inch (25mm) from bottom of siding board directly into wood strapping, drive nail head just flush with siding surface; do not indent or penetrate painted coating. Nail head as per manufacturer’s recommendation ensuring suitable for environment with the intent being to avoid rusted nail heads with time.

3.4 INCIDENTAL SITE FINISHING

.1 Carefully set exposed nails flush with siding coating.

.2 Touch-up blemished siding materials to match siding color.

PART 1 - GENERAL

1.1 REFERENCES

.1 Codes and Standards referenced in this section refer to the latest edition thereof.

.2 American Society for Testing and Materials (ASTM)
- .1 ASTM A653/A653M, Specification for Steel Sheet Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot Dip Process.

.3 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.181, Ready-Mixed Organic Zinc-Rich Coating.

.4 Canadian Standards Association (CSA International)
- .1 G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .2 CSA W59, Welded Steel Construction (Metal Arc Welding).

.5 Canadian Steel Door Manufacturers' Association, (CSDMA).
- .1 CSDMA, Specifications for Commercial Steel Doors and Frames.
- .2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors.

.6 National Fire Protection Association (NFPA)
- .1 NFPA 80, Standard for Fire Doors and Fire Windows.
- .2 NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

.7 Underwriters' Laboratories of Canada (ULC)
- .1 CAN4-S104M, Fire Tests of Door Assemblies.
- .2 CAN4-S105M, Fire Door Frames Meeting the Performance Required by CAN4-S104.

.8 CAN/ULC-S701, Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.9 CAN/ULC-S702, Thermal Insulation, Mineral Fibre, for Buildings.

1.2 DESIGN REQUIREMENTS

.1 Design door assembly to withstand minimum 1,000,000 swing cycles in accordance with ANSI A151.1, with no failure of any design features of the door.

.2 Design exterior frame assembly to accommodate expansion and contraction when subjected to minimum and maximum surface temperature of -35°C to +35°C.

.3 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

1.3 SHOP DRAWINGS

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

.2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, louvers, arrangement of hardware and fire rating and finishes.

.3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing, fire-rating and finishes.

.4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

1.4 DELIVERY STORAGE AND HANDLING

.1 Deliver, handle and store doors and frames at the job site in such a manner as to prevent damage.

.3 Store doors and frames under cover with doors stored in a vertical position on blocking, clear of floor and with blocking between doors to permit air circulation.

1.5 QUALITY ASSURANCE

.1 Conform to requirements to ANSI A117.1

.2 Company specializing in manufacturing products specified with a minimum of five (5) years documented experience.

1.6 WARRANTY

.1 Provide a written warranty for work of this section from manufacturer for failure due to defective materials for ten (10) years.

1.7 REQUIREMENTS

.1 Steel fire rated doors and frames: labeled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104M NFPA 252 for ratings specified or indicated.

.2 Provide fire labeled frame products for those openings requiring fire protection ratings, as scheduled. Test products in strict conformance with CAN4-S104, ASTM E152 or NFPA 252 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Hot dipped galvanized steel sheet: to ASTM A653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.

.2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.

2.2 DOOR CORE MATERIALS

.1 Stiffened: face sheets welded insulated core.
.1 Expanded polystyrene: CAN/ULC-S701, density 16 to 32 kg/m³.

.2 Temperature rise rated (TR): core composition to limit temperature rise on unexposed side of door to 250°C at 60 minutes. Core to be tested as part of a complete door assembly, in accordance with CAN4-S104, ASTM E152 or NFPA 252, covering Standard Method of Tests of Door Assemblies and listed by nationally recognized testing agency having factory inspection service.

.3 Thermal Insulation material must:
.1 Not require being labeled as poisonous, corrosive, flammable or explosive under the Consumer Chemical and Container Regulations of the Hazardous Products Act.

.2 Be manufactured using a process that uses chemical compounds with the minimum ozone depletion potential (ODP) available.

2.3 ADHESIVES

.1 Polystyrene cores: heat resistant, epoxy resin based, low viscosity, contact cement. Colour to match, to approval of Departmental Representative.

2.4 PRIMER

.1 Touch-up primer to CAN/CGSB-1.181.

2.5 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

.2 Exterior top and bottom caps steel.

.3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.4 Door bottom seal: As per manufacturer’s recommendations to suit installation, or as otherwise acceptable to Departmental Representative.

.5 Metallic paste filler: to manufacturer's standard.

.6 Fire labels: metal riveted.

.7 Glazing: to match existing.

.8 Make provisions for glazing as indicated and provide necessary glazing stops.
.1 Provide removable stainless steel glazing beads for dry glazing of snap-on type.
.2 Design exterior glazing stops to be tamper-proof.

.9 Foam Insulation: one-component minimal-expanding, flexible polyurethane foam to ASTM D6464.

2.6 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Exterior frames: 1.6 mm welded, thermally broken type construction.

.4 Manufacturer's nameplates on frames and screens are not permitted.

.5 Conceal fastenings except where exposed fastenings are indicated.

.6 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

.7 Insulate exterior frame components with polyurethane insulation.

2.7 FRAME ANCHORAGE

.1 Provide appropriate anchorage to floor and wall construction.

.2 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm o.c. maximum.

2.8 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

2.9 DOOR FABRICATION GENERAL

.1 Doors: swing type, flush, with provision for glass and/or louver openings as indicated. Door to be complete with vent.

.2 Exterior doors: insulated, hollow steel construction.

.3 Doors: manufacturers' proprietary construction, tested and/or engineered as part of a fully operable assembly, including door, frame, gasketing and hardware in accordance with ASTM E330.

.4 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

.5 Provide fire labeled doors. Test such products in strict conformance with CAN4-S104 ASTM E152 NFPA 252 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

.6 Manufacturer's nameplates on doors are not permitted.

PART 3 - EXECUTION

3.1 INSTALLATION GENERAL

.1 Install labeled steel fire-rated doors and frames to NFPA 80 except where specified otherwise.

.2 Install doors and frames to CSDMA Installation Guide.

3.2 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.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

.5 Seal around all frames with foam insulation.

.6 Caulk perimeters of frames between frame and adjacent material.

.7 Maintain continuity of air barrier and vapour retarder.

3.3 DOOR INSTALLATION

.1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions.

.2 Provide even margins between doors and jambs and doors and finished floor as follows.
.1 Hinge side: 1.0 mm.

.2 Latch side and head: 1.5 mm.
.3 Finished floor: 13 mm.

.3 Adjust operable parts for correct function.

.4 Install aluminum door sills at door, as per manufacturer’s recommendations or as otherwise acceptable to Departmental Representative.

3.4 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.

3.5 COMMISSIONING

.1 Instruct maintenance personnel in operation and maintenance of doors and hardware.

.2 Confirm operation and function for all doors and hardware.

.3 Commissioning will be witnessed by Site Representative and Certificate will be signed by Contractor and Site Representative.

PART 1 - GENERAL

1.1 REFERENCES

.1 Codes and standards referenced in this section refer to the latest edition thereof.

.2 Canadian General Standards Board (CGSB).
- .1 CAN/CGSB-69.17, Bored and Preassembled Locks and Latches.
- .2 CAN/CGSB-69.18 /ANSI/BHMA A156.1, Butts and Hinges.
- .3 CAN/CGSB-69.19/ANSI/BHMA A156.3, Exit Devices.
- .4 CAN/CGSB-69.20/ANSI/BHMA A156.4, Door Controls (Closers).
- .5 CAN/CGSB-69.21/ANSI/BHMA A156.5, Auxiliary Locks and Associated Products.
- .6 CAN/CGSB-69.22/ANSI/BHMA A156.6, Architectural Door Trim.
- .7 CAN/CGSB-69.28 /ANSI/BHMA A156.12, Interconnected Locks and Latches.
- .8 CAN/CGSB-69.29/ANSI/BHMA A156.13, Mortise Locks and Latches.
- .9 CAN/CGSB-69.31/ANSI/BHMA A156.15, Closer/Holder Release Device.
- .10 CAN/CGSB-69.33/ANSI/BHMA A156.17, Self-Closing Hinges and Pivots.

1.2 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 If requested, 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 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 incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 MAINTENANCE MATERIALS

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Supply two sets of wrenches for door locksets.

1.4 WARRANTY

.1 Provide a written manufacturer’s warranty for work of this Section for failure due to defective materials for ten (10) years, dated from final completion certificate.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements:
.1 Hardware for exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.
.2 Only products meeting ANSI/BHMA standards are acceptable. Items that are equal in design, function and quality will be accepted upon approval of the Departmental Representative.
.3 Only recognized contract hardware distributors will be considered for the work of this section. The distributor shall

have on staff a qualified Architectural Hardware Consultant recognized by the Door and Hardware Institute or a person with equivalent qualifications to assist installers and direct detailing, processing and delivery of material, and certify installation acceptance.

1.6 DELIVERY, STORAGE, AND HANDLING

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

.2 Store hardware in locked, clean and dry area.

.3 Package each item of hardware, including fastenings, separately or in like groups of hardware; label each package as to item definition and location.

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 One (1) continuous hinge CH-951 X size required (Contractor to confirm), to BHMA 630.
.2 One (1) exit device 9300B-01-476-TB/SNB to BHM 630.
.3 One (1) door closer 8901DS-TB/SNB to BHMA 689.
.4 One (1) set weather-stripping 1500N X size required.
.5 One (1) water drip – head – AW2 X size required.
.6 One (1) water drip – bottom – AW1 X size required.
.7 One (1) threshold ATP5 X size required.
.8 One (1) door lock Corbin with exterior key and thumbturn inside (keyed to master keying system as directed by Departmental Representative).

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.

.4 Use fasteners compatible with material through which they pass.

2.4 KEYING

.1 Doors to be master keyed as directed. Prepare detailed keying schedule in conjunction with Departmental Representative.

.2 Provide keys in triplicate for every lock in this Contract.

.3 Provide three master keys.

.4 Stamp keying code numbers on keys and cylinders.

2.5 FINISHES

.1 Following finishes are indicated in hardware groups.

BHMA	CAN MATERIAL	FINISH
626	C26D Brass/Bronz	Satin Chrome
628	C28 Aluminum	Satin Alum, Anodized
630	C32D Stainless Steel	Satin Stainless Steel
652	C26D Steel	Plated Satin Chrome
689	Al All	Painted Aluminum
	Alum Aluminum	Mill Finish
	TMDFF (to match door and frame finish).	

Modify above finishes where required to ensure all finishes are rated as “rust resistant” to salt/spray. Coordinate with the Departmental Representative during shop drawing submission.

2.6 ABBREVIATIONS

ALD	Aluminum Door and Frame
ATMS STMS	Arm/strike To Template with Machine Screws
ASB	Arm Complete with Sex Bolts
BC	Back Check
C to C, C/L	Centerline to Centerline
Cyl	Cylinder (of a lock)
CMK	Construction Master Key
Deg.	Degree (of opening)
DEL	Delayed Action
FBB or BB	Ball bearing hinge

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 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 Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.
.2 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

3.3 EXAMINATION

.1 Visit site prior to start of installation of hardware.
.2 Visit will include examination of openings, site conditions and materials for conditions that prevent proper application of

finish hardware.

.3 Installation will imply conditions for installation acceptable; hardware contractor to accept responsibility.

3.4 FIELD QUALITY CONTROL

.1 Hardware contractor to have a qualified AHC representative from the manufacturer/supplier on site at Substantial Completion Inspection and at commissioning of the finished hardware. Cost of the visits to be included in contract.

3.5 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 Adjust door hardware to provide tight fit at contact points with frames.

.4 Where hardware is found defective, repair or replace or correct as desired by inspection reports.

3.6 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 manufacturer's instructions.

.3 Remove protective material from hardware items.

.4 Upon completion of installation, remove surplus materials,

rubbish, tools and equipment barriers.

3.7 PROTECTION

.1 All hardware shall be protected against damage from paint, plaster or other defacing materials. Whenever possible, manufacturer’s protective covering shall not be removed until final project cleaning takes place. Material not protected by manufacture shall be covered or removed from door during painting or any other adjustments that can cause damage to hardware.

3.8 COMMISSIONING

.1 Perform site inspection at Substantial Completion and training and inspection at commissioning.

General Note: All cast iron sections are to be inspected by the manufacturer's trained technical representative (Inspector), acceptable to the specifying authority and Departmental Representative, prior to repainting. The cost of the "Inspector" is to be borne by the Contractor. Assume a minimum of three inspections from the Inspector is to be made prior to and during application of paint on cast iron sections, to ensure proper application. After each site visit, provide written report to the Departmental Representative within five (5) working days with the testing results and certifications.

PART 1 GENERAL

1.1 Related Sections

.1 01 33 00 – Submittal Procedures.

1.2 References

.1 Canada Green Building Council (CaGBC)

.1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package for New Construction and Major Renovations.

.2 Environmental Protection Agency (EPA)

.1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.4 The Master Painters Institute (MPI)

.1 Architectural Painting Specification Manual - February 2004.

.2 Standard GPS-1-05, MPI Green Performance Standard for Painting and Coatings.

.5 National Fire Code of Canada.

.6 Society for Protective Coatings (SSPC)

.1 Systems and Specifications, SSPC Painting Manual 2005.

1.3 Quality Assurance

.1 Qualifications:

.1 Qualified journeypersons as defined by local jurisdiction to be engaged in painting work

.2 Apprentices: may be employed provided they work under direct supervision of qualified journeyperson in accordance with trade regulations.

.3 Conform to latest MPI requirements for exterior painting work including preparation and priming.

.4 Materials: in accordance with MPI Painting Specification Manual "Approved Product" listing and from a single manufacturer for each system used.

.5 Paint materials such as linseed oil, shellac, and turpentine to be highest quality product of an approved manufacturer listed in MPI Painting Specification Manual and to be compatible with other coating materials as required.

1.4 Performance Requirements

.1 Environmental Performance Requirements:

.1 Green Performance in accordance with MPI Standard GPS-1.

1.5 Scheduling

.1 Submit work schedule for various stages of painting to Engineer for approval. Submit schedule minimum of 48 hours in advance of proposed operations.

.2 Obtain written authorization from Engineer for changes in work schedule.

.3 Schedule painting operations to prevent disruption of occupants in and about building.

1.6 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.

.3 Upon completion, submit records of products used. List products in relation to finish system and include the following:

.1 Product name, type and use.

.2 Manufacturer's product number.

.3 Colour numbers.

.4 MPI Environmentally Friendly classification system rating.

.5 Manufacturer's Material Safety Data Sheets (MSDS).

.4 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.

.1 Submit duplicate 200 x 300 mm sample panels of each paint, stain, clear coating with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:

.1 3 mm plate steel for finishes over metal surfaces.

.2 13 mm birch plywood for finishes over wood surfaces.

.3 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.

.4 10 hardboard for finishes over wood surfaces.

.2 When approved, samples shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

.3 Submit full range of available colours where colour availability is restricted.

1.7 Quality Control

.1 Provide mock-up in accordance with Section 01 45 00 - Quality Control.

1.8 Maintenance

.1 Extra Materials:

.1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Submit one, four litre can of each type and colour of finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

1.9 Delivery, Storage And Handling

.1 Deliver, store and handle as follows:

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

.2 Labels: to indicate:

.1 Manufacturer's name and address.

.2 Type of paint or coating.

.3 Compliance with applicable standard.

.4 Colour number in accordance with established colour schedule.

.3 Remove damaged, opened and rejected materials from site.

.4 Provide and maintain dry, temperature controlled, secure storage.

.5 Observe manufacturer's recommendations for storage and handling.

.6 Store materials and supplies away from heat generating devices.

.7 Store materials and equipment in well

ventilated area with temperature range 7 degrees C to 30 degrees C.

.8 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.9 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Engineer. After completion of operations, return areas to clean condition to approval of Engineer.

.10 Remove paint materials from storage only in quantities required for same day use.

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

.12 Fire Safety Requirements:

.1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.

.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

.2 Waste Management and Disposal:

.1 Paint, stain and wood preservative finishes and related materials (thinners, solvents, etc.) are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

.2 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

.3 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.4 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:

.1 Retain cleaning water for water-based materials to allow sediments to be filtered out.

.2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.

.3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.

.4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.

.5 Empty paint cans are to be dry prior to disposal or recycling (where available).

.5 Close and seal tightly partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

1.10 Ambient Conditions

.1 Heating, Ventilation and Lighting:

.1 Provide temporary ventilating and heating equipment. Do not perform painting work unless adequate and

continuous ventilation and sufficient heating facilities are in place 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.

.2 Where required, provide continuous ventilation for seven days after completion of application of paint.

.3 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate temporary lighting facilities to be provided by General Contractor.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless specifically pre-approved by specifying body, Paint Inspection Agency and, applied product manufacturer, perform no painting work when:

.1 Ambient air and substrate temperatures are below 10 degrees C.

.2 Substrate temperature is over 32 degrees C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.

.4 Relative humidity is above 85 % or when dew point is less than 3 degrees C variance between air/surface temperature.

.5 Rain or snow is forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing

at site.

.2 Perform no painting work when maximum moisture content of substrate exceeds:

.1 15 % for wood.

.3 Conduct moisture tests using a properly calibrated electronic Moisture Meter.

.3 Surface and Environmental Conditions:

.1 Apply paint to adequately prepared surfaces and to surfaces within moisture limits noted herein.

.2 Apply paint when previous coat of paint is dry or adequately cured.

.3 Apply paint finishes when conditions forecast for entire period of application fall within manufacturer's recommendations.

.4 Do not apply paint when:

.1 Temperature is expected to drop below 10 degrees C before paint has thoroughly cured.

.2 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's limits.

.3 Surface to be painted is wet, damp or frosted.

.5 Provide and maintain cover when paint must be applied in damp or cold weather. Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.

.6 Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.

.7 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation.

Prepare surface again and repaint.

PART 2 PRODUCTS

2.1 Materials

.1 Paint materials listed in latest edition of MPI Approved Products List (APL) are acceptable for use on this project.

.2 Paint materials for paint systems: to be products of single manufacturer.

.3 Acceptable products (or approved equivalents), are indicated on the drawings.

2.2 Colours

.1 The intent is to match the existing colours (Coast Guard “red/white”).

.2 Selection of colours will be from manufacturers full range of colours.

.3 Where specific products are available in restricted range of colours, selection will be based on limited range.

PART 3 EXECUTION

3.1 Manufacture Instructions

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

3.2 Preparation

.1 Perform preparation and operations for exterior painting in accordance with MPI Maintenance Repainting Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

.3 Clean and prepare exterior surfaces to be repainted in accordance with MPI

Maintenance Repainting Manual requirements. Refer to the MPI Manual in regard to specific requirements and as follows:

Re-painting of the exterior galvanized steel catwalk railings and decorative trim sections above the catwalk that are designated to remain: General requirements will include pressure washing (or abrasive blasting) to remove all existing coatings that are on the steel surfaces. Power tool clean to SSPC-SP-11 to roughen the exposed galvanized surface and to remove all rust that has developed on the surface. Prime surface by applying 2 coats of Amerlock 2 Surface Tolerant Epoxy Coating (or approved equivalent) at 5-7 mils dry film thickness per coat. Apply one coat of Amershield High Solids Polyurethane coating (or approved equivalent) at 3-5 mils dry film thickness.

For the concrete tower: square cut the opened cracked areas to a minimum of 50mm width to a depth of 25mm. Assume total length of concrete cracks is 100 linear metres. Assume an additional 50m^2 of concrete spalling. Once cracked and spalled area have been prepared, apply Master Emeco N425 (or approved equivalent) in accordance with manufacturer’s instructions. Allow repairs to cure. Once repairs have cured, pressure wash the entire exterior concrete structure to remove any loose coatings and other contaminants that are on the surface. Apply 1 coat touch up coat of Master Protect HB300 SB coating (or approved equivalent) to any bare concrete areas. Obtain Departmental Representative’s approval before proceeding with subsequent coats. Apply 2 coats of Master Protect HB300 SB coating (or approved equivalent) to the entire concrete surface. Apply as per manufacturer’s instructions.

For the cast iron dome area: pressure wash using freshwater to remove all chlorides and contaminants that are on the surface. Abrasive blast the substrate to SSPC-SP-10 near white metal to achieve an anchor profile of 2.0 mils. The SSPC-SP10's definition of a near-white metal blast clean requires the surface to be free of all visible oil, grease, dust, dirt, mill scale, rust, coating, oxides, corrosion products, and other foreign matter when viewed without magnification. The standard also provides requirements for "random staining" on the surface which shall not exceed five percent of each unit area of surface. The surface shall be cleaned of oil, grease, and dust after the near-white metal blasting procedure. Any blasted areas that show pitting are to be filled with Belzona 1111 Super Metal Paste Grade Metallic Filler (or approved equivalent). Pits should be filled flush with surrounding steel area prior to priming. Once all pitting has been addressed apply one coat of Amercoat 370 Epoxy (or approved equivalent) at 5 mils Dry Film Thickness. Apply one coat (by Plural Spray) of PPG Amerthane 490 Elastomeric Polyurea Hibrid Coating (or approved equivalent) at 80 Mils Dry Film Thickness. Apply one coat of PPG Amershield High Solids Polyurethane (or approved equivalent) at 3 Mils Dry Film Thickness. Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.

3.3 Protection .1 Protect factory finished products and equipment.

.2 Protect passing pedestrians, and general public in and about building.

.3 Remove light fixtures, surface hardware on doors, and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Store items and re-install after painting is completed.

.4 As painting operations progress, place "WET PAINT" signs in pedestrian and vehicle traffic areas to approval of Engineer.

3.4 Application

.1 Method of application to be approved by Departmental Representative. Apply paint by brush, roller or sprayer. Conform to manufacturer's application instructions unless specified otherwise.

.2 Spray Application:

.1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.

.2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.

.3 Apply paint in a uniform layer, with overlapping at edges of spray pattern. Brush out immediately runs and sags. Use brushes to work paint into cracks, crevices and places that are not adequately painted by spray.

.3 Brush and Roller Application:

.1 Apply paint in a uniform layer using brush and/or roller of types 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 shall be free of roller tracking and heavy stipple unless approved by Engineer.

.5 Remove runs, sags and brush marks from finished work and repaint.

.4 Apply coats of paint as 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.

.7 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.

.8 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.5 Field Quality Control

.1 Inspection:

.1 Advise Engineer when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

3.6 Cleaning

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

.1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

3.7 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 Protect freshly completed surfaces from paint droppings and dust to approval of Engineer. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Engineer.

Appendix A:

Analytical Data of Paint Samples

Success Through Science®

Your Project #: 5-664
Site Location: CAPE RACE
Your C.O.C. #: 5-664

Attention:Neil Hunt

AFN Engineering Inc
29 Brad Gushue Crescent
St. John's, NL
A1H 0A3

Report Date: 2014/12/12
Report #: R3254915
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4N1675
Received: 2014/12/08, 08:44

Sample Matrix: Paint
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Metals Leach TCLP/CGSB extraction (1)	2	2014/12/10	2014/12/11	ATL SOP 00058	EPA 6020A R1 m
Metals Paint Acid Extr. ICPMS (1)	2	2014/12/09	2014/12/09	ATL SOP 00058	EPA 6020A R1 m
TCLP Inorganic extraction - pH (1)	2	N/A	2014/12/09	ATL SOP 00035	EPA 1311 m
TCLP Inorganic extraction - Weight (1)	2	N/A	2014/12/09	ATL SOP 00035	EPA 1311 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Maxxam Bedford

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Avery Withrow, Project Manager
Email: AWithrow@maxxam.ca
Phone# (902)420-0203 Ext:233
==========
This report has been generated and distributed using a secure automated process.
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 49-55 Elizabeth Ave, Suite 101A, St.John's, NL, Canada A1A 1W9 Tel: 709-754-0203 Toll Free: 888-492-7227 Fax: 709-754-8612 www.maxxamanalytics.com

Maxxam Job #: B4N1675
Report Date: 2014/12/12

AFN Engineering Inc
Client Project #: 5-664
Site Location: CAPE RACE
Sampler Initials: NH

ATLANTIC TCLP LEACHATE + LEAD (PAINT)

Maxxam ID		YT5318	YT5319		
Sampling Date		2014/12/04	2014/12/04		
COC Number		5-664	5-664		
	Units	**TOWER-1**	**RAILING-1**	**RDL**	**QC Batch**
Inorganics					
Sample Weight (as received)	g	15	15	N/A	3852855
Initial pH	N/A	NA	NA		3852863
Final pH	N/A	5.7	5.0		3852863
Metals					
Leachable Lead (Pb)	ug/L	400	840	5.0	3852931

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B4N1675
Report Date: 2014/12/12

AFN Engineering Inc
Client Project #: 5-664
Site Location: CAPE RACE
Sampler Initials: NH

ELEMENTS BY ATOMIC SPECTROSCOPY (PAINT)

Maxxam ID		YT5318	YT5319		
Sampling Date		2014/12/04	2014/12/04		
COC Number		5-664	5-664		
	Units	**TOWER-1**	**RAILING-1**	**RDL**	**QC Batch**
Metals					
Acid Extractable Lead (Pb)	mg/kg	5500	930	5.0	3852735

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N1675
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AFN Engineering Inc
Client Project #: 5-664
Site Location: CAPE RACE
Sampler Initials: NH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	15.4°C

Sample YT5318-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample YT5319-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Results relate only to the items tested.

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Maxxam Job #: B4N1675
Report Date: 2014/12/12

AFN Engineering Inc
Client Project #: 5-664
Site Location: CAPE RACE
Sampler Initials: NH

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3852735	DLB	Matrix Spike [YT5318-01]	Acid Extractable Lead (Pb)	2014/12/09		NC	%	75 - 125
3852735	DLB	Spiked Blank	Acid Extractable Lead (Pb)	2014/12/09		104	%	75 - 125
3852735	DLB	Method Blank	Acid Extractable Lead (Pb)	2014/12/09	<5.0		mg/kg	
3852735	DLB	RPD [YT5318-01]	Acid Extractable Lead (Pb)	2014/12/09	4.6		%	35
3852931	DLB	Matrix Spike	Leachable Lead (Pb)	2014/12/11		98	%	75 - 125
3852931	DLB	Spiked Blank	Leachable Lead (Pb)	2014/12/11		99	%	80 - 120
3852931	DLB	Method Blank	Leachable Lead (Pb)	2014/12/11	<5.0		ug/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

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Maxxam Job #: B4N1675
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AFN Engineering Inc
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Sampler Initials: NH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Eric Dearman, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Appendix B:

General Pictures

DANGER
FALL HAZARDOUS
KEEP DOOR

Appendix C:

Interim Personal Protection Guidelines Associated with Mercury

INTERIM PERSONAL PROTECTION GUIDELINES ASSOCIATED WITH MERCURY IN CG LIGHTHOUSES CONTAINING OR HAVING PREVIOUSLY CONTAINED A MERCURY BATH

INTRODUCTION

SCOPE

These interim personal protection guidelines deal with the hazards associated with metallic mercury (Hg) and must be adhered to by DFO personnel and/or contractors who must carry out work in/or enter DFO lighthouses.

This document only applies to situations where entering the Lighthouse is required to perform minor functions (see *definitions* below).

The following guideline <u>does not</u> apply for maintenance type of work, which require the mercury to be removed from the mercury bath. Trained personnel should do this type of work only.

Work under this section shall also conform with all relevant requirements of Section 01357.

DEFINITIONS

Major maintenance: any intervention dealing with the mercury bath

Minor maintenance: changing a light bulb, changing a lock on the door, minor renovation, paint scraping, general clean up, etc.

HAZARD DESCRIPTION

Mercury is a silvery white metal and is the only pure metal that is liquid at ordinary temperatures. Mercury vapour can be highly toxic and precautions must always be taken to avoid the inhalation of vapours and direct skin contact with the metal. Mercury evaporates, at ordinary room temperatures and the concentration of vapour produced in a closed unventilated room could exceed the recommended exposure limit of 0.025 milligrams per cubic metre (mg/m^3) for a conventional 8-hour workday / 40-hour work week.

INTERIM PERSONAL PROTECTION GUIDELINES ASSOCIATED WITH MERCURY IN CG LIGHTHOUSES CONTAINING OR HAVING PREVIOUSLY CONTAINED A MERCURY BATH

Consult your regional Health & Safety Advisor for Specific information on Personnel Protection Equipment

1. PERSONAL PROTECTIVE EQUIPMENT

1.1 Type of Equipment

As per Treasury Board Personal Protective and Clothing Directive, respiratory devices must be selected, fitted and maintained according to the current CSA Standard 94.4 "Selection, Use and Care of Respirators".

All personnel working in the light tower must wear the following personal protective equipment:

- Tyvek coveralls which are capable of chemical resistance to elemental mercury,
- Rubber gloves or a suitable alternative,
- protective footwear and Tyvek booties,
- Each individual during grinding and blasting must wear a full mask cartridge* type of respirator equipped with end-of-service-life indicators, which will provide air-purifying protection against low-level mercury vapors.

  * The cartridge has to be changed when it becomes saturated. Verify the **color change exposure indicator** on the cartridge to that effect. **(These cartridges must meet National Institute of Occupational Safety and Health (NIOSH) approved equipment e.g. the cartridge 6009 3M ™ for mercury vapor; has color change exposure indicator.)**

NOTE: Respiratory protection devices are considered **personal items** and should not be shared among personnel. Each employee must wear a device that was **fit tested** by a qualified person for his/her use. Specific type respirators are not available on the market for men wearing a beard; employees to be fitted with the device should therefore not wear a beard.

1.2 Storage and Disposal of Equipment

- All personal protective equipment must be kept in a secure place in the workplace where it will not enter in contact with hazardous substances and personal belongings.

- The personal protective equipment should be worn and kept inside the light tower to avoid the possibility of mercury contamination being spread to vehicles, exterior soils and adjacent buildings.

INTERIM PERSONAL PROTECTION GUIDELINES ASSOCIATED WITH MERCURY IN CG LIGHTHOUSES CONTAINING OR HAVING PREVIOUSLY CONTAINED A MERCURY BATH

2. PROTECTION MEASURES FOR ACCESS TO SITE

NOTE: At the **planning stage of any maintenance work,** contact your **Regional Safety and Health Advisor** who, taking into account the scope of available data on the contamination level of the lighthouse, will provide proper safety precautions **and** the protection measures to apply. ***The following measures do not include cases where manipulation of the mercury bath or any type of work involving some kind of intervention on the mercury bath.***

2.1 Employees should wear the personal protective equipment listed in Section 1.1.

AND ensure the following safety measures:

- activity must be performed under optimal ventilation conditions ;
  - at the beginning of each day the contractor or an employee of the contractor is required to open door for one (1) hour prior to entering. Then all windows and vents can be opened to increase ventilation. After windows and vents are opened the contractor must ventilate the tower interior for a minimum of thirty (30) minutes before commencing work. This may include forced air ventilation if required.
  - The door at the base of the tower must be left open during this ventilation process. At this time the contractor is required to wear personal protective equipment as per Section 1.1-Personal Protective Equipment.
- limit as much as possible the time spent in the lighthouse;
- limit as much as possible movement within the lighthouse.

INTERIM PERSONAL PROTECTION GUIDELINES ASSOCIATED WITH MERCURY IN CG LIGHTHOUSES CONTAINING OR HAVING PREVIOUSLY CONTAINED A MERCURY BATH

4. SMALL SPILL EMERGENCY

Every employee who attends to any mercury spill emergency cleanup must have been trained on personal protection for elemental mercury exposure AND proper spill procedures and cleaning techniques

4.1 Reporting

- all spill incidents must be reported to:
  - Managers; Supervisor/Superintendent;
  - Environment group;
  - Occupational Safety Advisor.
- medical follow up is required for those attending a spill

INTERIM PERSONAL PROTECTION GUIDELINES ASSOCIATED WITH MERCURY IN CG LIGHTHOUSES CONTAINING OR HAVING PREVIOUSLY CONTAINED A MERCURY BATH

6. OTHER SECURITY MEASURES

6.1 General Security

Employees are required to work in pairs at all times when attending to maintenance in the lighthouses.

6.2 Signage

Mercury bath: Hg basin must be labelled with WHMIS compliant signage.

Outside the tower: Towers where mercury is still used or where it has been removed but not decontaminated should be identified with signage to indicate its presence.